Linking the Missing Links

An Artful Workshop on Metamorphoses of Organic Forms

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ABSTRACT

This chapter offers an account of a workshop in arts-based learning called "Metamorphoses of Organic Forms". This detailed description of a particular practice may inform a discussion of ways in which artful approaches, in general, may come to matter in STEAM education, with implications for both educational research and practice. Added to that, the chapter argues that such art-based practices can also be relevant more widely in the context of sustainability education, such as on the theme of climate change. Precisely because the content of the art workshop at hand is not *prima facie* linked to it, there is an unexpected potential to take up such a tangential theme in an unusual way. Typically, participants feel invigorated to enter new territory – both spatial and mental. On a meta-level, the session can also be seen as a practice in facing complexity, uncertainty, not knowing. The chapter suggests that such artful educational practices have intrinsic merit if we are to equip new generations with skills to live in and endure "post-normal times".

In the workshop "Metamorphoses of Organic Forms", participants are invited to imagine how forms in nature might either evolve or disintegrate over time. The workshop lends itself to follow-up lessons in biology and natural history. The outcome is not given. Participants go through a shared process step by step, following a sequence that is outlined for them as they go along. They are encouraged to imagine how natural phenomena might grow or decay in time and they do this in a series of short sessions where they sculpt works in clay. Such a practice in art-based environmental education is arguably a form of "poor pedagogy". This educational activity is primarily and fundamentally an open-ended process. Rather than requiring an extensive methodology, its practice requires participants to surrender themselves to a process that will be unique each time it is performed. Such a practice is an expression of a view on education that is not centred on the transmission of knowledge but rather looks at attention as education and the education of attention.

Keywords: art-based, Bateson, imagination, Ingold, metamorphosis, open-ended, sustainability education

INTRODUCTION

In general, it is not easy to pinpoint when and how innovative arts-based educational practices may come to matter in new and critical configurations of STEAM education. A first problem here is one of attribution: which impacts can actually be traced *back* to artistic interventions? The way art "works" upon us (as part of what Freud called "primary process" – i.e., actualising a free flow of psychic energy) is often "below the surface": subliminal, unspoken, implicit and indirect. A second, related, issue is how one deals with the epistemological ramifications of *open-ended* artful engagements: the goal of such undertakings may be mostly unknown beforehand. Meanings tend to emerge precisely in the process itself, not necessarily only in its outcome. This often literally *unheard* of approach to knowledge making may, unwontedly, give the impression – both to its participants and observers – that the creative activity is less, or not at all, structured. Such an assessment, however, would not adequately do justice to the pedagogical intricacies of reconfigured approaches in STEAM education like this one. What is more, such art-informed educational activities (I will argue here) can have the additional (and essentially *implicit*) aim of enhancing the competencies of learner participants to adequately face some of the challenges that the future is likely to hold for us. In this chapter, I will try to shed some light on aspects of the "hidden design" of the workshop "Metamorphoses of Organic Forms". Indeed, there may be some resonance with the words of Lord Polonius in *Hamlet*: "Though this be madness, yet there is method in it."

In this chapter, I explore how a particular kind of art making with clay can be of relevance in the context of both science and sustainability education with young people and adults. Here art is not included as "the icing on the cake" (to make things playful or attractive) or as mere illustration of the scientific data to which we tend to lend most weight, but as a *point of departure* in a process of exploration and coming to a new understanding of the world. But I will begin with an observation on the very materiality of this embodied activity.

To many people, there is something deeply satisfying to working with clay. As a material, it is drawn from the earth, literally from below our feet. For millennia, our predecessors have worked their hands in the soil. Clay can be moist and malleable as butter, but also hard and dry as rock. When working with it, there is a subtle exchange between the grainy medium and the flesh of our body. When the clay is cold, it warms up due to our kneading. And the longer we work with it, the dryer it becomes and eventually our skin becomes slightly dehydrated. Humanity has had a long relationship with clay. As a material, it *is* earth.

