BEING-IN-THE-WORLD: UNDERSTANDING ATTACHMENT THEORY AND LEARNING AS BEING-IN-NATURE

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Abstract. Through being in a relationship with the world, diverse but extremely differentiable concepts of nature arise based on bonding, attachment and learning processes. This paper takes up existing concepts of nature as worldviews and, based on attachment-theoretical considerations, shows how inner working models emerge, each of which promotes and forms a specific understanding of nature. It can be shown that the respective configurations of nature concepts are closely and deeply connected with the personal and cultural attachment and relationship styles. The article provides an in-depth introduction to attachment theory and the organon model, both are used to clarify the phenomena, as are the attachment theory and the cultural-theoretical analyzes of biophilia. Based on the phenomenological discussion, learning-theoretical derivations are possible, which enable an extended understanding of transformative learning processes through inner working models about being human and being nature. Based on the integrative view of the phenomena, a modeling of the relations of nature concepts is offered as a finding. The article concludes with a reference to the fact that the human subject always includes and reflects on himself as soon as he thinks about his own relationship with the world.

INTRODUCTION

Regarding the still diverging, partly incongruent goal perspectives, guiding and target images of environmental education as well as education for sustainable development (ESD) and nature education, it should be possible to promote an ecologically holistic awareness from childhood onwards, drawing on the understanding of concepts of bonding and cultural theory as well as ideas of Gestalt-perception in order to be able to reconcile basic and future development tasks. For ESD in particular, an understanding of attachment theory seems highly valuable and plausible, as it primarily aims at design competencies and intervention possibilities, which enables all learners to experience and learn (Schratz, 2018; Schratz & Wiesner, 2020, 2021) to actively participate in a competent, reflective, emancipative, and participatory manner through part-participation, empathy, and empathy in the conservation and protection of nature as biodiversity and natural resources through reflected and projected environmentally conscious actions in the future (Gebauer, 2020; Wiesner & Gebauer, 2022). Evidence for this assumption can be found, among others, in the studies by Gebauer (2005, 2007), Gebauer & Harada (2005b, 2005a) and meta-analyses by Chawla (1998) and Wiesner & Gebauer (2022) regarding the significant nature experiences in childhood and adolescence in the sense of significant life experiences (Tanner, 1980).

Being human is being in a relationship. Being in relationship enables cultural sustainability. According to Lewin (1942, 1943), growing into a culture is determined by the relationship to the world, group membership, and the values that are developed from being in a relationship – it is a being-in-the-world (Wiesner, 2019, 2020b). Culture can therefore also be understood as the "way of tradition" (Lewin, 1942: 111) of a human community and as the respective specific "way of life of a collective" (Antweiler, 2017: 899) as well as "shaping of existence" through "collective habits" of experiencing and being experienced. Cicero's (1998) statement "culture autem animi philosophia est" (1998: 124) in his work Tusculanae disputationes means the intellectual realms of a community that shapes human potentials through nurturing (Klein, 2006). Community and culture are therefore clearly distinct from society (Tönnies, 1887; Dilthey, 1914; Elias, 1939a, 1939b) and emerge in the "triadic mode between 'I'-'You' and the world" (Seubert, 2014: 144). Culture emphasizes the multiplicity of subject-being, person-being in relation and in relation to inter-subjectivity and inter-personality. Culture is a "fabric of [collective] meaning complexes" (Lüddemann, 2010: 11) that provides "coherent meaning" within a community as a context. This paper will combine the cultural

perspective of sustainability with attachment theory to demonstrate the emergence of concepts of nature.

Every wanting-to-understand and wanting-to-clarify a cultural sustainability leads to basic phenomena of being human, which in turn form world views as so-call Weltanschauung (in German). Each basic phenomenon has a "multidimensionality and complexity" (Rombach, 1977: 21), but its complex variety is frequently not perceived. The basic phenomena of closeness, distance, and exploration in particular form a multifaceted full structure through their respective diversity. The basic phenomena are "interrelated" (p. 23) and form possible "ordering schemes" (Rombach, 1974: 50) of thinking, feeling, and sensing. Together, the three basic phenomena form the attachment and relational strategies of human beings, and from these develop both internal models of being-in-relation and differentiable positionalities of learning (Wiesner & Schreiner, 2020). Accordingly, the task of phenomenology is not to clarify only one world, but to trace "all possible worlds" (Rombach, 1974: 55) in terms of world views, world views, and concepts of nature and to question them critically and emancip with regardative to their claims to validity. This "Socratic questioning is a questioning, that is, not a questioning about things, but about conditions of the possibilities of knowledge" (p. 51; erg. by the author), in order to fathom attitudes in and through concepts of nature as inner models of the natural world.

The phenomenon of attachment and relationship is mostly taught in developmental psychology, but hardly considered in the field of applied research and practice to understand learning as well as perspectives on the world. Phenomenology as the "methodology of bringing into appearance" (Rombach, 1980: 23) enables the basic phenomena of attachment and their relationality to each other to be shown as different "basic forms of human cognition and experience" (p. 32) for practice. The structural dynamic approach in this paper "lifts the web of basic phenomena" (p. 33), and the gained insights enable us to deal more clearly and accurately with worldviews and worldviews and the concepts of nature that emerge from them in order to develop and establish cultural sustainability through the mutable (Wiesner, 2020b). The phenomenological approach is "therefore always two-sided, it analyzes the structure of the way of knowing and thinking (noesis) and it analyzes the structure of the way of reality and givenness (noema)" (Rombach, 1980: 35). The orientation hypotheses in this paper link attachment theory, human learning, and multiple concepts of nature and rely on the "inter-relationship[s] between [these] different phenomena" (Opp, 1999: 199; Wippler, 1978; ed.) to generate synthetic statements across theories and models (Matthes, 1978; Merton, 1968). Since the idea of cultural sustainability doesn't follow a technical-instrumental understanding rather than primarily a social, ethical, and cultural concept, it is always a "human affair" (Jaspers, 1982: 72) and an in-relation-being.

Bowlby's (1987) attachment theory was concerned with observable phenomena, i.e., the dynamics of closeness, distance, stability, and exploration as well as anxiety, security, caring, empathy, and sensitivity, and in particular, the directionality and structure of relationships. Human learning in and through relational experiences functions as a "key function in the development of attachment" (p. 24). The goal of attachment theory is a prospective understanding of the mutable through attachment and relational experiences. From attachment theory, the conceptual multiperspectivity of nature can be fathomed. Therefore, a deeper understanding of attachment theory is necessary to comprehensively understand its connection with the concepts of nature as well as to prudently derive future recommendations for action.

Comprehensive development of attachment theory took place through Ainsworth et al. (1978), Sroufe & Waters (1977), George, Kaplan, & Main (1996) as well as Crittenden (1990, 2008). This focused on valuation processes and the differentiation of perceived security into several so-called attachment strategies. In addition to closeness, distance, and exploration, attachment theory focused on the activation of the autobiographically shaped experiential, social, and affective system (Fonagy, 2001), which is especially significant for transformative learning (Wiesner & Prieler, 2020, 2021). Also essential is the idea derived from it of a conceptual model about the respective being-in-relation (Bowlby, 1973), which structurally connects experiences with the world and with others as well as with the self (and the ego) as inner working models based on the interaction of interaction systems of the personality (Kuhl, 2001; Wiesner & Dammerer, 2020). From these inner working models, the structural "frames of reference" according to Mezirow (1978: 7; Wiesner & Prieler, 2020: 6) are formed in transformative learning.

The experience of closeness and distance have a significant influence on the inner working models. Proximity provides a "secure base" (Bowlby, 1987: 25) for exploration and inquiry into the world while also providing a "safe haven" (Ainsworth, 1985: 320) for grief, fear, anger, disgust, and comfort (Wiesner, 2020b). Emotions, moods, feelings, and in particular the primary emotion of fear (anxiety) are not to be understood in attachment theory as disorganizing, "but rather as reorganizing" (Sahhar, 2012: 143), that is, as "powerful motivators of future behavior" (LeDoux, 2006: 27). Precisely proximity (security) and distance (insecurity) are each endpoint of a continuum, as is the range of different orientations for exploration possibilities.

Attachment Strategies

The attachment theory according to Bowlby (1969) and Ainsworth (1985; Ainsworth et al., 1978) opened the description of three main strategies of attachment and relationship (A, B, C) as well as several subgroups of attachment (A+,

B+, C+) by the detailed observation of infants. In addition to secure attachment (B3) with its sub-genres (B1-B2 and B4-B5), the insecure-avoidant A-strategies as well as the insecure-ambivalent C-strategies could be described and explained as deviations, as well as the disorganized pattern as D-strategies by Main and Solomon (1986) as a supplement (Wiesner & Gebauer, 2022).

The strategies point as directions and orientations from the ideal-secure, comfortable bonding (B3) either in the direction of the A-strategies, i.e., a strong reliance on the semantic-syntactic aspects. This means mainly the (also distortive) cognitions as well as an avoidance of the experience. At the same time, the direction of the C-strategies is equally possible, i.e., the reinforcement of the episodic-pragmatic aspects leading to rather changing, ambivalent, often not truthful (and also to distortive emotions and the resulting cognitions). Secure attachment and relationship now have highly facilitative, reliable, as well as cooperative-supportive aspects toward others and build on an inner security, accountability, and commitment (Horowitz et al., 1993).
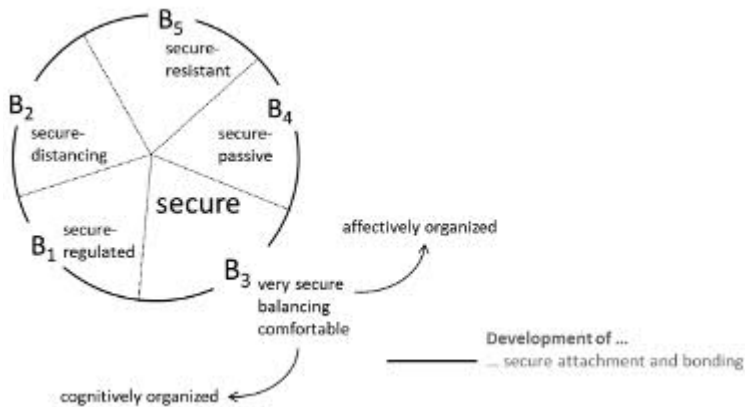

Fig. 1. Secure Attachment and Bonding (own representation based on and adopted from Wiesner, 2020a; Wiesner & Gebauer, 2022)

Securely attached individuals can balance the B strategies with reference to context, situation, and temporality and generate the internal working models from the availability and efficacy of social support, community, encouragement, and appreciation (Ognibene & Collins, 1998; Priel & Shamai, 1995). As a protective factor, the secure relationship facilitates high resilience through coherent, open, and consistent narratives, easy access to memories, high levels of reflectivity, a confidence in one's own development, prosocial action, and a high capacity to integrate pleasant experiences and unpleasant adversities (Strauß & Herpertz, 2017; Suess et al., 1992). At the same time, a link to higher levels of creativity and curiosity can be assumed (McCrae & Costa, 1985; McCrae & Greenberg, 2014; Torrance, 1976) as

well as higher levels of planned, more successful action and problem-solving than insecurely attached individuals (Jacobsen et al., 1994; Zimmermann et al., 2001).

The range of action of ideal-secure, comfortable attachment as B3 includes at the same time the possibility to include also secure (reserved) regulated (B1) and secure (reserved) distancing (B2), secure (reactive) passive (B4), and secure resistant/defensive (B5) aspects and strategies of being-in-relationship, and thus to use parts of a whole that can be understood as secure attachment and relationship, both situationally and contextually as well as temporally limited. All B+ strategies are therefore part of the dynamics of human personality and support all human possibilities and movements of learning, communication, and interaction (Wiesner & Schreiner, 2020; see Figure 1 and Table 1).

The insecure-entangled, anxious-ambivalent attachment and relationship pattern (C+ strategies) is characterized by changeable sensations, a high and affect-rich self-disclosure also with a tendency to inappropriate disclosures and sociability in the sense of apperceptive completion, inconsistent and incoherent representation of memories and relationships, a high, spontaneous expressive ability as flooding, and by a high need for affirmation and positive evaluation by others, which may lead to a rather negative self-image (Bartholomew, 1990; Bartholomew & Horowitz, 1991; Hazan & Shaver, 1987; Strauss & Herpertz, 2017). Perceived ambivalence can give rise to both anxious-insecure, passive-needy, disarming-helpless, and social-dependent expressions in C-strategies, as well as expressive, spontaneously dominant, threatening, punitive, and abusive strategies (Crittenden, 1990, 2008; Horowitz et al., 1993; Wiesner, 2021b). In this pattern as experiences in the mode of "pathos without response" (saying), with reference to Waldenfels (2019: 229) the experience storms in on the patient*s, both the response as (cognitive responsiveness) as well as the pathic as the sensed can thereby be emptied to the arbitrary, thereby in particular the responsiveness is omitted. The C-strategy focuses on the primary emotions of anger, anxiety/fear, and grief (Wiesner, 2020b) as well as denied true cognitions and the search for the sensation of closeness in order to obtain comfort if possible. The C1 (ambivalent-resistant) subgroup, for example, very clearly and actively displays the ambivalent, changeable, and threatening of the C strategy through anger, rage, and fury in order to force affection if possible. In the toddlers assigned to the C2 subgroup (ambivalent-passive), the contradictory and unstable are again expressed by a high disarming passivity (signals of helplessness), which is combined with an active desire for closeness with simultaneous resistance to closeness. The C3-4 strategy means that persons are hardly able to shift to disarming behaviour when it would be necessary or they are disarming and almost lacks to display anger when it would be needed. The C5–6 strategy is on the other hand based on an incomplete understanding of why things happen the way they do. Hence, persons using the C+ strategies (effectively organized) are biased toward acting based on their emotions, feelings and ideas, which are represented

by imaginations and past episodes. Individuals using the C+ strategy are splitting the responsibility and so the self is mostly an innocent victim and the problems can´t really be fixed by oneself. The arousing states become more prominent as the numeral increases from C1–6 and the extent of distortion of thinking increases.

