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Body Matters

In this chapter of our pilgrimage, we meet a systemic perspective, based on Gregory Bateson's work and complexity theory, to explore learning as an emergent feature of multiple levels of interaction. Transformation never happens within the individual organism alone but involves significant and proximal webs of relationships, groups and organisations; as well as changes in the broader society and the ecosystem. Systemic theories celebrate the 'pattern which connects' (Bateson 1979), the biological, narrative, socio-material, embodied, and embedded dimensions of learning, beyond individual cognitive life. The 'pattern which connects' is a sensitising concept to help us cultivate wider perspectives on lifelong learning and adult education (Formenti 2018), and to interrogate a range of epistemological issues in our culture. In the light of such a concept, individual behaviour, or affects, take on a different meaning when perceived for example in the context of the family. Moreover, this perspective may appear relatively optimistic in relation to transformation, as a process that happens *notwithstanding* our conscious effort. What is negative at one level can be positive at another: we begin, then, to look at a whole system as it manifests itself, without trying to judge or modify it. Acceptance, surrender, wisdom are key words in the systemic

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vocabulary: it is an invitation to celebrate interdependence, uncertainty, human fragility and imaginative hope.

Sofia and Clues into a Transition—Laura's Tale

I met Sofia during a biographically oriented co-operative workshop. Her story illuminates, from a systemic viewpoint, the implications of returning to university at a mature age. She is 42, and a primary school teacher. She does not have a degree, which was not required when she began working. After a year, however, at university, she is thinking of giving up; the courses are not designed for working students. She tells her story at a workshop attended by nine other students; she is the only mature person present, apart from the facilitator. She talks of what it means to her to be at university when working full time, with two children, a busy husband, and occasional help from a sister. Without the latter it would be difficult 'to keep on keeping on'. Her relatives, friends and colleagues think that she has a job. She does not really need this degree, in such terms. She is a good actress: she creates voices and faces to keep up appearances, while she repeats the mantra: 'You should take care of your children'. But she does not agree: 'It's not for the degree. It's for me. I'm trying to open my mind. If I am doing this, it's for the children too'. Around her, the other students nod. There are obvious echoes of Ibsen's Nora here.

When we invite the participants to make a drawing of their present situation, Sofia's sketch represents different symbols for family members and colleagues—but not for herself. She wonders about her way of representing her dilemma, to herself, and realises for the first time that the issues go far beyond dropping or not dropping out of a programme. The meaning of the choice for her, in her life and in relation to her identity, is at stake. After the workshop, she feels relieved and says there is no need to rush the decision. She needs time to reflect. Voicing her experience, listening and reacting to others' stories, has re-connected her to herself, to context, and others. She has expressed her embodied and embedded ideas, built in interactions with significant others, whose voices were powerfully presented during the workshop and whose roles in her story were symbolized in her drawing.

The workshop is based on a 'biographically oriented' cooperative method of inquiry (Heron 1996; Formenti 2018) that uses aesthetic languages to open possibilities, beyond an existing existential plot. This has prompted Sofia to take some distance from her proximal system—her family—its weaknesses, bonds, and her own positioning. Maybe she will draw a clearer boundary between herself and significant others after this. There are clues, indeed, that new possibilities have been opened: maybe a *transition* 'into a new quality of self—and world-reference—a process which leaves neither the learning nor the ambient structural context unchanged' (Alheit 2015, p. 26).

Sofia's story is like many that are heard in guidance and life design activities with adult learners. It reveals that learning concerns much more than individual or psychic transformation. Laura has used it to reveal how complexity theory can sustain a different understanding of narratives, as embodied and embedded processes (Formenti 2018). Stories of adult learning contain multiple dimensions and layers. Sofia's narrative is strongly related to her context(s) of living—family, workplace and university, which do not seem to sustain her choice at present—and to the larger context of society, where a woman, worker, mother, in effect, has no real right to further education. But the conversation she is having, here and now, in the workshop, creates a safe space, a space for thinking. New information enters the system and can begin to transform it.

In the systemic perspective, many entangled contexts and constraints shape adult behaviour and learning. We can imagine at least three 'levels of understanding'; the phrasing helps us to avoid reification: levels belong, in fact, to the world of ideas, they are creations of our minds. We should view them heuristically rather than reify them (Formenti 2011b). Firstly, at the micro-level, Sofia relies on her embodied, only partially conscious perception to interpret her situation. In this regard, her self-organising subjectivity is at stake: perception, emotions, interpretations of experience are, for an individual, strongly interconnected; they are signifiers of difference, built and expressed by her voice. She embodies her story in a unique way, due to (hence revealing) her mind/body structure, shaped by previous learning and constantly responding to sensorial information from a present context. Self-organisation is the way of life, in systemic theories.

Shifting our perspective, to the meso-level, we can see inter-subjectivity in play: Sofia's life-world is created by ongoing interactions in everyday conversation. A family system can be considered a self-organizing and transforming structure of a higher order, as Laura learned in her training as a family systems therapist (Burbatti and Formenti 1988). Such a group creates a culture of its own, with its own values, myths (Formenti 2014) and scripts (Byng-Hall 1995), about what is expected of a certain subject, who belongs to a particular group. Sofia's identity as a learner is built by feed-back loops telling her what is expected, what is a good mother, a teacher, a student in higher education, and so on. Her systems of relationships (family, work, university) shape her action and are shaped by it, circularly. The workshop itself, where the story was produced (a university programme using narrative methods in career guidance, see Formenti 2016; Formenti and Vitale 2016) constitutes such a circular conversation. This meso-level (Alheit and Dausien 2000, 2007; Formenti 2011b; Bohlinger et al. 2015) is under-interrogated in grand theories of adult education; surprisingly, since education is *precisely* a theory/practice of relationships and interactions shaping human behaviour, meaning and values.