For British sculptor Antony Gormley, art is the best tool we have for trying to understand our place in the world. Speaking about working imaginatively with clay, he says, "whether we call it art or not, there is something absolutely wonderful just about this activity, as a form of thinking and feeling *through* just doing, *through* making!" (Gormley, 2019). However, this intimate connection with clay has become less relevant to most of us. As grown-ups, most of us leave it untouched; we do not play with it any longer. Gormley has reflected on this rupture:

> When you give six-year-olds a piece of paper and a pencil or a lump of clay, they don't think, they just *do*. They make something, they draw something. At a certain point in our lives, we begin to self-censor our expression in this area, an area which I believe is a fundamental human characteristic. (Gormley, as quoted in Van Boeckel, 2013: 319)

In much of our present-day education, embodied, sensory experience has all but disappeared. According to Finnish architect Juhani Pallasmaa, however, embodiment is not a secondary experience; rather, human existence is fundamentally an embodied condition. As he argues in his book *The thinking hand* (Pallasmaa, 2009), the head is not the sole locus of cognitive thinking; our senses and entire bodily being directly structure, produce and store silent existential knowledge. In short, the whole human body is a knowing entity. The creative capacity to imagine, to liberate oneself from the limits of matter, place and time, "does not hide in our brains alone, as our entire bodily constitution has its fantasies, desires, and dreams. All our senses 'think' and structure our relationship with the world" (Pallasmaa, 2009: 17). Acknowledging this corporeal epistemology and the central role of bodily perception is the point of departure for the workshop described in this chapter.

METAMORPHOSES OF ORGANIC FORMS

Dozens of times and with different groups I have facilitated an art workshop that I have come to call "Metamorphoses of Organic Forms" (MOOF), and that is much inspired by the work of Gormley. In it, participants mould a series of organic forms in clay, and artfully imagine how these might grow or disintegrate as time passes. It is a *framed* open-ended process – meaning that the outcomes of the activity remain open-ended though the consecutive phases participants go through are framed (Van Boeckel, 2013: 302). It is not open in the sense of "anything goes"; rather, the process follows a certain predetermined "protocol" (Masschelein, 2012), simultaneously leaving room, during each of the sequential steps, for probing and improvisation by participants.[1] The MOOF art-making event thematises processes of growth and unfolding, as well as processes of withering and decay.

The first time (to my knowledge) that such a workshop was hosted, albeit a more basic version, was in 2006 during the course "Art in Place" at Schumacher College in the United Kingdom. Antony Gormley, one of the visiting teachers, led it at the time. In the years that followed, I developed the activity further, adding several new elements to it. During the art-making event, there are times of surrendering to the process, undergoing it, and conversely, of creatively acting upon the material (cf. Dewey, 1987). When working with clay, the imagination of the subject, as Gormley put it, is allowed to make impressions on a receiving material, "both as *investigator* (the curious mind), and as *producer* (the creative mind)" (Gormley, 2009).

A typical MOOF workshop has ten participants. At the beginning of the session, participants are invited to together create a circle of clay balls on the ground, each ball at a distance of about 30 cm from the following one. Every participant is asked to mould four clay balls the size of a big apple and to spread these out evenly at the circumference of the circle. Thus a continuous circular chain of forty clay balls is created. I ask the participants to stand apart on the outer edge of the circle, at equal distances from each other, so there is one clay ball at the feet of each participant, and three clay balls between him or her and the next person. Meanwhile I have put some prints on the ground, copies of black and white photographs made by Karl Blossfeldt in the early nineteenth century, and enlarged images of seeds recently made by Svjetlana Tepavcevic (2017).

Now all is ready for the art-making event to really take off.

[1] A protocol to Masschelein is a clear guideline which one follows that has no clear "end", no destination. It is a kind of path, he says, that leads nowhere; it is like a cut that opens onto a world. The protocol thus helps, he explains, to suspend too-familiar stories. Basically, it "offers a certain chance that something will appear and communicate, that something will be disclosed" (Masschelein, 2012: 367).

Figure 11.1: Clay balls the size of apples are put in a circle on the ground

PHASE I: "GROWTH OR DECAY?"