The avoidant-indifferent relationship pattern (A1 and A1+ strategies) is characterized by little closeness and overregulation of affect (emotions, feelings). However, there is a pronounced regular distancing, high self-confidence, and marked competitiveness and striving for order (Horowitz et al., 1993; Strauß & Herpertz, 2017). This often results in a conspicuous (but only apparent) autonomy as independence from others, which is characterized by little trust in others as well as a negative view of others. A3-4 is based on (distant felt) compulsive caregiving, compulsive compliance or compulsive performance (close to A5). This A3-4 strategy means that language and thinking are often characterized by borrowed parental speech and/or rules. (Bartholomew, 1990; Bartholomew & Horowitz, 1991; Main, 2000; Crittenden, 2008; Wiesner, 2020a).
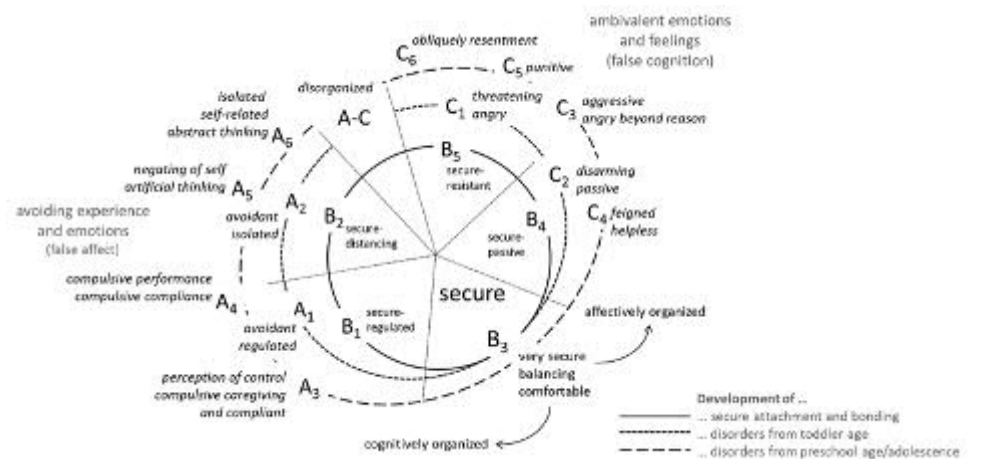

Fig. 2. The Patterns of Attachment and Bonding (own representation based on and adopted from Wiesner, 2020a; Wiesner & Gebauer, 2022)

Exploration or apparent autonomy is opposed to closeness and relationship orientation. In the avoidant-anxious relationship pattern (A2 and A2+ strategies), on the other hand, the focus is on protection from rejection by others, resulting in distancing and isolation, but at the same time also in a high sensitivity regarding social acceptance, devaluation. On this basis, low self-confidence and low affect, low readiness to respond, a negative image of self and others, and devaluation of help and support usually develop. The Language of the A5-6 strategy is characterized by artificial and abstract thinking. (Bartholomew, 1990; Bartholomew & Horowitz, 1991; Hazan & Shaver, 1987; Crittenden, 2008; Strauß & Herpertz, 2017) In this context, a more in-

troverted, yet explorative, the pattern is formed with a focus on knowledge, achievement, and fulfillment, which is nevertheless characterized by a socially-avoidant, avoidant attitude (Horowitz et al., 1993; Wiesner, 2021b). Children in subgroup A2 tend to move back and forth, leading to more passive avoidance through ignoring, while displaying apparent (strategic) social competence based on an increased tendency to know and explore. The two avoidant relationship patterns fundamentally point to a high degree of distancing from closeness, experiencing, and emotional feeling. Persons with A+ strategies often hold themselves responsible for things and actions they can't change, which gives them a perception of control, which is on the other hand a false control. A problem for persons of the A+ strategies (cognitively organized) is the naming of emotions and feelings their access to affects is clearly semantically regulated. With reference to Waldenfels (2019: 229), the avoidant strategies empty the experience in the mode of "response without pathos" (said), since in this mode hardly own and other's affects are taken in. Empathizing and being able to participate is to be understood in terms of Bühler's principle of abstract relevance. Experiencing and experiencing circles around oneself in a distancing, narcissistic, isolating, also compulsive and solitary way, the answers develop "into stereotypes that are stockpiled and, as it were, frozen".

A fourth group is the so-called disorganized-disoriented attachment (D+ or A-C), which emerged, among other things, from "working with children with particular experiences of fear, neglect, and maltreatment" (Wiesner & Gebauer, 2022: 439). The D strategy now has characteristics of both A and C and currently no longer forms the main group of its own, but is considered a hybrid (A-C). This strategy forms either "a highly-uncertain situational Ax/Cy strategy (with hyphen to emphasize situationality) or a general, involved, and situation-independent AxCy strategy" (Wiesner & Gebauer, 2022: 439). All A+ and C+ attachment strategies can be accompanied by depressive-like, anxious, resigned, and sad exhaustion symptoms, as maintaining specific strategies for self-protection are always exhausting as well as fatiguing (Zach, 2012; see Figure 2).

Table 1. Interaction, communication and punctuation of attachment and bonding strategies (own representation based on and adopted from Gloger-Tippelt, 2008, S. 88; Wiesner & Gebauer, 2022)

Attachment and bonding strategies	closeness	distance	exploration
A (*avoiding, reserved*)	low	high	high
B (*secure*)	balancing	balancing	balancing
C (*ambivalent, ambiguous*)	medium to high	low	low to high

The strategies A, B and C are described as organized, the mixed form D is considered as disorganized, nevertheless in D there is also a specific-organized interac-

tion of A- and C-strategies. Both avoidant and ambivalent children do not develop the same level of self-esteem, social competence, or empathy skills over the life course as securely attached children. All strategies are adaptations to developmental conditions as well as living conditions and have an autobiographically understandable (protective) function. In any case, the pathologizing of attachment strategies has to be put aside and sufficiently argued in order not to establish something pathological, which carries the trait of the unchangeable and constant (Wiesner, 2020b). Attachment strategies A and C may be accompanied by depressive-like, resigned, anxious, and sad exhaustion symptoms, as maintaining specific strategies for self-protection is always tiring and exhausting (Zach, 2012). Recognizing attachment strategies support working with the changeable, the resource-oriented view away from mere pathologizing and toward caring nurturing. It seems essential that concepts of nature and being in relationship with nature can be mapped through relational and attachment strategies.

Other conceptualizations and representations of attachment and bonding give a deeper insight into the alignments and implications for worldviews and concepts about nature. Bartholomew & Horowitz (1991; Bartholomew, 1990) proposed a model of attachment with two underlying dimensions based on Bowlby's theory (see figure 3, A.). The model is a dichotomization of views of avoidance or distancing and closeness as antagonists (from trustworthy to distant), and of views of others and the world in terms of stability and change. The horizontal axis describes a style of attachment that can vary from very close to very distant, and with it arises the possibility of a negative or positive view of the other or the world. On the other hand, the vertical axis can be understood as creating a separation between avoidance and closeness, in terms of attachment there are two poles, that is, the possibility of a self-positive and a self-negative view as a starting position. The position of the self-positive perspective grants more of one's own stability and grounding, as well as the preservation of the self, than the dynamics of the self-negative perspective.

The *preoccupied (ambivalent) style* is characterized by an overinvolvement in relationships, mostly as a dependence on other people's acceptance for a sense of personal well-being, a high self-disclosure (with showing a tendency to disclose inappropriately), a tendency to idealize other people (or animals and plants) and the use of others as a secure base, exaggerated emotionality and die capacity of high emotional expressiveness, but often no high degree of self-control or emotional regulation and a low feeling of coherence. The *dismissing (avoidant) style* can be characterized by a downplaying of the importance of relationships, low warmth and low (real) caregiving, restricted emotionality and an emphasis on self-reliance, but by a high degree of control and regulation. The *fearful style* means an avoidance of close relationships because of a sense of personal insecurity, a fear of rejection, and a distrust of others including low self-disclosure, a hypersensitivity to social approval and a low capacity to rely on others (distorted social relations). The fear-

ful style is characterized by a negative, cognitive-organized coherence. The secure style, on the other hand, means a high level of coherence, warmth and self-confidence. Wiesner (2020; Wiesner & Gebauer, 2022) has combined the conceptualizations of different approaches to offer a deeper understanding of attachment theory and bonding through a new visualization as a Gestalt (see figure 3, A., B. and C. in combination with figure 2).
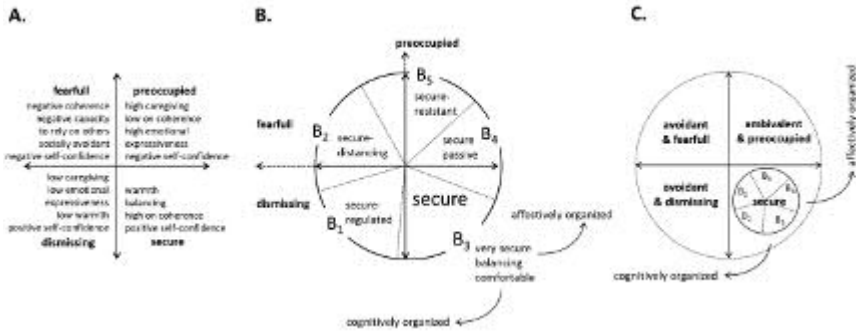

Fig. 3. A deeper Understanding of Attachment and Bonding through various visualizations (own representation based on and adopted from Bartholomew & Horowitz 1991; Wiesner, 2020a; Wiesner & Gebauer, 2022)

The understanding and application of attachment theory, however, enables a caring and sensitive support as well as a resource-oriented view of the changeable beyond mere pathologizations and seemingly fixed disorders and labels. Considerations of attachment theory open up interventions and impulses, especially for nature education and ESD. With a renewed focus on ESD and nature education, it can now be assumed that there is a deep connection between the capacity for attachment and relationship and the kind of nature experience actually experienced and felt, whereby a deep understanding of being in nature and of nature relationships can be developed to promote ESD (Gebauer, 2007, 2020; Gebauer & Harada, 2005b; Wiesner & Gebauer, 2022). The respective perspective on the understanding of relationship opens up different perspectives on nature-relatedness grounded in cultural theory as deep structures and worldviews (see Figure X), as "concepts of nature and being-in-relation-with-nature become mappable through relationship and attachment strategies" (Wiesner & Gebauer, 2022: 439). The configurations of nature concepts are thus closely and deeply connected to the respective personal and cultural attachment and relationship styles.

The development of internal mental working models

Bowlby (1969, 1988) successively replaced Freud's (1940) basic psychoanalytic model of psychic drive energy (Triebe as drive or reflexes) with the internal

mental working models (IWM; Internal Working Models) in attachment theory over several decades. The idea of these intersubjectively emerging working models is a highly original conceptualization, which actively turned away from the theory and concepts of psychoanalysis, as this "body of thought [...] easily leads to false associations" (Grossmann & Grossmann, 2003: 30). Specifically, Bowlby's (1980b) psychoanalytic interpretation of personal relationships leads to a negatively connoted idea of dependency or pathologizing, that's why attachment theory established an alternative model of closeness, distance, and exploration.

Inner working models make a special contribution to this, as they are formed as partial and whole entities based on different and recurrent forms of human learning in terms of contingency experiences in situations through interaction, punctuation, and communication. Internal working models are habitualized internal structures of formerly experienced parental/human care, cooperation, participation, and empathy. The structure is formed through perceptual images, imaginative activity (thoughts), mental representations, sensations, feelings through being in relation to one's self (and ego), to others, and to entities in the world. Entity always refers to "something that is or exists" (Blume, 2003: 325). Working models create value orientations, attitudes, and worldviews and worldviews (Watzlawick, Bavelas, & Jackson, 1969; Wiesner, 2020b, 2020a). Through these working models, individuals are presently able to trace, ruminate, empathize, and reflect on the past and future. Bowlby (1980a: 60) distinguishes between an "Episodic and Semantic Storage" (see Figure 1; Tulving, 1972, 1986; Greenberg & Verfaellie, 2010):

> A corollary of the distinction between episodic and semantic storage, and one likely to be of much clinical relevance, is that the storage of images of parents and of self is almost certain to be of at least two distinct types. Whereas memories of behavior engaged in and of words spoken on each particular occasion will be stored episodically, the generalizations about mother, father and self […] will be stored semantically (Bowlby, 1980a: 61).

Thus, on one hand, working models are based on interactional relationships and create affective structures, i.e., imaginative models that are based on episodic and pragmatic experiences (Bischof-Köhler, 2011; Bowlby, 1980a). Under unfavorable conditions, this can lead to the formation of ambivalent, affectively shaped structures. In Being, we tend to take an aggressive-passive and thus ambivalent as well as too close (confluent, symbiotic) standpoint to entities (Wiesner, 2021b). On the other hand, the cognitive and behavioral aspects, as semantic and syntactic "abstractors" (Bühler, 1933: 57), basically are abstract thinking and thoughts, whereby, under maladaptive conditions it is about the avoidance of experiencing (Bowlby, 1980a; Denker, 2012; Wiesner, 2021b). In Being, we then tend to choose a distancing point of view (Wiesner, 2021b).