From a macro-level perspective, we can then see how social structures and discourses sustain certain ideas and epistemologies, which may be historically and politically determined. Sofia's story is evidently related to gender, class, culture, and influenced by hegemonic narratives of primary teachers as mostly women, carers of children, not needing much education. As a mature student in higher education, she experiences the 'typical' constraints of non-traditional learners (Finnegan et al. 2014). So, in a sense, she is determined by these discourses. Biographical research in adult education has built critical awareness of the relevance of this macro-level in understanding the social nature of subjectivity, beyond being a 'purely psychological' fact (Salling Olesen 2012; Alheit 2009, 2015; West 2016). From a systemic perspective, self-organization is a feature too of larger organisations and social structures, which are treated as systems in their own right.

During the biographical workshop, Sofia seemed to arrive on the verge of a possible change of her set of presuppositions. But, exactly, what 'form' is being transformed here? Is it her story? Her persona? Her

deeper self? Her *posture*, physically and symbolically? Her relationship with significant others? Her relationship with us, the university, the larger system? We are witnessing not only an individual learning process, isolated from context(s), dis-connected from the sentient body. All the levels interact with one another. What will happen, when she goes back home? Will her new born awareness encourage her to have serious conversations with her husband, friends, and colleagues? Will her webs of affiliation transform with 'her'? And what about the larger system's transformation?

Each level of understanding has to be explained according to its own processes and cannot be reduced as a sub-set of another; rather they interact, influencing each other in entangled ways. Education can use these ideas to avoid linear thinking and the drift of individualism and dis-connection, in order to develop a more comprehensive theory (and practice) of what is at stake when we talk of learning and how it is fostered.

Multiple Levels of Learning

Bateson's theory of learning and communication (1964) is based on the capacity of the living organism to grasp and transform information (perceived differences) about its environment. It entails interaction with the environment that circularly shapes the organism and its world, by feed-back loops. Learning is living. Hence, at a very basic level, it is a biological process. We are no different, in this regard, from any other organism, like an amoeba or a sequoia forest. But the way our species evolved created multiple layers of complexity in our way of learning. Bateson draws on the theory of logical types developed by Russell and Whitehead[1] to articulate 4 logical levels of learning and communication, which we met earlier in the book:

[1]The basic tenet of this theory is that no class, or class of classes, can be a member of itself, neither can it be a nonmember. The name is not the thing named, and the menu is not the dinner. Errors of logical typing, however, are common in social sciences, and in human life; they generate paradoxes that can produce pathology, confusion, or creativity and new possibilities. In contrast to Russell and Whitehead, Bateson arrived at the conclusion that Nature does not work in a logical way.

- Learning 0 is the capacity to respond consistently with one's own structure: our body registers some differences, not all of them;
- Learning I is a change in quantity or the quality of one's response, drawn from a given set of alternatives (what we conventionally call learning);
- Learning II is a change in the set of alternatives (learning to learn, that is the building of meaning, presuppositions, frameworks, identities);
- Learning III entails a (rare and challenging) transformation of our way of setting alternatives (a transformation of the self and world-view) (Bateson 1964).

Learning I is not only about adding or increasing behaviours: it comprises habituation and forgetting, maybe the most common forms of learning, that allow people to select out irrelevant information and focus on what demands attention. Unlearning is a dimension of learning in these terms.

Bateson's theory focuses on the micro-level, but it shows how the proximal and larger context are involved in the creation/transformation of meaning (Learning II) and perspectives (Learning III). We have already introduced this in Chapter 2, when discussing Bauman's critique of deutero and tertiary learning (Levels II and III). Learning I can be achieved in different ways: a child can learn how to read by imitation, or under the menace of punishment, or pushed by the need to solve a problem, and these pedagogies can be implemented more or less intentionally by a rewarding or blaming adult, by a lovely grandparent, or tacitly through being close to an older sibling. The same action is to be learned, but within different contexts and relationships. A living being who is raised in a certain learning context will anticipate further contexts coherently in the light of experience.

> Experience of one or more contexts of the Pavlovian type results in the animal acting in some later context as though this, too, had the Pavlovian contingency pattern. Similarly, if past experience of instrumental sequences leads an animal to act in some later context as though expecting this also to be an instrumental context, we shall again say that Learning II has occurred. (Bateson 1964, p. 294)

Educators, psychiatrists, anthropologists, parents, among others, have to make assumptions about this level of learning, and these assumptions are detectable in their pedagogical choices, but not always understood as such. Education is not only about Learning I, it is also about Learning II. It enters in what Bateson calls 'building character', that varies in cultures, groups and families. The categories that we use to define people describe a system of relationships, not individual properties. A girl learns what 'a woman' is by coordinating her interactions with her environment. If she is 'daddy's sweet little doll', as in Ibsen's drama, such learning will shape future behaviour. We also learn to 'punctuate' interactions, or how to sequence and pattern relations of love, conflict, power, care, education, etc. ('no man is "resourceful" or "dependent" or "fatalistic" in a vacuum', Bateson 1964, p. 298). Bateson considers the psychoanalytic concepts of *transference* and *counter-transference* as another example of Learning II, reflecting our ability to interpret the relationship at hand using already existing frames of meaning (here again, early experiences have a pivotal role).

These examples show different kinds of self-validating processes that we use to interpret experience and consolidate it. Without this level of learning, no meaning can be developed. We need to trust our assumptions, if we want to be part of the human community (Ruesch and Bateson 1968). Learning II is 'almost ineradicable' (p. 301) in Bateson's view; it is deeply rooted in early infancy, unconscious but not necessarily repressed, in Freud's terms: it simply happens corporeally and builds *habits*. The structure of character is so deeply ingrained that occasional awareness of aspects of it is no guarantee of transformation.