Therefore, the two aspects don't need to coincide in the inner working model, as there are two different sources and starting points: In Popper's sense (1969e, 1969c, 1969f, 1969a, 1969d, 1969b, 1982), the world of experience is profoundly distinguishable from the world of the abstract and the world of things and facts in perception (Wiesner, 2021c). At the same time, the differentiable sources become a common whole, leading to the following conclusion:

> In most individuals, we may suppose, there is a unified Principal System that is not only capable of self-reflection but has more or less ready access to all information in long-term store, irrespective of its source, of how it is encoded and in which type of storage it may be held. We may also suppose that there are other individuals in whom Principal Systems are not unified so that, whilst one such System might have ready access to information held in one type of storage but little or no access to information held in another, the information to which another Principal System has, or has not got, access might be in many respects complementary. The two systems would then differ regarding what each perceived and how each interpreted and appraised events […]. In so far as communication between systems is restricted, they can be described as segregated (Bowlby, 1980a: 62 f.).
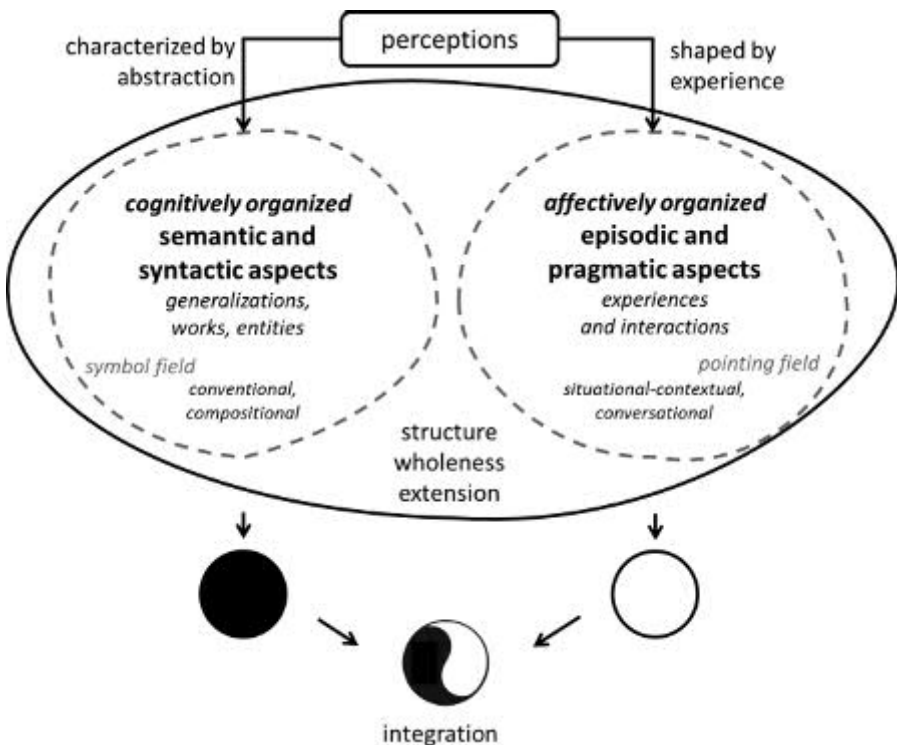

Fig. 4. The Inner Working Model (own representation based on and adopted from Wiesner & Gebauer, 2022)

The meaning we give to what we experience, feel, think, intend, and want "influences what we do, say, think, and feel" (Howe, 2015) and how we learn. Working models use the data and information fed from perception to create internal simulations of the imagined stage of life, which can then be interpreted, construed, re-interpretated, and also changed. Thus, imagination activity opens up mental rehearsal action (Piaget, 1947; see Figure 4).

Inner working models are thus a kind of orientation and working hypotheses for relationships and interactions with the self, others, the stranger and the world, i.e. with being-in-nature. Because inner working models "influence the way a person gains experience and, therefore, the way a person behaves, they can act as self-fulfilling prophecies, and thus are difficult to change once they have come into being" (Ainsworth, 1990: 383).

Inner working models are "inseparable from the values held in a culture, society, and family" (Grossmann & Grossmann, 2017: 495). Inner working models also contain, as relational strategies, the "unlovable, unvaluable, and dishonorable" (Fonagy, 2001: 19) aspects of the self (and ego), as well as the attention to, as well as aversions and rejections from, others, things as well as turning to nature or the threatening of nature. Inner working models already lead to a "theory of relation" (Wiesner, 2020b: 8) as the first form of a "pre-rational theory of mind" (ibid.) based on the formation of object and person(s) permanence. Because internal working models "influence the way a person gains experience and therefore the way a person behaves, they can act as self-fulfilling prophecies, and are thus difficult to change once they have emerged" (Ainsworth, 1990: 383). Nevertheless, attachment theory assumes that while there is stability and continuity in inner working models over time, "change is possible at any time despite continuity" (p. 393). The inner working models also contain the respective expression of the concepts of nature.

> An everyday example of a large discrepancy between information in episodic storage and what is in semantic storage is found in the images we have of the earth we live on (Bowlby, 1980a: 62).

The understanding of inner working models has been clarified and developed by the work of Sroufe & Waters (1977), Crittenden (1990, 2008), Bretherton (1991), Main, Kaplan, & Cassidy (1985), Main (1991), Sroufe (1990, 1996), and Fonagy (2001), among others. Essential to this is the following idea: "Brain processes are [...] analytical [differentiating] and integrative" (Bretherton & Munholland, 2016: 72; ed.). From the existing literature, a balance of four different interaction systems of personality can be derived for the inner work models (Wiesner & Gebauer, 2022):

● the behavioral system (cognitively organized), which refers to past interactions through a system of routines and patterns as well as a (rule-based) deci-

sion-making system and continuously differentiates as well as refines itself and generates expectations from it (syntactic and regulating aspects)

● the analytic-abstract as well as reorganizing system (cognitively organized), which enables understanding of the self and others through attributions of "causal motivational attitudes" (Fonagy, 2001: 20), chains of reasoning, and knowledge about cognition, as well as opens up active cognitive exploration, abstraction, and explicit thinking about concrete situations (thoughts), as well as active imaginative activity (simulation) and differentiation of one's own internal states from those of the self (objectivation, semantic aspects)

● the event and experience system (affectively organized), which creates episodically conceptions, perceptual images, sensations, emotions and ideas, recognizes potential dangers, and combines them with "general[s] and specific[s] attachment-relevant memories" (Fonagy, 2001: 20) and feelings as well as "mood, illness, or [...] fantasy" (p. 20 f.) into a subjectively felt experience of security or insecurity. In this process, the past guides and influences present attachment experiences and relational experiences, but "does not irrevocably fix them" (p. 21; episodic-pragmatic aspects)

● the autobiographical system in the sense of a collective- and cultural-ly-trained (inter-)subjective as well as self-defining network of experiences, which semantically, episodically as well as isomorphically links events, experiences, episodes and feelings, such as the "sense of community", with each other as figures and from which the personal history continuously emerges (Buckner & Carroll, 2007). The spatially and temporally present as well as the past and the future (alternative positionings) are taken into account (extension: balancing the cognitively and affectively organized aspects). The experiential network serves, among other things, the analytic system to open up flexible retrospective strategies as well as the experiential system to enable prospective strategies through imagination, spontaneity, intuition, and sensation.

In the inner working models of insecurely attached persons, reference persons, reference things, reference places as well as the world are experienced either as rejecting and unsupportive (A) or as unpredictable and ambivalent (C) or in the form of increased helplessness (D). The negatively experienced sensations cannot be integrated into a hopeful basic attitude. In summary, internal working models include both affective and cognitive components and can be described as relational structures and schemas (Bretherton & Munholland, 2016). Specifically, the phenomenon of the transmission of inner working models between generations "as part of the socialization process" (Gloger-Tippelt, 1999: 82) should also be emphasized for the formation of concepts of nature. Relationships and world views can therefore be understood as "intergenerational transmission" (ibid.) of cognitive-emotional structures (Van Ijzendoorn, 1992; 1995). This thesis of "the transmission of attach-

ment types from the grandparent generation via the parents to the children [is] not only due to the concrete experiences with the attachment figures [...], but above all to their cognitive and affective processing" (Gloger-Tippelt, 1999: 74).

DEEPENING THE UNDERSTANDING OF INNER WORKING MODELS

In the sense and spirit of Karl Bühler, in every narrative, in every dialogue, in every discourse and in every world-view, a tripartism of signs can be found as soon as the experience, the desired, as well as the thought is brought to language (Waldenfels, 1998, 2017, 2019; Wiesner, 2021a). Bühler (1918b, 1934) grounds his phenomenological-sign-theoretical organon model through the ideas in Plato's (1993) work Cratylus, in which man's sense-tool, i.e., the "organum" (p. 24) is there "to communicate something to one another about things" (see Figure 5). Threefold the model determines the signs, namely by three largely independent sense-references, which are called by Bühler already in 1918 "Kundgabe, Auslösung und Darstellung" (expression, appeal, representation; p. 1) and basically appear in mixed form, but epistemologically form a relational whole, i.e. a wholeness (structure). With regard to the inner working models of attachment theory, expression stands for the figurative, episodic-pragmatic aspects, representation for the semantic-syntactic aspects, and appeal or triggering for behavior, demeanor, and to dominate or fabricate things. In the sense of Bühler (1912, 1918a, 1927), every human being appeals by means of these sources, namely through the representations (ideas, sensations, feelings) and through the thoughts that organize the abstract facts, concepts, and objects. For clarifying distinction: thoughts man grasps, imagination man has. The respective orientation determines the specific, value-laden "engagement with the co-human and material world" (Hannich, 2018: 61).

Therefore, in worldviews, it is essential to understand what ideas, events and experiences are enabled, expressed, and formed (affectively organization), upon which thoughts are then grounded and thinking is presented (cognitively organization). This understanding is also found in the cultural theoretical approaches and opens a deeper and broader understanding of impulses and interventions to promote nature relationships and nature connectedness (see Tabel 2 and Figure 7). Thus, Bühler's living organon contains as basic phenomenological references "the agent I, in addition the addressee you [as well as me-self] and in correlation to the whatabout, wherein" (Bühler, 1933: 81; ed.) all objects and facts are located. The addressees can

be several or other entities at the same time, but they can also mean listening to oneself, speaking to oneself, sensing oneself, as well as the perception of one's own triggers – that is, one's own behavior and conduct, which is what makes self-reflection and self-regulation possible in the first place. Only if we perceive how we say what (feeling) and what we have said (thinking) as saying and being said, we can subsequently understand the inner working models. Thus, insights into the world views become possible and changeable. Nevertheless, something always escapes us in thinking and expressing (principle of abstractive relevance) and at the same time something is always added (principle of apperceptive complement), it always becomes more and less at the same time.

Therefore, in the middle of Bühler's Organon model, the sign (Z) in the sense of de Saussure (1916) stands as a generic term for the tripartite nature of symbols, symptoms, and signals as signs. The vertices of the triangle are enclosed by a circle. The sign is related to the three variable moments of the meaning of the whole. According to Bühler (1934), the three moments of expression (to announce, symptoms), representation (to describe, symbols) and appeal (to trigger, signals) shape the multiplicity, diversity and multi-sidedness of the sign-like and thus also the world views and concepts of nature. The function of the sign opens up three basic and meaningful references and these are always embedded in situational, social, and cultural contexts as well as in the respective temporal continuum (Buckner & Carroll, 2007; Mesman et al., 2016, see Figure 5).
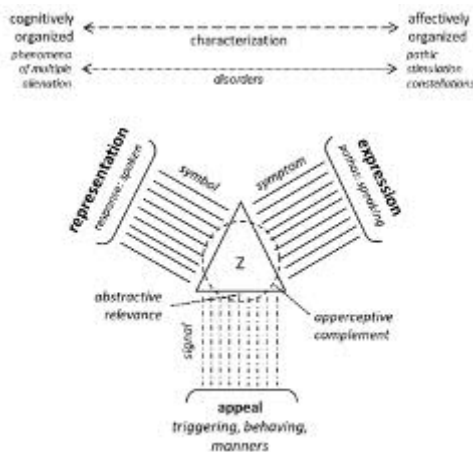

Fig. 5. The idea of the Organon model to understand concepts of nature using attachment theory (own representation based on and adopted from Wiesner, 2022)

The triangle encloses less than the circle in one respect, writes Bühler (1933: 90), so between the circle and the triangle there remain further phenomena from the perspective of Gestalt perception. According to Bühler (1934: 28), the principle of abstract relevance means that every sign basically always undergoes a reduction to what is relevant, and that the respective comprehensive understanding cannot be fully understood or communicated through the reduction. At the same time, there is always also an apperceptive supplementation or complement. The second principle therefore states that all signs are also always subject to an extension in the sense of interpretation, construction, and translation – something is always added. It is precisely the simultaneous occurrence of extension and enrichment (apperceptive supplementation) and reduction and emptying (abstract relevance) that shapes any concrete understanding, which can result in both an abundance and a lack of something. (Wiesner, 2021a) From an attachment theory perspective, there can be an abundance or deficiency of sensation or cognition, and expression or representation can also be enhanced or inhibited. From Buehler`s perspective, the inner working models as Gestalt consist of expression in the mode of episodic-pragmatic aspects, representation in the mode of semantic-syntactic aspects, and release as the mode of behavior, conduct, and action based on expression and representation. Bühler's two-field theory of pointing (deictics) and naming (symbols) is providing a fresh look at the complexity of human actions (see figure 4) and it seems wise to consider the implications of his theory for current research (Diessel, 2012; Wiesner, 2021).

In "writing about ecology" (Morton, 2019: 141) as "Nature Writing", as a style of writing which is "associated with representation" (p. 142), the difference between expression and representation becomes evident as the first-person narrative as a narrated I (said; spoken I) attempts to become a narrating I (saying; speaking I). But "the speaking I and the spoken I are structurally different" (p. 143); this difference cannot be overcome. The différance persists, even in the attempt through representation to describe expression and thus an authentic nature, thereby one quickly "ends up with more and more words" (Cognition, Thought; p. 143). This is evident in the Organon model and evident in the inner working models. Narrative writing about ecology becomes ecology without nature (Morton, 2016) as well as the ecological-scientific view about nature becomes ecologists-scientific without nature.

Looking at worldviews in connection with inner working models, it becomes apparent how fundamental expression, experience is in order to open up an understanding of nature-being. It is the figurative, episodic-pragmatic aspects of the inner working models that, in terms of primary processes, generate the creativity, imaginations, and ideas to open up secondary processes of thinking and producing (Koch, 1981; Wiesner & Prieler, 2021).

Attachment strategies and inner working models shape being in relationship with nature and form views of nature. These approaches to the world and nature were assessed in qualitative and quantitative studies with primary school children in Germany and Japan by Gebauer (2005, 2007) and Gebauer & Harada (2005a, 2005b). Concepts of nature were reconstructed based on Wilson's (1993; Fromm, 1973) biophilia hypothesis and on Kellert's (1984, 1993, 1996) cross-cultural studies. This paper takes up these contributions as well as the interview passages from these surveys as study material in order to connect concepts of nature as views to attachment theory and human learning as well as to reconstruct central statements in order to contextualize them in terms of attachment theory. In this way, the work of Gebauer (2005, 2007) is phenomenologically reinvented.

The concept of biophilia refers to the human tendency to turn toward nature and life because humans belong to nature. Biophilic ethics postulates its own principle as the basic direction of the will, in which "everything that is conducive to life, growth, preservation" (Fromm, 1973: 311) can be understood as good, meaningful and valuable in the sense of Aristotle (384–322 BC). Biophilia is thereby distinguished from biophobia (Orr, 1993), whereby both pro-nature, pro-life, and pro-relationship views and inclinations, as well as pro-life and aversive views and inclinations, are expressed in concepts of nature and worldviews along an imagined continuum. Specifically, Wilson (1993) emphasizes the interwoven nature of culture as collective memory with the sense of community, with the autobiographical, as well as with learning in and through experiences, thus creating a connection with self-growth through transformative learning (Wiesner & Prieler, 2020; see Figure 2).

Based on inner working models, views of nature emerge as attitudes, which, according to Kellert (1993, 1996), can be differentiated into the concepts of cognition (knowledge), humanism, nature-centeredness (naturalism), dominance, and negativism, among others, as acts of experiencing, experiencing, and remembering. The concepts of nature used in this paper according to the concept of Kellert (1993, 1996) are shown in Table 2.

The concepts of nature are also a classification of values (Kellert, 1993; Gebauer, 2020; Wiesner & Gebauer, 2022): The *naturalistic tendency* means the satisfaction derived from direct contact with nature as an intimate experience of nature's complexity and diversity. This tendency is associated with mental health development, an urge for exploration, heightened awareness and a highly human relatedness to nature. The *knowledge tendency* may be regarded with the urge for precise study and careful investigation of the natural world, it is characterized by a human understanding of the ecological function and the recognition through systematic inquiry. Nature is reified and objectified. The *symbolic tendency* reflects the human use of

nature as a meaning frame for symbolic expressions and also for a magical-mystical conception of harmony. The *humanistic tendency* on the other hand reflects more the deep emotional attachment to elements of the natural environment or to animals and plants. So it could come to a process of humanization of nature, which can result in strong tendencies toward care or aggressive protection. The *dominant and moralistic tendency* encompasses a desire for order, cleanliness, simplicity and loyalty, but also the mastering of the natural world and the idea of mechanical skills for physical control of the world. The *negativistic tendency* is characterized by sentiments of aversion, fear, and antipathy toward the natural world, which can foster unreasonable human tendencies and cruel behavior on animals or other elements of nature.

All of the concepts of nature are based on images of man and human (Menschenbilder) as well as on worldviews (Weltanschauung), but answers to questions are very seldom explicit with regard to culture. Culture, however, enables with reference to Habermas (1982) "a collective-intersubjective understanding of the objective, subjective, and social world as a lifeworld mixture" (Schratz & Wiesner, 2021: 293). Schein's (2010) cultural level model distinguishes between three levels, "ranging from the visible to the invisible." The most obvious level is that of representation, that is, that which can be described collectively as well as the artifacts that can be seen, heard, and perceived. In order to understand them, one must first interpret them, that is, penetrate the deeper levels of culture, because, according to Schein (2010, p. 34), "[w]hen you want to understand culture, you have to decipher what is going on at the deeper level." Only then can "the collective, intersubjectively shared values [...] be identified, which create a sense of commonality" (Schratz & Wiesner, 2021: 293). Below, the third level of culture is the background as a mixed bag, "namely the basic unspoken common assumptions and traditional views" in the sense of Bühler's acts (Wiesner, 2021c).

Table 2. Concepts of Nature – Inner Working Models of Nature (own representation based on and adopted from Gebauer, 2005, 2020; Gebauer & Harada, 2005b; Kellert, 1993, 1996; Wiesner & Gebauer, 2022)

CONCEPTS OF NATURE AS INNER WORKING MODELS OF NATURE		
DOMINANCE (Dominionistic and Moralistic)	nature as an available, instrumental-izable object and resource; desire for order, domination, control, subjuga-tion, and cleanliness; strong affinity to moral concern; physical control; order in life	nature as environment to be controlled; attach-ment: secure regulated to avoidant-indifferent; sense reference: representation
KNOWLEDGE (Ecologistic-Scientific)	nature as an object of study and research as well as a source of information (source of knowledge); observational skills; the ecological orientation is rather systemic and holistic-integrative, the scientistic one is rather reductionistic	nature as an environment conducive to cognition; attachment: secure distanc-ing to avoidant-anxious; reference to meaning: representation
HUMANISM (Humanistic)	nature creates strong bonds and en-ables caring and a perceived attach-ment, while nature can be threatening and scary as well as experienced ambivalently; attachment to or care for plants and animals; cooperation; strong affection for nature	nature as the perceived compassionate world; attachment: secure re-sistant-passive to inse-cure-ambivalent; sense reference: expression
HARMONIZA-TION (Symbolic)	the magical-mystical conception of harmony and animistic all-souledness of nature; mental development; object of religious or spiritual interpretation of meaning and worship; use of na-ture for metaphorical expression	nature as animated world of interpretation; attachment: secure resistant-passive to insecure-ambivalent; sense reference: expression
NATURE RELATEDNESS (Naturalistic)	nature creates a sense of wonder and curiosity through its diversity and complexity and enables emotive experiences of nature; humans as part of nature; satisfaction from direct experience; mental development	nature as co-world and being in the world; at-tachment: secure; sense reference: balance between representation and expres-sion
NEGATIVISM (Negativistic)	nature as disturbance and cause of fears, aversions and phobias; aspects of nature as threat; alienation from nature	nature as a threatening en-vironment; attachment: dis-organized; sense reference: distortion of expression and representation

Schein (2010: 35) writes: "The commonly learned values, beliefs, and assumptions that are taken for granted [...]. It should not be forgotten that they are the result of a shared learning process." The three levels of culture can now be visualized graphically in the form of a pyramid according to both Gebauer (2020) as an iceberg and Kruse & Seashore (2009) (see Figure 4). Levels 2 and 3, however, can hardly be captured quantitatively, yet each culture manifests itself through the customs, rituals, artifacts, atmospheres, and through the respective value aspirations and being in relation to the world, but the "essence is the common unspoken assumptions (Schein, 2010: 174). Successful nature education and ESD must take these considerations into account. As well as the inner working models, which can again be differentiated into semantic-syntactic and episodic-pragmatic aspects with regard to culture (see Figure 6).

Fig. 6. The Comparison of Ideas – the Iceberg Model and the Pyramid Model with regard to the Inner Working Models (own representation)

Table 2 describes in the first two columns from the right essential concepts of nature as phenomena of the relationship between humans and nature according to Wilson and Kellert (1993) and complements them in the last, left column with the first reference to a bond-theoretical classification and with a view to Bühler`s sense references.

As already mentioned in the introduction, with regard to the partly diverging, partly incongruent goal perspectives as well as goal images of environmental education, co-environmental orientation, nature education and education for sustainable development (ESD), it is necessary to consider fundamental phenomena, needs and developmental tasks in didactic concepts in a way that is founded on attachment theory with regard to an ecological awareness. In particular, with regard to a successful nature education and ESD in the future, this is an essential prerequisite "for children to experience nature as personally significant and meaningful" (Gebauer, 2020: 6). Therefore, a nature education needs a nature didactics that shape and promote the inner working models of being in relationship by emphasizing nature and being in nature (see Figure 7). This leads to ...

- a basic ethical attitude,
- since nature serves as a space of experience which creates identity and relationships,
- and at the same time leads to aesthetic experiences, through which
- nature can be experienced as a relationship-oriented social space of experience and interaction.
- nature can be experienced as a relationship-oriented space for action and communication, as well as
- nature is perceived as a socio-cultural and spiritual frame of reference.
- nature is experienced as a remedy, a therapeutic agent, for rehabilitation, recreation and as an impulse for one's own self-development and personality formation.

Nature concept KNOWLEDGE

According to Gebauer & Harada (2005a: 50), the focus of the nature concept of cognition, knowledge and science is the "acquisition of nature-related knowledge" in specific sub-areas, which brings atomistic-rational learning to the fore over the concept of dominance. This involves analyzing, collecting, dissecting, ordering, systematizing, assembling, and explaining in the sense of Frankl's creative values (1946; Wiesner, 2020c) and also analyzing nature under the microscope from a distance. The focus is on knowledge orientation, knowledge acquisition, and intrinsic motivation, building up a high level of expertise and informativeness, such as "for fish, dinosaurs, carnivorous plants, or state-building insects" (Gebauer, 2005: 129). Therefore, "natural scientific knowledge procedures and methods" (ibid.) and analyticity move into focus, as well as the targeted acquisition of information. According to Kellert's (1993, 1996) value system, this concept is about the systematic investigation as well as an ecological-scientific explicability of nature.

Natural phenomena are viewed in a matter-of-factly distanced, affect-neutral, and objectifying manner or with an uneasiness as well as disgust and fear towards "physical-sensual contacts with nature" (Gebauer, 2005: 129) similar to the nature concept of dominance. In the descriptions of encounters with nature, familiar relationships with caregivers are hardly reported. Nature is basically "viewed unemotionally" (Schulz, 1990: 25). Specifically, there is a high "level of knowledge regarding various aspects of predominantly global environmental threats" (Gebauer & Harada, 2005a: 51). Although the "environmental hazard [...] is an important topic" (Gebauer, 2005: 130), there is "no pronounced willingness to act" (Gebauer & Harada, 2005b: 197) as a result of this attitude.

The avoidant-anxious *relationship* strategy (fearful; A2) and B2 (secure-locked) seem to be the orientations of the nature concept of cognition. Protection from rejection by others is the focus of the avoidant strategy A2, hence an exploratory distancing, but also a high tension and sensitivity regarding social acceptance emerges. Based on this, there is an extremely low self-confidence, but often an overemphasis on performance or competition. This generally results in a negative evaluation of others as well as self-image and little empathy, which can lead to devaluations of others (and animalistic dehumanizations). However, a high exploratory shaping emerges with a focus on knowledge, rationality, intellectualization, cognition, performance fulfillment, and recognition, which is characterized by a socially-avoidant, socially-avoidant attitude, although high strategic-social adaptive skills are also found. This strategy corresponds to subgroup A2 in Ainsworth et al. (1978), Crittenden (2008), or subgroup Ds3 in George et al. (1996) in terms of avoidant aversion to sensation and attention to cognition.

The nature concept of cognition connects to both the nature concept of nature relatedness (B3) and the concept of dominance (A1) (Gebauer, 2005). The lack of emotional responsivity and avoidance of sensations in and through experiences leads to the inability to experience nature circumferentially, that is, to experience it as a Widerfahrnis. Over time of development, therefore, there is a one-sided emphasis on affect-inhibited cognitions, which can lead to an increased desire for recognition, an exaggerated claim to achievement, and objectification as reification (Verdinglichung) or even forms of dehumanization. Objectification create alleged true facts that inhibit one's own truthful needs and establish emotional restraint in the sense of a poverty of emotions and feelings. School children in particular are often popular because of their good performance and are liked for the fact that they hardly show (disturbing) sensations adapted for it. However, without sensation, they do not develop their own truthful perspectives and thus hardly enter into a relationship with the world, which makes the low readiness for action understandable despite an excessive readiness for cognition. Cognition is used for abstract thinking or even brooding and the alleged being-in-relation is often only oriented to "one's own success in each case" (Habermas, 1981b: 131, Wiesner & Prieler, 2021). The existence of environmental problems and the environmental hazards as well as the causation is acknowledged in a knowledge-oriented comprehensible and intellectualizing way and pursued with interest as well as in a solution-seeking way, but a perceived inner responsibility can hardly be taken for it. A "purely cognitive understanding" (Gebhard, 2013: 67) of the surrounding world "does not yet create a willingness to engage concretely in the preservation of nature" (ibid.).

This concept of nature focuses on "problem orientation" (Michelsen & Overwien, 2020: 565) and on "knowledge focus" (ibid.), which are mainly found in

the models of environmental education and education for sustainable development (ESD) (Wiesner & Prieler, 2021). According to Wiesner & Schreiner (2020), the interest in knowledge is oriented towards the idea of "truth" (Habermas, 1981a: 130) through analytical-abstract thinking, research-related systematization of facts, and active-cognitive engagement with objects. The action concept of learning aims at the ability to "bring about change and [actively] find solutions" (Michelsen & Overwien, 2020: 565; ed.), thereby the slogan and the problem "From knowledge to action" (ibid.) arises just as with the motto from data to action.
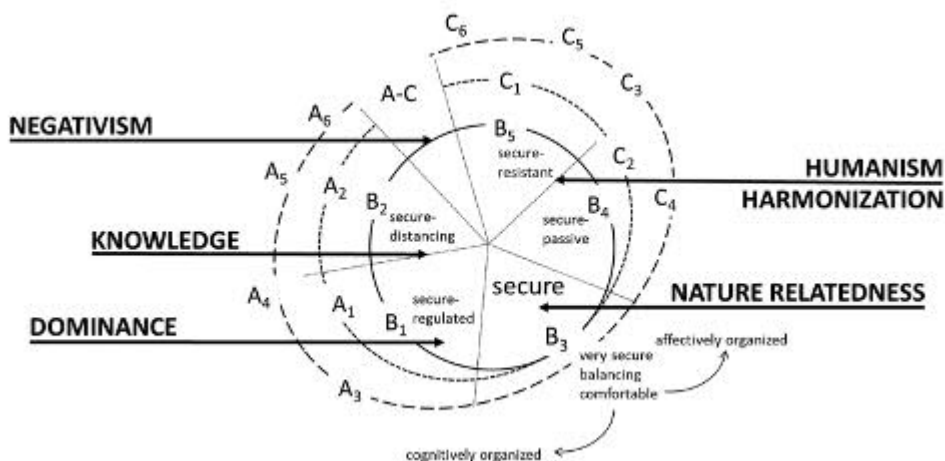

Fig. 7. World Views through Concepts of Nature (own representation based on and adopted from Wiesner & Gebauer, 2022)

Nature concept DOMINANCE

In the nature concept of dominance, nature is regarded as an "object of availability" (Gebauer & Harada, 2005a: 55; author's emphasis) on the part of humans. A "need for static and pleasing nature" (ibid.) as well as for proper "arrangements or ensembles of natural elements" (Gebauer, 2005: 124) prevails. Nature is to be "preserved by humans through appropriate interventions" (Gebauer, 2007: 233), while nature is also "not granted any right of its own" (ibid.). Animals appear in the concept as "objects of use" (p. 234). The value system according to Kellert (1996) also emphasizes the use-value of nature and the material benefit for humans in order to cover the needs of humans in a sustainable way. Thereby it also comes to the desire to subjugate nature. At the same time, the moral aspect and thus the right and wrong behavior in relation to the non-human world is addressed. Nature is viewed objectifying from a mere "anthropocentric perspective", showing "a pronounced need for control as well as a strong need for harmony and a distance towards immediate, physical-sensual experience of nature" (Gebauer, 2005: 126). Nature conscious-

ness presents itself in the expression of an effort to "keep nature pure" (Gebauer & Harada, 2005: 55) and in a moralizing "degree of personal concern" (ibid.).