> Subjectively we are aware of our 'dependency' but unable to say clearly *how* this pattern was constructed nor *what cues* were used in our creation of it. (Bateson 1964, p. 301, *italics are ours*)

It must be clear that, in Bateson's view, the context of learning is not 'out there', but embodied, inscribed in the learner's structure, stabilised or challenged in each new interaction. Among these, the interactions with others are especially relevant and constitutive: as with all mammals, we use communication for relational ends. Language has

biological roots, and non-verbal communication plays a crucial role in it. This opens new perspectives on learning, as an unconscious, embodied and interactive process (Formenti 2018). Bateson's unconscious is close to Freud's primary process, to the language of dream, play, art, and fantasy (1967). Our animal side is not separable from soul, but both are often missing from discourses of learning.

Learning III is a change in Learning II, and even more difficult and rare. It can be equated to Mezirow's transformative learning, but there is a difference between Bateson and Mezirow in terms of the interplay of and weight to be given to conscious and unconscious processes, as well as in the trust they put into the feasibility of 'real' change. Bateson is skeptical of learning based on conscious processes, since we are aware, at best, of a limited part of the whole system—a small arc of a larger circuit (see also Bateson 2016). Besides, our body/mind unit does not wait for us to be aware, to make its own adjustments. Awareness is slow, misleading, too linear, and too purposeful. In a word, anti-ecological. We too easily forget to listen to our body, perceptions, and emotions. His suggestion, then, is to ask the unconscious to illuminate the construction of our patterns of relationship, by playing with art, storytelling, and imagination as well as religion—this is abductive knowing involving thinking in stories (Bateson 1979). These represent resources of knowledge, mental health and hope.

Jack Mezirow (1991) was in fact inspired by Bateson's learning categories when developing his transformative theory of adult learning. In the first formulation of his theory, he identified four forms of learning: the first and second are very similar to Learning 0 and I, and do not transform the learner's perspectives of meaning:

1. Learning through existing frames of meaning, where perspectives are taken for granted, and
2. Learning of new frames of meaning, where perspectives are confirmed, or even reinforced (when new frames of meaning are added and integrated in old schemes, without challenging them).

The other two forms, defined by Mezirow as 'transformative', act on different levels, but their leverage is always a moment of awareness:

3. Learning by *transformation of the frames of meaning* (similarly to Learning II) is provoked by becoming aware of the inadequacy of previous frames, hence necessitating reflection on one's assumptions. The example given by Mezirow (1991) connects with Sofia's story: a woman, a mature student at university, rushes home every evening to prepare dinner for her husband; she realizes that her fellow women students at the university interpret these actions differently: is it care or submission? Free choice or obligation? So, she is brought to challenge stereotyped gender roles, a hidden frame of meaning until that moment. In 'A Doll's House', Nora's realisation of her own participation in the relational game evokes the slamming of a door. As I am now, I cannot be your wife: meaning and identity are strongly linked.
4. The *transformation of perspective* (very similar to Bateson's Learning III) entails a deeper challenge of previous structures. It is possible, after abandoning habitual dinner preparation, that the woman begins to question other behaviors that confirm a stereotyped identity; she might become aware, through critical thinking and reflection, about the assumptions that sustain a distorted and/or incomplete perspective: this is the most significant kind of emancipatory learning, since it drives deeper life change.

If we accept this idea, awareness would bring us to more flexible and open perspectives, and transformation might mean a stronger sense of self, a critical understanding of social relationships and cultural conditioning, and more functional actions, but is not always like that. If deeper assumptions are shaken, identity and meaning are threatened, people become confused. Double binds (Bateson 1972) are deeply disorientating, because they disrupt our trust in the possibility of meaning (Ruesch and Bateson 1968). In these cases, the unconscious takes over and pushes us to re-organize the whole personality, for better or worse, sometimes surrendering to the impossibility of new meaning. The person becomes 'another', as in psychosis, conversion, art, mysticism, or deep healing: these phenomena are cited by Bateson when speaking of Learning III. They are rare, as they should be, since they burn much energy. We tend to avoid the burden. This is also Bauman's concern, when he says that a life in forced tertiary learning is not viable (see Chapter 2).

So, transformation can involve the whole personality, the life philosophy of a person, bringing greater flexibility in the premises acquired by Learning II, 'a *freedom* from their bondage. […] But any freedom from the bondage of habit must also denote a profound redefinition of the self' (Bateson 1964, p. 304). There is no linear relationship between Learning II and III: Learning *about* Learning II is a leap that can lead to a dramatic limitation of the subject's capacity to learn, as well as an increase of it. There are different possible outcomes of such a re-organization. Learning III in our mature woman learner could bring depression or creativity (or both). At a certain point, maybe after a deep crisis, she could free herself from a narrative that 'she' is simply her existing habits and behaviour. She might realise that the issue is not 'simply' changing her ways of doing, or interpreting them. It could involve ceasing to make dinner, or re-negotiating rules with her husband. She could leave him too, like Ibsen's Nora: in a sense, this would be the simpler solution, a way to avoid the messiness of Learning III. Or partners might find a more creative and respectful way of staying together, improvising new scripts (Byng-Hall 1998), where *both* would need to become less predictable. The feeling of a coherent self (based on Western epistemology) is generated, if we follow Bateson, by Learning II, while Learning III would make the concept of 'self' less nodal, more fluid, in the punctuation of experience, as illuminated in Zen stories and Western mysticism. In this journey to transcendence and the pursuit of 'happier' relationships, we let go of ego, or self, in the narrow definition of the term. In her work with family therapists and educators, Laura has witnessed the transformative effects of dialogue, as couples learn from each other new ways of living, more respectful of each other's needs and differences.