The "design of a harmonious, unclouded beauty" (Gebauer, 2005: 124) combined with an obsessive "desire for order, cleanliness" (ibid.) and an agricultural or horticultural "aspect of use" (ibid.) is expressed. This utilization aspect of nature also dominates leisure activities. As affects, fear, disgust and disgust for living beings and natural phenomena are shown without recognizable ambivalences or moral dilemmas that "disturb the harmony" (Gebauer, 2005: 125). Pain and grief associated with the death of animals can also be reported linguistically. The "contamination of nature by garbage and refuse, but also by 'weeds', leaves or falling branches is abhorrent to them [the children interviewed]" (Gebauer, 2005: 126). The horizon of experience through a personal experience of nature as well as the linguistic expression is clearly limited compared to the concept of nature relatedness. Nature awareness refers to given knowledge and to active garbage collection and disposal as well as to a rather passive animal protection (Gebauer, 2007).

DOMINANCE: Positionality of Learning

Being-human and being natural in the nature concept of dominance indicate more of an orientation toward the avoidant-indifferent relational strategy (dismissing, A1) as well as B1 (secure-reserved). The avoidant strategy, A1, is characterized by little closeness, a poverty of feeling, low empathic capacity, and little understanding interpersonal interactions (Horowitz et al., 1993). However, there is a pronounced, rule-bound, moralizing, and controlling aloofness, high self-confidence, marked competitiveness with an overemphasis on social power and external responsibility, and, in particular, a belief in what is possible and a pejorative trivialization of the feelings of others (up to and including dehumanizing tendencies). Similar to subgroup A1 in Ainsworth et al. (1978), Crittenden (2008), or subgroup Ds1 in George et al. (1996), an often striking (apparent) independence from others emerges, which is characterized by little trust in others (Baldoni et al., 2018).

Nature is also met with a distancing, avoidant-indifferent attitude (A1) of rule and constraint as well as a principle of purity. The experiences with nature are thereby "to be described as remote from nature" (Gebauer, 2005: 126). Basically, from this distancing perspective, there is no real problem, since reified nature can either be repaired (mechanically-instrumentally) or it is found to be right that nature is available as a resource through its use-value. The reification and the idea of the subjugation of nature (theme of dominance) carry both the danger of an increased claim to power and, concomitantly, the risk of mechanistic dehumanization. The rules in dealing with nature come to the fore (order values), whereby problems can also be simplified and trivialized reductionistically. The distancing leads to objectivation and to allegedly correct facts in the sense of facts (principle of objectivity).

The constant and static are seen as order as well as orderly, thereby learning and thinking become instrumental and follow (mechanistic) laws, rules and norms (and thus become moralizing).

Sustainable development is explicitly a normative concept in this concept of nature. What is beautiful should be objectifiable, what is feasible should be implemented, and nature should be put in order in the right way. Viewed in a historical context, the nature concept of dominance basically corresponds to the idea of moral environmental education (Wiesner & Prieler, 2021) and also works with the narratives of "disaster pedagogy" (Unterbruner, 1991: 60). According to Wiesner & Schreiner (2020), learning follows a rule-oriented, instrumental comprehension and transmission of predetermined and reified knowledge, whereby "general ought-sentences or commandments" (Habermas, 1981a: 132) guiding the setting and process of learning. According to Vare & Scott (2007), "two different types of education for sustainable development" (Michelsen & Overwien, 2020) exist, with the so-called ESD-1 strategy "training/instrumental approach" (Wals, 2011: 180) supporting more the nature concept of dominance via normative positions, "behavioral prescriptions" (Michelsen & Overwien, 2020: 563) as well as moralization approaches. The epistemological interest is oriented according to the claim of validity of "correctness" (Habermas, 1981a: 132; Wiesner & Prieler, 2021).

Nature concept NATURE RELATEDNESS

In Kellert's (1993) concept of nature-relatedness (naturalism), nature is understood as a co-world in which humans are an integral part of nature (Gebauer, 2007; Gebauer & Harada, 2005b). Experiencing nature is directed toward a holistic cognitive interest and toward systemic-ecological interactions and interrelationships as well as nature-related "questions of meaning" (Gebauer, 2005: 119). Preference is given to "nature untouched by human impact" (Gebauer, 2005: 118) in order to experience the primal in the sense of an "inner contemplation" (ibid.). According to Gebauer (2005), professed experiences of nature are experiences of nature of high emotional quality that is embedded in social contexts with reference persons. Nature experiences can be put into an "empathetic language" (p. 120) and open up potential for imitation (Piaget, 1969). Nature awareness can be understood as "a distinct sense of personal responsibility that is ethically motivated and characterized by empathy" (Gebauer & Harada, 2005: 52). Nature is explored in a self-determined sensory-aesthetic way by observing, drawing, and photographing, thus reporting meaningful experiences in the sense of "Erlebniswerte[n]" according to Frankl (1946: 34) (Gebauer, 2007; Wiesner, 2020c). Likewise, there is a high personal and credible willingness to act as well as an active and pronounced care for nature through an ethical concern and empathic capacity.

According to Gebauer (2005; Gebauer & Harada, 2005a), the relationship to nature is characterized by affects and values such as love, security, joy, fascination, tranquility, contemplation, beauty, wonder, empathy, and hope, and sensory-aesthetic experiences are autobiographically available. Natural beauty in the sense of the "attitudinal values" according to Frankl (1946: 34) comes to the fore. The striving for action is characterized by a value attitude of self-determination, independence and a "subjective assumption of a high self-efficacy" close to the lifeworld (Gebauer, 2005: 119).

NATURE RELATEDNESS: Positionality of Learning

The awareness of nature is balancing, reflective, metacognitive, and prospectively accessible; the narratives appear vivid, empathetic, meaning-oriented, hopeful, and thus differentiating as well as integrating. According to Gebauer (2005), this concept of nature can be attributed to secure and balancing attachment (B3), whereby nature represents the co-world and can be explored sensually, openly, "trustingly and without fear" (p. 121). According to Wiesner & Schreiner (2020), the idea of learning follows not only the instrumental or cognitive orientations, but above all the "An-sich-Hananlassen" (Hofmann, 2017, p. 158), i.e., learning in and through experience in the sense of learning-sidedness (Schratz & Wiesner, 2020) through Widerfahrnisse. Imitation, learning from the model are determining learning processes that enable fluid communicative and empathetic changes in worldviews through reflexive, emancipatory, and prospective orientations. The concept of being in touch with nature thus opens up transformative learning through self-growth, which calls for experiential learning through "engaging with what is contrary to expectation" (Wiesner & Schreiner, 2020: 79). The secure base and safe harbor create coherent "frames of reference" (Mezirow, 1996: 168).

The nature concept of nature relatedness integrates the productive aspects of all nature concepts, but focuses in particular on the experience of nature, ethical nature education as self-education, and on the personal and collective experiential network of the lifeworld according to Wiesner & Prieler (2021; Wiesner, 2020b). The epistemological interests of correctness and truth are determined by the claim to validity of "truthfulness" (Habermas, 1981a: 149). Here, as in Aristotelian ethics, it is not a matter of "a thing being so and so [truth, Richtigkeit], but of the good [Wahr-Sein, Wahrhaftigkeit] being done" (Gadamer, 1998: 4; ed.). It is truthfulness that opens one's beliefs to question and enables the "interaction of reason and inclination" (ibid.), which can result in active engagement, an integrative decision-making ability, and, most importantly, a "moving from action to knowledge" (Kruse, 2013: 31).

The secure balancing relationship (B3 or F3 in George et al., 1996) builds on an experienced comfortable security, inner accountability, commitment, and resonance with being in nature, and specifically creates a coherence of thought and

feeling (Ziegenhain, 2012; Strauß, 2014).This attachment strategy is relatively free of rule-like patterns and allows for open communication, interaction, and punctuation through collaborative discourse and consistent narratives. The balancing relationship has very conducive, caring as well as supportive aspects towards others and leads to an open as well as an open-minded approach to the world as well as a trust in the world (hope). There is an integration of both negatively connoted and positively connoted feelings and experiences, resulting in a positive worldview and an appreciation of self as well as others. According to Vare & Scott (2007), there is a so-called ESD-2 strategy in education for sustainable development, which Wals (2011: 180) calls the "emancipatory approach". This approach corresponds to learning in and through experiences, but it does not yet correspond to transformative learning, as the emancipatory is only a subset of the transformative in the sense of Mezirow (1991), Habermas (1968) and Wiesner & Prieler (2020, 2021), which means that self-growth does not (yet) take place. The emancipative is not about teaching moralizing orientations, "but rather about learners questioning their own attitudes and values by reflecting on them against the background of the idea of sustainability (Michelsen & Overwien, 2020: 563). Likewise, it is about questioning the respective conceptualization of sustainability and examining the narratives behind it. Transformative learning leads to changes in worldview by transforming worldviews.

This process of re-learning is always irritating and crisis-ridden and means "retrospectively interpreting experiences critically, reflecting on them, and prospectively developing (changed) assumptions about reality, testing them, and integrating them into the network of life experiences" (Wiesner & Schreiner, 2020: 81).

Nature concept HUMANISM

The hallmark of nature concept humanism is the need for a personal "close, emotional relationship with animals (rarely plants)" (Gebauer & Harada, 2005a: 53). In Japanese children, this concept reveals a "distinct nature-magical-spiritual view" (Gebauer & Harada, 2005b: 198). The cognitive interest refers to the animate nature and thus to the "preferred living beings" (Gebauer, 2005: 123), the "activities refer predominantly to the care for living beings" (Gebauer & Harada, 2005a: 54), whereby anthropomorphic ideas can come to the fore. According to the value systematics of Kellert (1993, 1996), the nature concept of humanism refers to the love of living things and is characterized by "a great interest in and strong emotional attachment to individual animals" (Schulz, 1990: 24), thereby anthropomorphizing "human characteristics and peculiarities are transferred to the animal" (ibid.). It is through a lack of social support, inclusiveness, and human care that human characteristics are increasingly attributed to animals (Antonacopoulos & Pychyl, 2008; Epley et al., 2008; McConnell et al., 2011).

The affective relationship with nature is positively expressed as affection, yet the "emotions [...] are rather ambivalent" (Gebauer, 2005: 122; author's emphasis). On the one hand, affection is shown through security, care and compassion; on the other hand, nature is perceived as "uncanny and anxiety-provoking" (ibid.). Nature "symbolizes freedom and integrity of one's personality" (p. 124) and yet is experienced as frightening and uncanny, thus lacking a "basic sense of safety, trust, and security" (ibid.). The willingness to act is rather passive and is predominantly directed towards the aspects of "animal and species protection" (ibid.), whereby empathy primarily means compassion and emotional contagion (seeking comfort and giving comfort) and is clearly recognizable as a guiding motive (Gebauer, 2005). The ambivalence in the preservation of plants, animals and habitats refers to elements of traditional nature conservation, where the confluent as a "relational aspect with regard to nature" (ibid.) is in the foreground.

HUMANISM: Positionality of Learning

The anxious-ambivalent relationship pattern (preoccupied; CY) and B4 (secure-reactive) are the orientations of humanism. The ambivalent strategy is characterized by alternating sensations (emotion and feeling confusions) between closeness-seeking and closeness-rage, affect-rich display and high self-disclosure (with a tendency to inappropriate disclosure and sociability), spontaneous expressiveness, and by a high need for affirmation and positive evaluation by others, leading to a rather negative self-image. Ambivalence can result in both anxious-insecure, supportive, needy, passive, and socially dependent expressions as well as expressive, spontaneously dominant, threatening, and competitive aspects with others. Here, subgroup C1 corresponds to group E2 in George et al. (1996; Main et al., 2008), whose characteristic is primarily threatening and upset. Subgroup C2 (or E1 in Main et al., 2008), on the other hand, shows a disarming need for security, comfort, and a desire for closeness.

Nature is met with both a secure-reactive (B4) and an ambivalent enmeshed attitude (C) in this concept. Nature is perceived as a threat and appears unpredictable, and frightening, giving rise to mixed, entangled, and changeable feelings (e.g., alternating between fear, sadness, anger, and comfort). Similarly, the desire for comfort and finding closeness arises from an exaggerated emotional attachment to animals or plants, causing certain sensations to appear exaggerated (emotion and feeling confusion; emotional one-sidedness; anthropomorphizing). Attention to preferred animals or plants enables a specific form of closeness through an overemphasis on caring. Thus, on the one hand, there is a high involvement with and idealization of preferred living beings as well as a (passive) need for love in the sense of an emotional one-sided attachment dependency, which also gives rise to imagined cognitions (e.g., magical-spiritual worldviews). On the other hand, how-

ever, an ambivalence between anger, fear, sadness and the desire for security is perceptible. From the point of view of attachment theory, there tends to be a denial of personal responsibility or even threatening behavior, as for example in the form of aggressive manifestations in the area of animal and species protection or in environmental protection.