What then is the role of awareness? For Bateson, the conscious/unconscious relationship is pivotal: that which we know best is that of which we are least conscious, as any artist or expert would confirm. So:

> […] the process of habit formation is a sinking of knowledge down to less conscious and more archaic levels. The unconscious contains not only the painful matters which consciousness prefers not to examine, but also many matters which are so familiar that we do not need to inspect them.

> Habit, therefore, is a major economy of conscious thought. (Bateson 1967, p. 141)

It is not possible, or even desirable, for economic and logical reasons, to achieve total awareness. Consciousness—knowing that we know—is problematic, as it is coupled with purpose. We can be aware, at each moment, of only a small arc of a larger circuit, selected by purposeful attention and systematic distortion. Awareness can be strongly misleading and anti-ecological. This is also why assumptions, the very matrix of our ideas, do not need to be challenged at every moment.

> *The cybernetic nature of self and the world tends to be imperceptible to consciousness* […] Our conscious sampling of data will not disclose whole circuits but only arcs of circuits, cut off from their matrix by our selective attention. (Bateson 1972, pp. 444–445)

How then can we trust ourselves, or the world when we must rely on conscious purpose to change situations that are intrinsically complex and entangled? Situations of which we are part? For example, when we intentionally try to push someone to a particular experience of learning, maybe to transform. When we try to achieve a change in our or others' behaviour, or relationships, it is likely that we do it with little understanding of the delicate system of interdependence that we disturb. No wisdom, no sensitivity towards the pattern which connects, but rather a narrow, linear view, based on purpose, and even arrogance, risks destroying a system. Then again, some systems need to change radically, perhaps, as with Nora: they become unsustainable.

A Relational Perspective and Learning in the Proximal System

Mind and nature, culture and biology, conscious and unconscious processes, are parts of one and the same process that is (human) life. Bateson was a biologist and an anthropologist: to survive, people need to find their own, if unstable, equilibrium, but they also need to

coordinate their actions, scripts, and worldviews with others. We strive all the time to answer implicit questions: 'Who am I for you? Who are you for me? What are we here for?' Communication is a way to answer these questions: level one (the content of our messages) is framed and signified by level two (relationship), and both may refer to larger contexts (Pearce 2005). Each action then, from preparing food, to walking in the woods, or making love with someone, is done in co-evolution and coordination with our natural and social world. Classes of actions, like conflict, taking risks, and taking care of someone, are based on Learning II: we learn what is 'conflict' or 'love' or 'trust'. We learn 'punctuations' (Keeney 1983) by sequencing and patterning relationships in specific ways.

A good example of relational learning is *schismogenesis* (Bateson 1972). Literally, it is the amplification of a difference between two or more participants, and a basic process in cultural evolution, since it produces and transforms relational patterns between subjects, groups, or nations. They can develop symmetry and/or complementarity; more often, a combination of the two. When symmetry is developed, the context is defined as antagonistic or cooperative: 'we' are in the same position (no matter if in war or love: it makes us similar). When complementarity is developed, we learn about domination and subjugation: the pattern defines who is 'up' and who is 'down' (no matter if achieved by control or care). These patterns and their possible combinations can be used to read intercultural as well as interpersonal relationships. Conflict and alliance, inclusion and exclusion, fundamentalism, stigma, scapegoating are phenomena where difference is amplified to become a huge divide and can lead to destruction and death of the whole system and its parts. Complementarity can heal symmetry, and inverted complementarity can re-equilibrate power structures.

Schismogenesis may also enter in the reciprocal construction of identity. Who am I, that I can love (or hate, or dominate) you? Who are you for me? To be a persecutor, you need a victim. To be a child, you need a parent. To have an enemy you need to behave as such. Our relational life is a game of interpersonal perception and construction (Laing et al. 1969). We need coordination within groups and larger systems: workplace, community, organizations, law. In recent decades,

immaterial legal entities, not persons, but conceived as such by the law, have increased in their number and power. This is an issue: can we 'coordinate', as single individuals with such corporate systems, or do we become like ants and bees, disposable? We will re-examine this question at the end of the chapter.

Another example of relational learning is *family scripts*: John Byng-Hall (1998) uses this theatrical metaphor, along with attachment theory and systemic family therapy, to illuminate how families learn to increase their sense of security, in order to take risks and improvise new patterns of relationships. Self-transformation within the family entails improvisation, as stated, where scripts can be established as well as transformed. This requires several re-enactions and stories to become fully embodied and triggered in automatic, unconscious ways. This is an example of Learning II, fixed by family rituals, myths, and legends. Scripts define what is expected of us: they prescribe action, while stories give an account and often fix the meaning. This explains why narrative therapies can fail, when they only attend to meaning and belief, with no grasp of action and interaction. Scripts are compelling, they seem to act upon us. Re-editing them (or 'transforming' them, we could say) is wiser than trying to change them too precipitously.

Byng-Hall uses the systemic interpretation of attachment created by the Lausanne team (Fivaz-Depeursinge and Corboz-Warnery 1999), to explain how relational scripts may be learned, enforced, and transmitted at a very early age. Babies participate in relationships from the very beginning and family life may be seen as a stage where diverse ways of relating are tried out. Transitional scripts are especially interesting: moved by desire and play, they allow experimentation and improvisation, if within certain limits. Family improvisation is collective learning: it can emerge from necessity, when old solutions do not work, but also from curiosity, or fun, when some member has a desire and feels safe about pursuing it. Healthy uncertainty and playfulness in family life need safe enough relationships, and the role of a family therapist, educator, or social pedagogue is to sustain improvisation and playfulness, by offering a safe space for the whole family. In Laura's experience, the leverage for family learning can be anxiety, for example when members do not know what to do or how others will respond. But a whole situation

may get stuck, be too familiar so people do not feel anxious enough to transform. In such cases, displacement can open new possibilities, by using art, play and fantasy, for example.

Byng-Hall rooted his theory of relational scripts in his own biographical experience with family legends and myths. He recognised the position of the professional within the system, resonating with the family in treatment and learning how his own action is affecting the therapeutic process. This is a good hint for adult and family educators: the observer is always part of the system, as we observe later on.

Family Learning

In her research with families and family educators, Laura has focused on how people *learn together by living together.* There is no other way to learn what it is to be a child, a parent, a lover, or a grandparent. It happens day to day: a slow, unperceived, continuous formation achieved by coordinating actions, feelings, stories, values within and with 'this family', a 'we' identity and a 'culture' of our own. In a study of family myths, for example, young women were asked to write about their birth (Formenti 2014b), an event that we cannot remember, at least consciously, so we must largely rely on what we are told. Storytelling about birth has the features of myth: it is received, repeated, relational, metaphorical, symbolic, incomplete, and not necessarily true.

Daniela, one of the participants in the above study, wrote about being 'fooled' by her mother, who had forced herself, the mother claimed, into a very uncomfortable position of breastfeeding the reluctant baby, Daniela, and then blamed the child for her back pains, over many years. If we read the text at the micro-level, Daniela gives voice to her sorrow and embarrassment, about something that was not her fault. However, reflexivity, activated by writing (Hunt 2013), helps build a distance from the received narrative, and through this a possible transformation begins. The text shows, at a meso-level, how the family myth, iterated on many occasions, crystallised the story of an isolated unsatisfied mother and a difficult child trapped in a complicated relationship. Blaming each other became a family script. But where is the rest of the

family? Why was this mother left so alone and desperate? For the story to transform, towards new possibility, the whole system has to be made more visible, and its scripts revisited. Daniela cannot afford to become a mother without some revision of the narrative.

Then, the macro-level should be considered: discourses about motherhood became, in the second part of the last century, increasingly heavy and demanding on women. A child's health, wellbeing, intelligence, and even happiness are expected to depend on the mother's competence. But mothers are left alone, lacking previous knowledge or good intergenerational models for childcare, while medical expertise and hospitalisation strips them of their agency and generative power. Daniela's mother wanted to breastfeed: this is what a good mother is expected to do (but when Laura was born, good mothers were expected to buy expensive powdered milk). But: did she *desire* this? The rhetoric of obligation impinges on mothers and creates anxieties that disturb early relationships. Perspective transformation, in such situations, would entail sustaining mothers and families in revealing such hidden processes alongside talking back to medical power, or the common-sense consensus. The more agentic mother, within a collaborating family, brings hope for the future.

Family learning is rooted in the body, in the material and psychic conditions of life, on one side, and the wider social and cultural context on the other. It connects the micro and the macro through very concrete interactions. Gender, class, roles, as well as care, love and hate are learned through trans-individual processes (Simondon 1989/2007; Combes 2012) where the individual and collective form and transform together, inseparably and interdependently. While the traditional grasp of biographies is based on the singular story, often isolated from the proximal context, in the systemic view a biography needs to be read in the context of relationships. So, parenthood is built with others: with your child, as in Daniela's story, who is also learning what it means to be the daughter of this mother, with this father, and with these grandparents, doctors, neighbours, friends, teachers. An ongoing process of multiple coordination—a *dance* of interactions, conversations, storytelling, and explanations—builds the dynamic system that is called (with some dangers of reification) 'the family'.

Dis-connection: An Epistemological Mistake

Bateson invites us to interpret our problems as rooted in epistemological presuppositions.

> I have studied the area of impact between very abstract and formal philosophic thought on the one hand and the natural history of man and other creatures on the other. This overlap between formal premises and actual behavior is, I assert, of quite dreadful importance today. We face a world which is threatened not only with disorganization of many kinds, but also with the destruction of its environment, and we, today, are still unable to think clearly about the relations between an organism and its environment. What sort of a thing is this, which we call 'organism plus environment'? (Bateson 1970, pp. 448–449)

This quotation is dramatically relevant, half a century later, after the irreversible changes that have happened to the earth's ecology. We bear witness to ecological catastrophe, war, terrorism, mass migration, increasing inequality and poverty, desperation, and ugliness worldwide. By using one word—*disorganisation*—to summarize all of this, Bateson was doing what he was good at, that is searching for 'the pattern which connects' (Bateson 1979) different phenomena, from cells to cities, from families to ecosystems. Systemic organisations do dis-organize, and necessarily so sometimes. To allow life, you need death. Bateson warned us of the end-linkage, that is when living beings are about to destroy the very system they depend on, hence killing themselves in the process. As dinosaurs may have done, sixty-five million years ago. By our insane epistemology, we are creating the conditions for the extinction of human life, if not the whole planet, every day, by polluting the spaces in which we live, our relationships, and minds. Ideas are very concrete things, they produce effects, out there and inside us. This is what education should take as a primary concern. How did we come to this point? What can we do about it? And what has this to do with transforming our perspectives? We may be preparing students, neo-liberally, for labour markets, or the seductions of consumption, rather than to be engaged, reflexive, sensitive, educated citizens.

In another famous quote, Bateson was addressing the regents of the University of California:

> *Break the pattern which connects the items of learning and you necessarily destroy all quality.* (Bateson 1979, p. 8, italics in the original text)

The pattern which connects was his way to conceptualise knowledge, learning and communication as complex interrelated phenomena. Linear and disconnected presuppositions produce pathologies and shortcomings in our world, primarily,—it needs to be said—through education. His concern appears more urgent today, if we look at the fragmentation of disciplines and increasing specialisation, linearity, and problem solving. Students do their tests to receive a mark, then forget everything about the contents and go on to the next, disconnected topic, until they exit the system of education unable to make connections between contents and context, to interpret their lives, or to gain any sense of unity and meaning. What is knowing? The fragmentation of paradigms, theories and models, each claiming to be truth, so typical of solid modernity, is replaced by disconnected 'evidence', to which everybody should conform without asking in which context the evidence is valid. Problem solving is endemic: linear and narrow conscious purpose is the driver, until the next problem arrives, and mistakes accumulate. Even liquid modernity and disorientation, as well as the commodification of life, as illuminated earlier, are rooted in or exacerbated by a fractured epistemology.