The nature concept of humanism is to a high degree connectable to the concept of a reactive nature-relatedness (B4) and opens up the extraction of the unexpected, the strange as well as details from the respective situations and contexts through the high sensitive recognition of ambivalences and sensations (Wiesner & Schreiner, 2020). The resulting sensitive "understanding attention" (p. 79) enables both a deeply felt caring with an emotional one-sidedness and a hyper-sensitive perception of the threat that may occur at any time. The pre-experience functions as a defense against the current experience and experience, which allows the being-nature and Widerfahrnisse to be experienced as frightening, threatening, and uncanny. In essence, this concept of nature is a form of experiential learning in which an ambivalent world is constructed. This construction of the world is determined by shifting and entangled emotions, which in turn shape learning in terms of communication, interaction, and punctuation. Specifically, in this concept, through emotion contagion and global and egocentric empathy, the narratives of environmental threats take hold, which, in terms of learning theory, can lead to either passive proximity-seeking and a one-sided need for love, or aggressive conservation. Specifically, when the "ecological[s] challenges [...] are presented in teaching and learning processes as sources of danger or as threats" (Michelsen & Overwien, 2020: 563). The epistemological interest is then a distorted form of being true. Although through the narratives of threat the ambivalent attitude and the changeable in learning are addressed, there are basically no specifically assignable educational concepts of environmental education for this nature concept of humanism with the high sensitive sensation orientation.

From a positively connoted perspective, Gebauer & Harada (2005a) refer to the magical-spiritual thinking and feeling in the Shintō (Japanese; Way of the Gods) as an ethical religion and connection to nature, which leads to an "anthropomorphization of phenomena, living beings, and facts" (p. 201). Since in the Shintō "everything is potentially divine, the distinctions between humans and animals, animate and inanimate matter also blur. The distance between man and nature, which is expressed in the 'subdue the earth', is missing, man is [...] integrated into nature, is a part of it" (Lokowandt, 2001: 68), whereby "man becomes the guardian of nature" (ibid.). In this process, on the one hand, the subject-object relationship (arising from distance) between man and nature dissolves, but on the other hand, man as part of nature can nevertheless encounter nature with an "unsentimental ruthlessness that one accepts towards oneself" (p. 69). Lokowandt (2001) describes the Japanese landscape gardens as works of art and constructions of "irreverent

love" (ibid.), "which reflect nature more accurately than any natural landscape in its original state could" (ibid.).

Nature concept NEGATIVISM

For completion, the paper also refers to Kellert's (1993, 1996) nature concept of negativism, which can be described as a "disinterested to aversive attitude towards nature" (Gebauer & Harada, 2005: 56) in the sense of a deep aversion. Nature is seen primarily as a threat and therefore only as an "inanimate recreational and experiential space" (Gebauer, 2005: 126 f.) for one's own pleasure, which "provides an occasion for fun-filled, exciting playful activities" (Gebauer & Harada, 2005: 56). In the negativistic perspective, people develop fear, aversion, or antipathy toward nature above all else (Kellert, 1996). Nature-related prior experiences "are often characterized by negative and fearful experiences (Gebauer, 2005: 127), and the "linguistic stimulation potential" (p. 129) about nature is not very pronounced. Nature is connoted negatively and direct bodily encounters with nature are avoided, since in relation to living nature negatively valued affects such as fear, disgust, but also boredom come to the fore (Gebauer, 2007).

Empathy, empathizing, sympathizing or pitying is hardly expressed, "consequently, no inner willingness to deal responsibly with nature is shown" (Gebauer & Harada, 2005: 57). "Exclusively in this concept, moreover, emotions with aggressive tones such as anger and hatred are mentioned" (Gebauer, 2005: 126). The nature-related epistemological interest lies primarily in the fact that living beings are captured and used, "whereby the demarcation from behavior in which [...] animals are really harmed [... done] is difficult to draw" (Gebauer & Harada, 2005: 57).

NEGATIVISM: Positionality of Learning

The lack of relationship to and the aversion to nature can be traced back, according to attachment theory, to the mixture of a high ambivalence with a pronounced avoidance behavior, whereby hatred of nature or mistreatment of nature as well as a threatening aggressiveness and an avoidance of experiences of nature also occur. These mixed forms (A-C) form either as a highly-uncertain situational Ax/Cy strategy or as general situation-independent AxCy strategies.

The strategies lead to distortions of the world in both cognition and sensations. Learning itself is characterized by a high degree of disorganization and negation and does not follow a clear learning theory direction, but is equally to be understood as a possible mixture of A-C strategies. The mixture consists of the nature concepts of dominance, cognition and humanism as well as islands of B-strategies.

The reading of the world (Gebhard, 2015: 7) requires sensitive thinking and cognitive sensing to enable experiences of meaning. In doing so, "objectifying and subjectifying perspectives should be cultivated in equal measure," Birkmeyer, Combe, Gebhard, Knauth, & Vollstedt (2015: 11) are writing.

It is important to note in this consideration that avoidant relational strategies (AX) are fundamentally distancing and thus objectifying, and avoid closeness, relationship, and emotional experience. Thus, all educational approaches that give little, little, or no consideration to experience and feeling do not fundamentally lead to transformative learning, but rather to forms of knowledge transfer and knowledge focus, or to the desire to avoid environmental disasters through knowledge and rule-based behavior. Similarly, transformative learning is also not promoted by threat pedagogy. On the contrary, all educational approaches with such scenarios and narratives support ambivalent attachment strategies (BY). The presentation of threats increases emotional ambivalences, the scenarios and narratives seem scary, threatening, sinister, and lead either to an exaggeration of passivity or of aggressiveness, but not to successful processes of transformative learning. A naïve generation of crisis-like thoughts and sensations through educational processes therefore leads either to ambivalent emotional and feeling confusions (threat pedagogy) or to avoidant- indifferent attitudes (disaster pedagogy) or to avoidant-fearful attitudes (danger pedagogy). As protective functions, this can give rise to various manifestations of dehumanizing or anthropomorphizing tendencies and "character traits" (Adler, 1927: 135) to protect the self through aggressive or exaggerated-empathic care-focusing, exploratory knowledge-focusing, or rule-focusing and/or moralizing order-focusing. As long as the attitudes are still protective functions and not attachment strategies of A, C, and Ax/Cy or AxCy, one can speak of resilience.

According to this, it is not only about the cultivation of subjective and objectifying perspectives, but about the development of a secure subjective basis as a starting perspective, from which objectifying processes of exploration and inquiry can be arranged and self-orchestrated, which, however, remain continuously accessible to the subjective self-growth through sensing-being and are embedded and intersubjectively bound back via the autobiographical. Only in this way do the inner working models grow and expand, opening up a stabilizing and cultivating coherence to be able to read the world from a balancing stance. Exploration, from the perspective of transformative learning in particular, is to be understood as a learning in and through experiences by means of Widerfahrnissen, imaginings and creativity. All transformative learning needs interpersonal communication, interaction, and appreciative punctuation as "acts of understanding" (Habermas, 1981a: 385) as well as "moment[s] of insight" (Habermas, 1981b: 45).

Therefore, the activation of attachment strategies must always precede any educational strategies, as "children [, adolescents, and adults] whose need for attachment is activated cannot simultaneously learn in a focused and attentive manner" (Brisch, 2017: 27; author's erg.). Securely attached individuals generate their internal working models from experiences of the availability and efficacy of social support, nurturance, and appreciation (Ognibene & Collins, 1998; Priel & Shamai, 1995). A secure relationship is both a protective factor and resilience (Brisch, 2018). In the inner working models of securely attached individuals, attachment figures, reference things, reference places and reference landscapes, and relational experiences are coherently, supportively, and supportively available, allowing for free exploration and objectification in which the person's radius of action is hardly restricted (Wiesner, 2020a). The working model is shaped and sustained by self-determination (personhood) and prosociality (resonance, empathy, cooperation). Primary and secondary emotions, empathy, and concern can be expressed in a co-responsive, reflexive, and emancipative manner (Wiesner, 2020b), which opens up the integration of negatively experienced emotions and experiences into the coherent secure basic attitude. These aspects significantly determine all variations of transformative learning processes (Wiesner & Prieler, 2020, 2021).

Being in a relationship with the world not only has an essential effect on the world view, but above all determines the respective prompting character of nature in terms of the world view (Gebauer, 2005). The "perception of what appears to us as nature cannot be objectified. It is defined in the context of a culture's system of values and norms and its religious and intellectual figures of thought, metaphors, traditions, and lore" (Gebauer & Harada, 2005: 46) as well as through internalized working models. Any experience of meaning takes place through the telling and transmission of concepts, narratives, worldviews, and worldviews. In this intergenerational transmission of attachment experiences and narratives, the "different[ies] of learning have not yet been considered systematically enough" (Gloger-Tippelt, 1999: 82). To read the world and to offer successful nature education concepts and narratives for cultural sustainability, it is advisable and wise to develop a deep understanding of attachment strategies and learning processes. Cultural sustainability needs a reconsideration and an appreciative attitude towards a pedagogy for context-sensitive and authentic development.

REFERENCES

Adler, A. (1927). *Menschenkenntnis* [Knowledge of human nature] (Ausgabe 2007). Göttingen: Vandenhoeck & Ruprecht.

Ainsworth, M. (1990). Epilog: Einige Überlegungen zur Theorie und über bindungsrelevante Erfassungen nach der Kleinkindzeit. [Epilogue: Some reflections on the theory and on assessments relevant to attachment after infancy]. In: K. E. Grossmann & K. Grossmann (Hrsg.), *Bindung und menschliche Entwicklung: John Bowlby, Mary Ainsworth und die Grundlagen der Bindungstheorie* (Auflage 2011, pp. 367–399). Stuttgart: Klett-Cotta.

Ainsworth, M. D. S. (1985). Mutter-Kind-Bindungsmuster. Vorausgegangene Ereignisse und ihre Auswirkungen auf die Entwicklung. [Mother-Child Bonding Pattern. Preceding events and their impact on development]. In: K. E. Grossmann & K. Grossmann (Hrsg.), *Bindung und menschliche Entwicklung: John Bowlby, Mary Ainsworth und die Grundlagen der Bindungstheorie* (Auflage 2011, pp 317–340). Stuttgart: Klett-Cotta.

Ainsworth, M. D. S., & Bell, S. M. (1970). Attachment, Exploration, and Separation: Illustrated by the Behavior of One-Year-Olds in a Strange Situation. *Child Development*, 1(41), 49–67.

Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation*. Hillsdale: Erlbaum.

Antonacopoulos, N. M. D., & Pychyl, T. A. (2008). An Examination of the Relations between Social Support, Anthropomorphism and Stress Among Dog Owners. *Anthrozoös*, 21(2), 139–152.

Antweiler, C. (2017). Kultur [Cultur]. In L. Kühnhardt & T. Mayer (Hrsg.), *Bonner Enzyklopädie der Globalität* (S. 899–908). Wiesbaden: Springer Fachmedien Wiesbaden.

Aristoteles. (1998). *Aristoteles. Nikomachische Ethik VI* [Aristotle. Nicomachean Ethics IV] (H.-G. Gadamer, Hrsg.). Frankfurt: Klostermann.

Baldoni, F., Minghetti, M., Craparo, G., Facondini, E., Cena, L., & Schimmenti, A. (2018). Comparing Main, Goldwyn, and Hesse (Berkeley) and Crittenden (DMM) coding systems for classifying. *Adult Attachment Interview transcripts: An empirical report. Attachment & Human Development*, 20(4), 423–438.

Bartholomew, K. (1990). Avoidance of Intimacy: An Attachment Perspective. *Journal of Social and Personal Relationships, 7*(2), 147–178.

Bartholomew, K., & Horowitz, L. M. (1991). Attachment Styles Among Young Adults: A Test of a Four-Category Model. *Journal of Personality and Social Psychology*, 2(61), 226–244.

Birkmeyer, J., Combe, A., Gebhard, U., Knauth, T., & Vollstedt, M. (2015). Lernen und Sinn. Zehn Grundsätze zur Bedeutung der Sinnkategorie in schulischen Bildungsprozessen. [Learning and meaning. Ten principles on the meaning of the category of meaning in school education processes]. In U. Gebhard (Hrsg.), *Sinn im Dialog* (pp. 9–32). Wiesbaden: Springer.

Blume, T. (2003). Entität [Entity]. In W. D. Rehfus (Hrsg.), *Handwörterbuch Philosophie* (S. 325–326). Göttingen: Vandenhoeck & Ruprecht.

Bowlby, J. (1969). *Attachment and loss.* Vol. 1. (Reprint 1999). New York: Basic Books.

Bowlby, J. (1973). *Attachment and loss*. Volume II: Separation. Anxiety and anger. New York: BasicBooks.

Bowlby, J. (1980a). *Attachment and Loss. Volume III: Loss Sadness and Depression*. New York: Basic Books.

Bowlby, J. (1980b). Mit der Ethologie heraus aus der Psychoanalyse: Ein Kreuzungsexperiment. [With ethology out of psychoanalysis: A crossing experiment]. In: K. E. Grossmann & K. Grossmann (Hrsg.), *Bindung und menschliche Entwicklung: John Bowlby, Mary Ainsworth und die Grundlagen der Bindungstheorie* (Auflage 2011., pp. 38–54). Stuttgart: Klett-Cotta. Bowlby, J. (1987). Bindung [Bonding]. In K. E. Grossmann & K. Grossmann (Hrsg.), *Bindung und menschliche Entwicklung: John Bowlby, Mary Ainsworth und die Grundlagen der Bindungstheorie* (Auflage 2011, pp. 22–26). Stuttgart: Klett-Cotta.

Bowlby, J. (1988). *A secure base: Parent-child attachment and healthy human development.* New York: Basic Books.

Bretherton, I. (1991). Pouring new wine into old bottles: The social self as internal working model. In M. Gunnar & L. A. Sroufe (Hrsg.), *Self Processes and Development: The Minnesota Symposia on Child Psychology* (Bd. 23, pp. 1–41). Hillsdale: Erlbaum.

Bretherton, I., & Munholland, K. A. (2016). The Internal Working Model Construct in Light of Contemporary Neuroimaging Research. In J. Cassidy & P. R. Shaver (Hrsg.), *Handbook of Attachment: Theory, Research, and Clinical Applications* (pp. 63–88). New York: Guilford.

Brisch, K. H. (2017). *SAFE: Sichere Ausbildung für Eltern. Sichere Bindung zwischen Eltern und Kind* [SAFE: Safe Education for Parents. Secure attachment between parent and child]. Stuttgart: Klett-Cotta.

Brisch, K. H. (2018). *Kindergartenalter. Bindungspsychotherapie* [Kindergarten Age. Attachment Psychotherapy]. Stuttgart: Klett-Cotta.