Dis-connection is evident too in the construction of material and symbolic walls between communities. The separation of disciplines and professions, younger and older generations, social classes and groups, and the classification of humanity into 'us' and 'them', based on religion, ethnicity, ideology, paradigms, or whatever, builds closed communities that act like immune systems, creating their own understanding, language, and ways of doing. The need to define one's own 'field' nurtures defensive strategies vis-à-vis the stranger, who becomes an intruding body.

A satisfactory theory of adult education and learning must re-compose meaningful pictures, reflecting more adequately life as a whole,

drawing together plural perspectives to overcome dichotomy, the dominating logical principle of Western epistemology that 'destroys quality', Bateson warns us. By celebrating connections, we foster the creative, generative composition of ideas, stories, and levels of understanding. The 'ecology of mind' (Bateson 1972) is a call to recognize interdependence, not separation, as the key feature of living. If the 'unit of learning' is the whole formed by organism-plus-environment (Bateson 1972), any individual change depends on as well as provokes and sustains other changes in the larger system.

Difference, Outlines and the Limits of Human Perception

> *Information* consists of differences that make a difference. (Bateson 1979, p. 110)

We argued in Chapter 3 that perspectives are about perception. It is not only a metaphor. Following Bateson, a mind is any (living) system that creates and transforms differences by co-evolving with its environment. Difference is nowhere, in space and time. It is a 'nonsubstantial phenomenon' (Bateson 1979, p. 102) that needs 'a *receiver* (e.g., a sensory end organ)' (p. 106). Gradients in the structure of the environment are mirrored by gradients in the structure of the perceiver. So, only some differences make a difference for the living organism, be it a cell, plant, animal, or human being. The absence of gradients, an 'unchanging' or 'undifferentiated' object is not perceptible until we make a movement in relation to it, or act upon it. Bateson gave the example of touching a spot of chalk on a blackboard:

> My finger goes smoothly over the unchanged surface until I encounter the edge of the white spot. At that moment in time, there is a discontinuity, a step; and soon after, there is a reverse step as my finger leaves the spot behind. (Bateson 1979, p. 107)

This difference is not in the spot, nor in the blackboard. It is an 'idea', immaterial, free from time and space limits, it can endure long after (in

fact, we are still processing it). Here, Bateson quotes Immanuel Kant, the German philosopher: differences (*Tatsachen* = potential facts) in a piece of chalk are potentially infinite, but only a few of them become effective in the mental process. Seeing works similarly, gradients become visible when we move our eyes and heads; the image on the retina must constantly move in order for us to see. Borders are especially interesting: information concentrates in outlines, as every neurobiologist or ICT designer will know. Outlines, again, are not out there. We establish them, by drawing them. Spencer Brown and von Foerster arrived at the same conclusions, the former with his logical formal imperative 'Draw a distinction!' (Spencer Brown 1972, p. 3), the latter with the aesthetical imperative: 'If you desire to see, learn how to act' (Foerster 1973, p. 61).

In this regard, Bateson (1979, p. 27) loved to quote William Blake:

> *Wise men see outlines and therefore they draw them.*
> *Mad men see outlines and therefore they draw them.*

So, perception is an active process of knowledge building, but it is limited by habit (we are unable to perceive gradual change), thresholds (only some gradients are perceptible), attention (we select what to look at). Besides, notwithstanding the panoply of senses we have, and that enhance our adaptability, we use them in very narrow and impoverished ways. Moreover, perception, as in all our inner changes of state, is undetectable, beyond simple mantras about evidence. How can we enhance, then, the individual's capacity to perceive and to take responsibility for her/his perception—or lack of it? This is extremely important, if we think that the differences we construct are then coded, translated, and transformed to become ideas, and then composed with other ideas to make complex aggregates (punctuations, hypotheses, patterns, theories). There is no causal relation between any singular perception and the organism's response. Like, for example: 'After seeing this, he answered that'. It is not seeing, or hearing, but the meaning of what is seen and heard, and the meaning is embodied in the complex coding system of the perceiver. To grasp this meaning, we need to know the coding system, and how it was built. These arguments work in favor of auto/biographical studies, if we accept that previous experience structures the subject's systems of perception, classification, and management

of meaning. Perspectives are embodied as well as biographical and contextual.

If the body is the substratum of learning, perception and action are highly relevant for education, but they are undervalued in favour of verbal language and disembodied discourse.

After Bateson: The Contribution of Complexity

Bateson's ideas were developed further within complexity theory (Morin 1990, 1977/1992, 1999), which considered learning as an emergent feature of self-organizing systems. It is a range of different theories, indeed, with many nuances and ambiguities (Alhadeff-Jones 2008, 2010): systems theory, autopoiesis (Maturana and Varela 1973/1980), radical constructivism (von Glasersfeld 1984; Riegler 2012), second-order cybernetics (von Foerster 1974), among others. They developed at the intersections of different disciplines (biology, physics, cybernetics and computer science, communication, philosophy, logic, aesthetics, psychology, anthropology, sociology, family therapy, just to mention a few) as a transdisciplinary frame intended to devise more complex and respectful theories and practices in ecology, therapy, education, organisation, health, and so on. Laura learned about complexity from her initial work with the Milan School of family systems' therapy (Boscolo et al. 1987; Burbatti and Formenti 1988), before moving to adult education and social pedagogy.

Complexity can highlight, in fact, educational theory (Mason 2008; Jörg 2009), the organization of educational systems (Stacey 2005; Davis and Sumara 2006, 2008; Loorbach 2010; Snowden and Boone 2007), the implementation of educational reforms (Snyder 2013; Morrison 2010), and even the democratisation of adult education (Biesta 2006; Osberg and Biesta 2010), by building a more integrated theory of learning contexts (Edwards et al. 2009; Haggis 2009) and adult learning (Fenwick and Edwards 2013). It has also been explicitly connected to the theory of transformative learning (Alhadeff-Jones 2012; Nicolaïdes and Marsick 2016).

The perspective of complexity contains six valuable epistemic ideas (Alhadeff-Jones 2012):

- a tension between generality and singularity;
- circular causation of learning (since no linear, deterministic cause can explain it);
- *emergence* of a new property from a whole or process;
- multiplication of perspectives;
- interplay of autonomy and dependence; and
- the knower as an active builder of knowledge.

The latter is what complexity authors define as 'observing systems' (Foerster 1981). We will illustrate it by a film where the thesis of a detached researcher/observer is disproved.

As Observing Systems, We Are Compromised

Kitchen Stories (2003) is a Norwegian movie directed by Bent Hamer, which shows what happens when we try to objectively observe human behaviour. Folke, a young Swedish man, is sent to Norway by his employer (a company studying human behaviour for marketing reasons) to observe Isak, a lonely old Norwegian. He has to document the man's movements across his kitchen, by drawing and counting them on a map. The study is aimed at optimising kitchen furniture for male use, and it follows rigorous positivistic rules, to guarantee objectivity: hence, observer and the observed must not interact. 'Thou shall not interact!' How to respect this imperative, however, when two human beings live side by side in the same space? A tenet of the systemic approach is the impossibility of not communicating (Watzlawick et al. 1967).

The film shows how the differences between the two men—Norwegian/Swedish, observed/observer, old/young, poorly/highly educated—bring a clash of meanings in their relationship. Very soon, Isak, who had his own reasons to volunteer for the study (the promise of a horse), stops using the kitchen and makes a hole in the ceiling to spy on the young man. The observed becomes the observer. The story goes on, with several messages—differences that make a difference—that develop into a full relationship, with the construction of reciprocal

identities, scripts, and meanings. Then a third man enters in the story, and the plot thickens with emotions of conflict, love, alliances, tenderness, and violence, as happens in all human systems.

'Thou shall not interact!' is paradoxical, because it states a priori a way to interact, indeed. Laura frequently met this paradox in her work with professional educators and social pedagogues, who are told to take a 'neutral' and 'objective' perspective, for example when they assist in meetings between fostered children and their parents. The relational complexity of these encounters requires a more creative and compositional framework of understanding, and the awareness that the observer is a part of the system. This is the aim, for Laura, behind using participatory and cooperative methods with professionals and family members, as a form of intervention *and* research.

Reality is not 'out there'; but an ongoing construction (Watzlawick 1984). The objectivity/subjectivity dichotomy is replaced by circularity, of knower and known. 'Everything said is said by an observer […] everything said is said to an observer' (von Foerster 1974, p. 401), or better by/to an observer community, since 'observing takes place in languaging' (Maturana 1990, p. 102). Observing is made possible, indeed, by *languaging*: Maturana and Varela (1987/1992) use the verb to highlight the process of interaction/communication that sustains knowledge construction.

Languaging is beyond words or naming the world 'out there': it is a way of coordination, reciprocal orientation, and doing things together. Words, in their apparent denotative meaning ('naming') compel people to act in certain ways; they have a deeper connotative and performative significance. Hence, the value of our linguistic constructions (descriptions, stories, even theories) is not to be found in their *correspondence* to an independent, objective world, but in their *viability* in our world of experience (von Glasersfeld 1981). This is the basic tenet of radical constructivism: knowing is about selecting what maintains the knower's structure. Cognition is an ongoing structural drift (Maturana and Varela 1992) producing simultaneously the subject, the object, and their relationship.

As with Isak and Folke, we are observers of ourselves and others. Our observation is not neutral: we construct the world following (the

limits of) our perceptive structures and the assumptions they incorporate. Their meaning is co-constructed with our socio-material environment, webs of affiliations and previous conversations. Thus, our whole life-world is constantly *enacted* (Varela et al. 1991) in circular loops of co-evolution that form higher order units (Maturana 1990): families, teams, organisations, and larger social systems, each with their own internal consistency, identity, language, and mythologies. Each observer community feeds us with words, ideas, and actions. They connect, overlap, conflict, and influence each other, not least through ourselves. We are bridges between cultures. A child is a bridge between school and family, with all the issues this can raise. A worker is a link between employer, State, and the proximal system. To understand learning we need to grasp this complex, entangled dynamic. If a group, organisation or family are 'minds' of a more abstract quality, are they capable of learning and transforming in their own way? A theory of learning needs to understand how these systems influence, constrain or liberate learning of a more individual kind.

From Trivialization to Complex Education

There is a trend in education to treat complex systems as 'simple' or at best 'complicated' ones (Snyder 2013): input-output machines, which are expected to reproduce the same answer to the same question (like a dispenser), or entailing more refined technology and algorithms, 'imitating the complexity of life', hence 'capable of learning'. But they are still machines. Von Foerster (1993) calls them *trivial machines*, and *trivialisation* is the dreadful attitude of 'institutionalised pedagogy' designed to reduce human complexity and unpredictability, maybe to produce 'reliable' citizens. Linear pedagogy is driven by conscious purpose. At school and university, questions allow one 'right' answer, overlooking that 'wrong answers' are often the most interesting because they reveal much more of the learner's perspective. Tests, as Heinz von Foerster loved to say, get us nowhere (Foerster and Pörksen 2002).