Buckner, R. L., & Carroll, D. C. (2007). Self-projection and the brain. *Trends in Cognitive Sciences*, 11(2), 49–57.

Bühler, K. (1912). Denken [Thinking]. In A. Eschbach (Hrsg.), *Schriften zur Sprachtheorie* (Auflage 2012, S. 76–88). Mohr Siebeck.

Bühler, K. (1918a). *Die geistige Entwicklung des Kindes.* [The mental development of the child]. Fischer.

Bühler, K. (1918b). Kritische Musterung der neuen Theorien des Satzes. [Critical scrutiny of the new theories of theorem]. *Indogermanisches Jahrbuch*, 6, 1–20.

Bühler, K. (1927). *Die Krise der Psychologie.* [The crisis of psychology]. Fischer.

Bühler, K. (1933). Die Axiomatik der Sprachwissenschaft. [The Axiomatics of Linguistics]. *Kant-Studien*, 38(1–2), 20–90.

Bühler, K. (1934). *Sprachtheorie: Die Darstellungsfunktion der Sprache.* [Theory of language: The representational function of language]. Ullstein

Cicero, M. T. (1998). *Gespräche in Tusculum. Tusculanae disputationes.* [Conversations in Tusculum] (O. Gigon, Hrsg.). München: Artemis & Winkler.

Crittenden, P. M. (1990). Internal Representational Models of Attachment Relationships. Infant *Mental Health Journal*, 3(11), 259–277.

Crittenden, P. M. (2008). *Raising parents: Attachment, parenting and child safety.* Portland: Willan.

Diessel, H. (2012). Bühler's two-field theory of pointing and naming and the deictic origins of grammatical morphemes. In: K. Davidse, T. Breban, L. Brems, & T. Mortelmans (Hrsg.), *Studies in Language Companion Series* (Bd. 130, pp. 37–50). Amsterdam: John Benjamins Publishing Company.

Dilthey, W. (1914). *Gesammelte Schriften. Band 1. Einleitung in die Geisteswissenschaften: Versuch einer Grundlegung für das Studium der Gesellschaft und der Geschichte* [Collected Writings. Volume 1. Introduction to the Humanities: An Attempted Foundation for the Study of Society and History] (Auflage 1990). Stuttgart: Vandenhoeck & Ruprecht.

Elias, N. (1939a). *Über den Prozeß der Zivilisation. Soziogenetische und psychogenetische Untersuchungen. Erster Band. Wandlung des Verhaltens in den westlichen Oberschichten des Abendlandes.* [About the Civilization Process. Sociogenetic and psychogenetic

investigations. First volume. Change in behavior in the western upper classes of the Occident] (Auflage 1997, Bd. 1). Frankfurt: Suhrkamp.

Elias, N. (1939b). *Über den Prozeß der Zivilisation. Soziogenetische und psychogenetische Untersuchungen. Zweiter Band. Wandlung der Gesellschaft. Entwurf zu einer Theorie der Zivilisation.* [About the Civilization Process. Sociogenetic and psychogenetic investigations. Second volume. transformation of society. Outline for a theory of civilization] (Auflage 1997, Bd. 2). Frankfurt: Suhrkamp.

Epley, N., Waytz, A., Akalis, S., & Cacioppo, J. T. (2008). When We Need A Human: Motivational Determinants of Anthropomorphism. *Social Cognition*, 26(2), 143–155.

Fonagy, P. (2001). *Bindungstheorie und Psychoanalyse* (Auflage 2018). Stuttgart: Klett-Cotta.

Frankl, V. E. (1946). *Ärztliche Seelsorge: Grundlagen der Logotherapie und Existenzanalyse* [Medical Pastoral Care: Basics of Logotherapy and Existential Analysis]. Frankfurt: Fischer.

Fromm, E. (1973). *Anatomie der menschlichen Destruktivität* [Anatomy of Human Destructiveness]. Hamburg: Rowohlt.

Gadamer, H.-G. (1998). Einführung. In Klostermann-Texte Philosophie. *Aristoteles. Nikomachische Ethik VI* [Introduction. In Klostermann-Texte Philosophy. Aristotle. Nicomachean Ethics VI] (pp. 1–18). Frankfurt: Klostermann.

Gebauer, M. (2005). Schätze des Erinnerns. Zur Kontextualisierung kindlicher Naturerfahrung. [Treasures of Memory. On the contextualization of children's experience of nature]. In: M. Gebauer (Hrsg.), *Naturerfahrung: Wege zu einer Hermeneutik der Natur* (pp. 99–143). Zug: Graue Edition.

Gebauer, M. (2007). *Natur und Naturerfahrung. Naturbezogene Konzeptbildung im Kindesalter* [Nature and Nature Experience. Nature-related concept formation in childhood]. Hamburg: Kovac.

Gebauer, M. (2020). „Wildnis" als außerschulischer Lern-, Bildungs- und Erfahrungsort im heterogenitätssensiblen Sachunterricht. [„Wilderness" as an extracurricular place of learning, education and experience in heterogeneity-sensitive general education]. *widerstreit-sachunterricht*, 20, pp. 1–18.

Gebauer, M., & Harada, N. (2005a). Naturkonzepte und Naturerfahrung bei Grundschulkindern–Ergebnisse einer kulturvergleichenden Studie in Japan und Deutschland. [Nature Concepts and Nature Experience among Elementary School Children–Results of a cross-cultural study in Japan and Germany]. In: D. Cech & H. Giest (Hrsg.), *Sachunterricht in Praxis und Forschung – Erwartungen an die Didaktik des Sachunterrichts: GDSU-Jahrestagung 2004 in Potsdam zum Thema „Zwischen Grundlagenforschung und Unterrichtspraxis–Erwartungen an den Sachunterricht"* (pp. 191–206). Bad Heilbrunn/Obb: Klinkhardt.

Gebauer, M., & Harada, N. (2005b). Wie Kinder die Natur erleben. Ergebnisse einer kulturvergleichenden Studie in Japan und Deutschland. [How children experience nature. Results of a cross-cultural study in Japan and Germany]. In: U. Unterbruner (Hrsg.), *Natur erleben: Neues aus Forschung und Praxis zur Naturerfahrung* (pp. 45–61). Innsbruck: Studienverlag.

Gebhard, U. (1999). Weltbezug und Symbolisierung [Reference to the World and Symbolization]. In: H. Baier, H. Gärtner, B. Marquardt-Mau & H. Schreier (Hrsg.), *Umwelt, Mitwelt, Lebenswelt im Sachunterricht*. Julius Klinkhardt.

Gebhard, U. (2013). Kind und Natur: *Die Bedeutung der Natur für die psychische Entwicklung.* [The importance of nature for psychological development]. Wiesbaden: Springer.

Gebhard, U. (2015). Einleitung: Sinn im Dialog. Zur Möglichkeit sinnkonstituierender Lernprozesse in der Schule [Introduction: Meaning in Dialogue. On the possibility of meaning-constituting learning processes in school.]. In: U. Gebhard (Hrsg.), *Sinn im Dialog* (pp. 7–8). Wiesbaden: Springer Fachmedien Wiesbaden.

George, C., Kaplan, N., & Main, M. (1996). Adult attachment Interview (1984, 1985, 1996). *Unpublished manuscript (third edition).* Department of Psychology, University of California, Berkley.

Gloger-Tippelt, G. (1999). Transmission von Bindung über die Generationen – Der Beitrag des Adult Attachment Interview. [Transmission of Attachment across the Generations – The Contribution of the Adult Attachment Interview]. *Praxis der Kinderpsychologie und Kinderpsychiatrie*, 2(48), 73–85.

Gloger-Tippelt, G. (2008). Individuelle Unterschiede in der Bindung und Möglichkeiten ihrer Erhebung bei Kindern. [Individual differences in attachment and possibilities of its collection in children]. In: L. Ahner (Hrsg.), *Frühe Bindung. Entstehung und Entwicklung* (pp. 82–109). München: Reinhardt.

Greenberg, D. L., & Verfaellie, M. (2010). Interdependence of episodic and semantic memory: Evidence from neuropsychology. *Journal of the International Neuropsychological Society*, *16*(5), 748–753.

Grossmann, K. E., & Grossmann, K. (2003). Bindung: Von der Psychoanalyse zur Evolutionären Psychologie [Bonding: From Psychoanalysis to Evolutionary Psychology]. In: K. E. Grossmann & K. Grossmann (Hrsg.), *Bindung. Von der Psychoanalyse zur Evolutionären Psychologie* (2011. Aufl., pp. 29–37). Stuttgart: Klett-Cotta.

Grossmann, K., & Grossmann, K. E. (2017). *Bindungen: Das Gefüge psychischer Sicherheit.* [Attachments: The fabric of psychological security]. Stuttgart: Klett-Cotta.

Habermas, J. (1968). *Erkenntnis und Interesse* [Knowledge and Interest]. (Auflage 1991). Frankfurt am Main: Suhrkamp.

Habermas, J. (1981a). *Theorie des kommunikativen Handelns. Erster Band. Handlungsrationalität und gesellschaftliche Rationalisierung.* [The Theory of Communicative Action. First Volume. Action rationality and social rationalization]. (Auflage 1982). Frankfurt: Suhrkamp.

Habermas, J. (1981b). *Theorie des kommunikativen Handelns. Zweiter Band. Zur Kritik der funktionalistischen Vernunft.* [The Theory of Communicative Action. Second Volume. On the critique of functionalist reason]. (Auflage 1988). Frankfurt: Suhrkamp.

Hédervári, É. (1995). *Bindung und Trennung.* [Attachment and Separation]. Wiesbaden: Deutscher Universitätsverlag.

Hédervári-Heller, É. (2012). Bindung und Bindungsstörungen. [Attachment and Attachment disorders]. In M. Cierpka (Hrsg.), *Frühe Kindheit 0 – 3* (pp. 57–67). Berlin, Heidelberg: Springer.

Hofmann, F. (2017). Wie wird man ein Könner? Überlegungen zur Struktur von Fort- und Weiterbildung zur Entwicklung von Könnerschaft. [How do you become an expert? Reflections on the structure of further and further training for the development of skill]. *Zeitschrift für Bildungsforschung*, 7(2), 147–164.

Horowitz, L. M., Rosenberg, S. E., & Bartholomew, K. (1993). Interpersonal Problems, Attachment Styles, and Outcome in Brief Dynamic Psychotherapy. *Journal of Consulting and Clinical Psychology*, 4(61), 549–560.

Howe, D. (2015). *Bindung über die Lebensspanne: Grundlagen und Konzepte der Bindungstheorie.* [Attachment Across the Lifespan: Foundations and Concepts of Attachment Theory]. Junfermann.

Jaspers, K. (1982). *Weltgeschichte der Philosophie.* [World History of Philosophy]. München: Piper.

Kellert, S. R. (1984). Urban American perceptions of animals and the natural environment. *Urban Ecology*, 8(3), 209–228.

Kellert, S. R. (1993). The Biological Basis for Human Values of Nature. In: S. R. Kellert & E. O. Wilson (Hrsg.), *The Biophilia Hypothesis* (pp. 42–69). Washington: Island Press.

Kellert, S. R. (1996). *The value of life: Biological diversity and human society*. Washington: Island Press.

Klein, G. (2006). Kultur. In: H. Korte & B. Schäfers (Hrsg.), *Einführung in Hauptbegriffe der Soziologie* (pp. 229–249). Wiesbaden: VS.

Koch, W. A. (1981). Evolution des Kreativen: Symmetrie, Asymmetrie, Integration. [Evolution of the Creative: Symmetry, Asymmetry, Integration]. In: H. Schnelle (Hrsg.), *Sprache und Gehirn: Roman Jakobson zu Ehren* (pp. 158–173). Suhrkamp

Kruse, L. (2013). Vom Handeln zum Wissen – Perspektivenwechsel für eine Bildung für nachhaltige Entwicklung. [From action to knowledge – change of perspective for education for sustainable development]. In: N. Pütz, M. K. W. Schweer, & N. Logemann (Hrsg.), *Bildung für nachhaltige Entwicklung: Aktuelle theoretische Konzepte und Beispiele praktischer Umsetzung* (pp. 31–60). Frankfurt: Academic Research.

Kuhl, J. (2001). *Motivation und Persönlichkeit. Interaktionen psychischer Systeme.* [Motivation and Personality. Interactions of psychic systems]. Göttingen: Hogrefe.

LeDoux, J. E. (2006). *Das Netz der Gefühle: Wie Emotionen entstehen.* [The Emotional Brain. The Mysterious Underpinnings of Emotional Life]. München: Hanser.

Lewin, K. (1942). Feldtheorie und Lernen [Field Theory and Learning]. In: K. Lewin (Hrsg.), *Feldtheorie in den Sozialwissenschaften. Ausgewählte theoretische Schriften* (Auflage 2012.; Erstausgabe von 1963, pp. 102–125). Bern: Huber.

Lewin, K. (1943). Definition des Feldes zu einer gegebenen Zeit. Feldtheorie und Phasenraum. [Definition of the field at a given time. Field theory and phase space]. In: K. Lewin (Hrsg.), *Feldtheorie in den Sozialwissenschaften. Ausgewählte theoretische Schriften* (Auflage 2012.; Erstausgabe von 1963, S. 86–101). Bern: Huber.

Lokowandt, E. (2001). *Shintō*. München: Iudicium.

Lüddemann, S. (2010). *Kultur* [Culture]. Wiesbaden: VS.

Main, M. (1991). Metacognitive knowledge, metacognitive monitoring, and singular (coherent) vs. Multiple (incoherent) models of attachment: Findings and directions for future research. In: C. M. Parkes, J. S. Hinde, & P. Marris (Hrsg.), *Attachment Across the Life Cycle*. (Auflage 2004, pp. 127–159). Florence: Taylor.

Main, M., & Solomon, J. (1986). Discovery of an insecure-disorganized/disoriented attachment pattern. In: T. B. Brazelton & M. W. Yogman (Hrsg.), *Discovery of an insecure-disorganized/disoriented attachment pattern* (pp. 95–124). Norwood: Ablex.