Education is too frequently a means to trivialise others, by isolating and silencing them. A living system cannot be fully explained, or

controlled, without damaging its delicate equilibrium, since it will react to our attempts to control. When we construct the other as simple (or complicated), we do not care about her interpretation of the situation: we give instructions, we explain her behaviour as having 'causes', we expect repetition of previous answers and use our 'expert knowledge' to model and forecast 'results'. Complexity asks us to engage with the other, recognising that we are fully compromised, as parts of an ongoing process of mutual learning. We can only know a living system by engaging in interaction, hence creating a new system of a higher order, where our actions are interdependent. 'Structural coupling' is a form of co-evolutionary learning (Maturana and Varela 1987). From this, new information can *emerge*, unpredictably. 'The complex is the realm of the unknown unknowns. It is a space of constant flux and unpredictability. There are no right answers, only emergent behaviours' (Snyder 2013, p. 9).

The concept of *emergence* shifts education from a common sense view of instructing or modelling the other, based on the power of knowledge, to a 'disempowered' and 'unknowing' position, towards more of an invitation to dance, or play, and to create space for the emergence of multiple, embodied, conscious and unconscious perspectives: ones that foster conversations where learners can compose different perspectives in order to allow more ecological interpretations of the situation at hand, good enough to effectively act and keep the ecosystem alive. There is no guarantee of 'results', when we act in this way. Complexity theory recognizes and praises uncertainty in education:

> We should learn to navigate on a sea of uncertainties, sailing in and around islands of certainty. (Morin 1999, p. 3)

There is no 'possession' or 'increment' of knowledge, no accumulation of competence. The commonplace idea of learning as a good, stocked in our heads, leaves little place for the happening we can call living, where 'learning' is the word that describes an experience of becoming. An experience, to repeat, bearing implicit relational questions: Who am I (becoming) for you? Who are you (becoming) for me? What learning are we here for?

To Conclude

Can complexity theory inspire new ways to think and maybe favour more ecological processes in education? The pattern which connects fuels our curiosity for the system and irreverence for established perspectives (Cecchin et al. 1992); it invites us to compose different representations of learning, as social *and* individual, physical *and* symbolic, conscious *and* unconscious. All of which is entailed in auto/biographical and cooperative practices, or any method that enables us to grasp the interplay of material dimensions (bodies, spaces, objects), actions and perceptions, emotions, images and stories (symbolic, artistic, metaphoric languages), words and propositions, concepts and critical theories, values and statements of interest, and the embeddedness of all of these within a broader context (relational, cultural, social and ecological). The integration of all this is a theoretical and practical challenge for us all.

On a larger scale, in educational reforms (Snyder 2013), there needs to be better recognition of a myriad of actors, with different interests. Some are unheard and silenced. We need spaces for interaction and communication, to enhance participatory and dialogic learning, voicing and celebrating multiple perspectives, not least dissent. This brings us back to the roots of adult and popular education, which we meet in the next chapter of the pilgrimage. The amplification of differences needs to build on existing ideas and practices, on real needs and voices, if we are not to destroy earlier adaptation and its delicate ecologies. To celebrate the pattern connecting the individual, the proximal system, and the broader context, to foster more and better ecological changes, we have to develop knowledge, reflexivity, and creativity at all levels. Is this possible, in a rapidly changing and increasingly unjust world? Does adult education have any role? We wonder too how well we, Laura and Linden, are doing in identifying patterns that connect to help us live in uncertainty.

Learning new abilities and skills, or even learning to learn, through reflection and awareness, are not enough. As learners, we have to navigate among different meaning perspectives, in uncertain waters, and re-compose our dilemmas in viable ways. Education is urgently required

to sustain our ability to learn from different and conflicting views, to draw distinctions (von Foerster 1993), and to overcome disorienting dilemmas (Mezirow 1991; Taylor et al. 2012). And to fuel critical thinking, but not in a linear, polemical way; instead, we must foster collaborative conversations. And recognise that complexity is not comfortable; it opposes readymade solutions, inviting educators and researchers to challenge their own perspectives on education and learning.

In the chapter, the co-evolution of individuals and environment has been considered. Transformative learning theory is very Western in its individualistic grasp of learning, notwithstanding its claims about the importance of communication and the social. We have sought to develop a theory that 'minds' both body and context. We have argued that all living organisms learn, along with their living contexts, and at different levels, since they are made of interacting parts and are parts, themselves, of larger feedback circuits. But how can we face the increase, in our world, of those 'self-maximizing entities which, in law, have something like the status of "persons"—trusts, companies, political parties, unions, commercial and financial agencies, nations, and the like' (Bateson 1972, p. 446). Or: the increasingly immaterial system, the World Wide Web, the Algorithm? They are 'social bodies' without a body; 'these entities are precisely *not* persons and are not even aggregates of whole persons. They are aggregates of *parts* of persons' (idem).

And this is scaring, since these entities story us. When Sofia came to the university, she was expected to act and think 'narrowly within the specific purposes' of the academy, or better the *part* of the academic body that she represents, that is, being a student. In relation to these systems, we are personas, we lose contact with our whole perceptions and emotions. Is it possible for such an organisation to take decisions by processes that 'spring from wider and wiser parts of the mind' (idem), sensitive to the pattern which connects? Or will they unescapably reduce us to the status of 'a pure, uncorrected consciousness—a dehumanized creature' (idem)?

Adult education has the responsibility, wherever possible, to develop complex ideas and learning opportunities, that enable individuals to take a position within their communities, groups, and societies. Hence, conventional ideas and ways of doing based on separation, competition,

closed communities, and hyper-specialized languages have to be reconsidered. Following von Foerster (1981), to open new possibilities (an ethical imperative), we have to learn, first of all, that our perceptions depend on our action (an aesthetic imperative). If our desire is to see a less fragmented, and more equal, beautiful, peaceful, and viable world, we must learn to act in ways that are sensitive to the pattern which connects.