Matthes, J. (1978). Die Diskussion um den Theorievergleich in den Sozialwissenschaften seit dem Kasseler Soziologentag 1974. [The discussion about comparing theories in the social sciences since the Kassel Sociologists' Day in 1974]. In: K. O. Hondrich & J. Matthes (Hrsg.), *Theorienvergleich in den Sozialwissenschaften* (pp. 7–20). Darmstadt: Luchterhand.

McConnell, A. R., Brown, C. M., Shoda, T. M., Stayton, L. E., & Martin, C. E. (2011). Friends With Benefits: On the Positive Consequences of Pet Ownership. *Journal of Personality and Social Psychology*, 6(101), 1239–1252.

Merton, R. K. (1968). *Social theory and social structure*. New York: Free Press.

Mesman, J., Van IJzendoorn, M. H., & Sagi-Schwartz, A. (2016). Cross-Cultural Patterns of Attachment. Universal and Contextual Dimensions. In: J. Cassidy & P. R. Shaver (Hrsg.), *Handbook of Attachment. Theory, Research, and Clinical Applications* (pp. 852–877). Guilford Press.

Mezirow, J. (1978). *Education for Perspective Transformation. Women's Re-entry Programs in Community Colleges (with contributions by Victoria Marsick).* New York: Center for Adult Education.

Mezirow, J. (1991). *Transformative Dimensions of Adult Learning*. San Francisco: Jossey-Bass.

Mezirow, J. (1996). Contemporary Paradigms of Learning. *Adult Education Quarterly*, 46(3), 158–172.

Michelsen, G., & Overwien, B. (2020). Nachhaltige Entwicklung und Bildung. [Sustainable Development and Education]. In: P. Bollweg, J. Buchna, T. Coelen, & H.-U. Otto (Hrsg.), *Handbuch Ganztagsbildung* (pp. 557–576). Wiesbaden: Springer.

Morton, T. (2016). *Ökologie ohne Natur: Eine neue Sicht der Umwelt.* [Ecology without Nature: Rethinking Environmental Aesthetics]. Matthes & Seitz.

Morton, T. (2019*). Ökologisch sein.* [Being Ecological]. Matthes & Seitz.

Müller, P. (2005). Was sagt das Symptom? [What does the symptom say?] In: K.-J. Pazzini & S. Gottlob (Hrsg.), *Einführungen in die Psychoanalyse I. Einfühlen, Unbewußtes, Symptom, Hysterie, Sexualität, Übertragung, Perversion* (pp. 47–68). transcript.

Opp, K.-D. (1999). *Methodologie der Sozialwissenschaften: Einführung in Probleme ihrer Theorienbildung und praktischen Anwendung.* [Methodology of the Social Sciences: Introduction to problems of their theory formation and practical application]. Wiesbaden: VS.

Orr, D. W. (1993). Love it or lose it: The coming biophilia revolution. In: S. R. Kellert & E. O. Wilson (Hrsg.), *The Biophilia Hypothesis* (pp. 415–440). Washington: Island Press.

Platon. (1993). Platon. *Sämtliche Werke 2* [Plato. All works 2]*: Menon • Hippias I • Menexenos • Kratylos • Lysis • Symposion* (W. F. Otto, Hrsg.; F. Schleiermacher, Übers.; 151.-153. Tsd). Rowohlt.

Piaget, J. (1947). *Psychologie der Intelligenz*. Klett-Cotta.

Piaget, J. (1969). *Nachahmung, Spiel und Traum: Die Entwicklung der Symbolfunktion beim Kinde* [Imitation, Play and Dreams: The Development of the Symbolic Function in Children]. Stuttgart: Klett.

Rombach, H. (1974). Phänomenologische Wissenschaftsbegründung. [Phenomenological Justification of Science]. In: H. Rombach (Hrsg.), *Wissenschaftstheorie* (Bd. 1, pp. 49–56). Freiburg: Herder.

Rombach, H. (1977). Die Grundstruktur der menschlichen Kommunikation. Zur kritischen Phänomenologie des Verstehens und Mißverstehens. [The Basic Structure of Human Communication. On the critical phenomenology of understanding and misunderstanding]. In: Deutsche Gesellschaft für phänomenologische Forschung (Hrsg.), *Phänomenologische Forschung* (Bd. 4, pp. 19–51). München: Alber.

Rombach, H. (1980). *Phänomenologie des gegenwärtigen Bewusstseins.* [Phenomenology of Contemporary Consciousness]. München: Alber.

Sahhar, N. (2012). Adult Attachment Interview (AAI). Entwicklung, theoretischer Hintergrund und Anwendung. [Adult Attachment Interview (AAI). Development, theoretical background and application]. In: M. Stokowy & N. Sahhar (Hrsg.), *Bindung und Gefahr: Das Dynamische Reifungsmodell der Bindung und Anpassung* (pp. 141–162). Psychosozial-Verlag.

Schratz, M., & Wiesner, C. (2020). Didaktik geht vom Schüler aus – aber wie? Mathetik und lernseitige Orientierung – Positionsbestimmungen. [Didactics start with the student – but how? Mathetic and Learning-Side-Orientation – Positions]. *R&E Source: Open Online Journal for Research and Education*, (14), 1–15.

Schulz, W. (1990). Zwischen Rousseauscher Naturromantik und Marlboro-Abenteuer. [Between Rousseau's natural romance and Marlboro adventure]. *Berichte der Bayerischen Akademie für Naturschutz und Landschaftspflege*, (14), 23–30.

Seubert, H. (2014). Kultur und Cultura Animi Subjektivität, Personalität und Inter-subjektivität in der interkulturellen Philosophie. [Culture and Cultura Animi Subjectivity, personality and intersubjectivity in intercultural philosophy]. In: E. Jammal (Hrsg.), *Kultur und Interkulturalität* (pp. 141–155). Wiesbaden: Springer.

Sroufe, L. A. (1990). An organizational perspective on the self. In: D. Cicchetti & M. Beeghly (Hrsg.), *The self in transition: Infancy to childhood* (pp. 281–307). Chicago: University Press.

Sroufe, L. A. (1996). *Emotional development: The organization of emotional life in the early years.* Cambridge: University Press.

Sroufe, L. A., & Waters, E. (1977). Attachment as an Organizational Construct. *Child Development*, 48(4), 1184.

Strauß, B. (2014). Bindung. [Bonding]. Gießen: Psychosozial-Verlag.

Tönnies, F. (1887). *Gemeinschaft und Gesellschaft. Abhandlung des Communismus und des Socialismus als empirischer Culturformen.* [Community and Society. Treatise on communism and socialism as empirical forms of culture]. Fues`s Verlag.

Tulving, E. (1972). Episodic and Semantic Memory. In: E. Tulving & W. Donaldson (Hrsg.), *Organization of Memory* (pp. 381–402). New York: Academic Press.

Tulving, E. (1986). Episodic and semantic memory: Where should we go from here? *Behavioral and Brain Sciences*, 9(3), 573–577.

Unterbruner, U. (1991). *Umweltangst, Umwelterziehung: Vorschläge zur Bewältigung der Ängste Jugendlicher vor Umweltzerstörung.* [Environmental Anxiety, Environmental Education: Suggestions for Overcoming Young People's Fears of Environmental Destruction]. Linz: Veritas.

Van Ijzendoorn, M. H. (1992). Intergenerational transmission of parenting: A review of studies in nonclinical populations. *Developmental Review*, 12(1), 76–99.

Van IJzendoorn, M. H. (1995). Adult attachment representations, parental responsiveness, and infant attachment: A meta-analysis on the predictive validity of the Adult Attachment Interview. *Psychological Bulletin*, 117(3), 387–403.

Vare, P., & Scott, W. (2007). Learning for a Change: Exploring the Relationship Between Education and Sustainable Development. *Journal of Education for Sustainable Development*, 1(2), 191–198.

Waldenfels, B. (1998). Antwort auf das Fremde. Grundzüge einer responsiven Phänomenologie. [Response to the Stranger. Basics of a Responsive Phenomenology]. In: B. Waldenfels & I. Därmann (Hrsg.), *Der Anspruch des Anderen. Perspektiven phänomenologischer Ethik* (pp. 35–50). Fink.

Waldenfels, B. (2017). *Platon. Zwischen Logos und Pathos.* [Plato. Between logos and pathos]. Suhrkamp.

Waldenfels, B. (2019). *Erfahrung, die zur Sprache drängt: Studien zur Psychoanalyse und Psychotherapie aus phänomenologischer Sicht.* [Experience that urges speech: Studies in psychoanalysis and psychotherapy from a phenomenological point of view.]. Suhrkamp.

Wals, A. E. J. (2011). Learning Our Way to Sustainability. *Journal of Education for Sustainable Development*, 5(2), 177–186.

Watzlawick, P., Bavelas, J. B., & Jackson, D. D. (1969). *Menschliche Kommunikation: Formen, Störungen, Paradoxien.* [Human communication: forms, disorders, paradoxes] (Reprint 2011). Bern: Huber.

Wiesner, C. (2019). Die Arbeit mit Gruppengestalten: Existenzanalyse, Feldtransformation und Beziehungspädagogik. [Working with Gestalten in groups: existential analysis, field transformation and relationship education]. *Erziehung & Unterricht*, 5/6(169), 433–442.

Wiesner, C. (2020a). Strukturdynamische Modellierung von Mentoring: Bewegungen, Richtungen und Ausrichtungen [Structural dynamics modeling of mentoring: movements, directions and orientations]. In: J. Dammerer, E. Windl, & C. Wiesner (Hrsg.), *Mentoring im pädagogischen Kontext: Professionalisierung und Qualifizierung von Lehrpersonen. Wahrnehmen, wie wir bilden* (pp. 85–111). Innsbruck: Studienverlag.

Wiesner, C. (2020b). Wege in die Entwicklungspädagogik. Einsichten in die pädagogische Entwicklungslehre. [Pathways to developmental pedagogy. Insights into pedagogical development theory]. *R&E Source: Open Online Journal for Research and Education*, (14), 1–25.

Wiesner, C. (2020c). Wertorientiertes Mentoring: Werte, Werthaltungen und Wertberührungen. Wert- und Sinnerfahrung als Thema des Mentorings – Reflexionen und Klärungen. [Value-oriented mentoring: Values, value attitudes and value touches. Value and meaning experience as a topic of mentoring – reflections and clarifications]. In: J. Dammerer, E. Windl, & C. Wiesner (Hrsg.), *Mentoring im pädagogischen Kontext: Professionalisierung und Qualifizierung von Lehrpersonen. Wahrnehmen, wie wir bilden* (pp. 213–241). Innsbruck: Studienverlag.

Wiesner, C., & Dammerer, J. (2020). Begleitung und Unterstützung der formativen Integration von Bildungsstandards. Haltung als Gelingensbedingung. [Accompanying and supporting the formative integration of educational standards. attitude as a condition for success]. In: U. Greiner, F. Hofmann, C. Schreiner, & C. Wiesner (Hrsg.),

Bildungsstandards. Kompetenzorientierung, Aufgabenkultur und Qualitätsentwicklung im Schulsystem (pp. 250–296). Münster: Waxmann.

Wiesner, C., & Prieler, T. (2020). Das transformative Lernen in der LehrerInnenbildung. Pädagogische Professionalität und Entwicklung des Lehrerhabitus. [Transformative learning in teacher education. Pedagogical professionalism and development of teacher habitus]. *R&E Source: Open Online Journal for Research and Education*, 1–18.

Wiesner, C. (2021). Das lebendige Geschehen: Die Verortung des Organon-Modells von Karl Bühler für ein gelingendes Mentoring Erste Skizze zu einer Pädagogik der Kommunikation, Interkation und Interpunktion. [The lively event: The localization of Karl Bühler's Organon model for successful mentoring First outline of a pedagogy of communication, interaction and punctuation]. In: C. Wiesner, E. Windl, & J. Dammerer (Hrsg.), *Mentoring als Auftrag zum Dialog. Professionalisierung und Qualifizierung von Lehrpersonen. Wahrnehmen, wie wir interagieren. Band 2*. Innsbruck: Studienverlag.

Wiesner, C., & Gebauer, M. (2022). In-Beziehung-Sein mit dem Natur-Sein. Bindungstheorie und Lernen verstehen, um kulturelle Nachhaltigkeit zu fördern [Being in relationship with being in nature. Understanding attachment theory and learning to promote cultural sustainability]. In C. Sippl & E. Rauscher (Hrsg.), *Kulturelle Nachhaltigkeit lernen und lehren* (pp. 435–458). Innsbruck: Studienverlag.

Wiesner, C., & Prieler, T. (2021). Umweltpädagogik transformativ anders denken. Lebensraumpädagogik für eine kontextsensible und authentische Entwicklung. [Thinking differently about environmental education in a transformative way. Lifeworld pedagogy for a context-sensitive and authentic development]. *R&E Source: Open Online Journal for Research and Education*, 1–33.

Wiesner, C., & Schreiner, C. (2020). Eine theoretische Rahmung für das Forschende Lernen unter Berücksichtigung einer Vielperspektivität. [A theoretical framework for research-based learning taking into account multiple perspectives]. In: A. Eghdessad & T. Kosler (Hrsg.), Transfer Forschung ↔ Schule: Forschendes Lernen (Bd. 6). Bad Heilbrunn: Klinkhardt.

Wilson, E. O. (1993). Biophilia and the conservation ethic. In: S. R. Kellert & E. O. Wilson (Hrsg.), *The Biophilia Hypothesis* (pp. 31–41). Washington: Island Press.

Wippler, R. (1978). Zur Methodologie des Theorievergleichs. [On the methodology of theory comparison]. In: K. O. Hondrich & J. Matthes (Hrsg.), *Theorienvergleich in den Sozialwissenschaften* (pp. 196–212). Darmstadt: Luchterhand.

Zach, U. (2012). Bindungsdiagnostik für Vorschulkinder. [Attachment diagnostics for preschool children]. In: M. Stokowy & N. Sahhar (Hrsg.), Bindung und Gefahr: *Das Dynamische Reifungsmodell der Bindung und Anpassung* (pp. 57–86). Gießen: Psychosozial-Verlag.

Ziegenhain, U. (2012). Sichere mentale Bindungsmodelle. [Secure mental attachment models]. In: G. Gloger-Tippelt (Hrsg.), *Bindung im Erwachsenenalter: Ein Handbuch für Forschung und Praxis* (pp. 151–172). Bern: Huber.

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