What follows is a guided process which I take the participants through step by step. They will simultaneously create several artworks and they do this in silence. I invite them to start by picking up the clay ball that is right in front of them and to mould it into an organic form. The form that they make could be either natural-realistic or imaginative, but it should somehow be reminiscent of (or refer to) a form that *could* actually exist in nature. It can be small or big, flat or round; the choice is theirs. It could conjure up associations with a plant or an animal, an insect, mushroom, or even a bacterium – all is well as long as the organic form that they create reminds us (if even only vaguely) in some way of a living species. Participants spend about five minutes making this form while standing or sitting at the periphery of the circle. I then ask them to put the sculpted clay form back on the same spot where the ball was initially picked up. When all are standing upright again, I request them to walk a few steps, rotating clockwise along the circumference of the circle, until they come to the organic form that their neighbour on their left has finished a moment ago. I then ask them to attend carefully to that form at their feet. They may want to pick it up or just look at it, while bending forward on their knees. However, they should not change its shape in any way. When a few moments have passed I invite them to imagine what kind of shape this form might evolve into, if it were to develop further. This could be in the course of the passing of an hour, a day, a week, or even a month. They have to decide upon the length of the time interval themselves. How would this form look, when revisited later? Would it expand, blossom, or – in contrast – start to wither, to fall apart? They can take it in *either* direction: to unfolding *or* to decay. Again, this imaginative contemplating is done without talking to each other.

Figure 11.2: Determining the direction in which the organic forms will develop further in time

I then request each participant to pick up a *second* ball of clay, on the left of the moulded organic form that is already there. And then my invitation to them is that they sculpt from this fresh ball a new shape

that will express how they decided that the original organic form (sculpted by one of the other participants) would develop in time. As before, the new form, when finished, is put back on the ground in its original position. Once again, the participants are then asked to move positions along the circle, in clockwise fashion, until they come to what are now *two* moulded organic forms (both part of an emerging sequence) that were left behind for them by two of their fellow participants who previously worked at this section of the circle.

The participants are then asked to make a new, *third* form at this location in which they take the already present sequence of organic forms a step ahead, in the direction they surmise it is evolving in time. If the first form was for example a clay sculpture that suggested the form of a mushroom, and the second figure looked like an older mushroom in the process of falling apart, then a new, third form may well be a mushroom that has totally collapsed – with perhaps some parts of its head broken off into separate pieces. When this third work is finished, I ask the participants to again move positions (moving clockwise) along the edge of the circle of emerging clay works.

PHASE II: "MISSING LINKS"

If done correctly, each participant now finds him or herself in front of one of the ten last remaining clay balls, dispersed at equal distances around the edge of the circle. These are in fact located in between the original *first* piece of a sequence of developing organic forms on the left-hand side of the participant concerned, and the *last* piece of another, almost completed sequence of forms on the right. I now invite the group members to lift this unworked ball in front of them up, suggesting to them that this left-over chunk of clay is to become a "missing link" between the two disparate sequences. What kind of form, I ask, could possibly forge a bridge between the sequence on their left, and the other sequence on their right? How could one make the "jump" between the two, through inserting a new, "hybrid" clay form? If the two sequences are very dissimilar (e.g. a series of disintegrating mushroom forms on the left and the sequential unfolding of a flower bud on the right), then the participant has to figure out what kind of shape could possibly be "in between". As all participants face this challenge and work it out, the circle of forty budding or withering organic forms becomes continuous and complete. When finished, all original apple-sized clay balls have been transformed into new organic forms somewhere on a trajectory in time. I ask the participants to slowly walk along the periphery of the circle, and to study in silence how each sequence of three forms has been created in successive steps and is then followed by a "missing link" that forges a bridge to a new and different sequence of forms.

The next step is that I ask participants to relocate the "missing link" form that they just made about half a meter inward, towards the centre. Together, these ten "missing links" then comprise a new and smaller circle, concentric with the original outer one. Everybody is now invited to fetch a new chunk of clay from me and to mould a fresh ball, again the size of an apple, which each of them is to position exactly in between the "missing links" already placed on the floor. I then ask them to find themselves a place somewhere along the edge of this inner circle, where they are no longer in front of the one "missing link" that they made themselves some moments ago. When standing in front of a new clay ball in between two "missing links", they are encouraged to imagine a (*meta*)link, connecting the "missing link" object on their left to the "missing link "object on the right. What shape, I ask, would be an adequate expression *half way* between these two odd forms? Eventually this inner circle – consisting of "missing links" and "links-*between*-missing-links" – starts to become complete.

PHASE III: "SOCIAL SCULPTURE"

Meanwhile, I have put a big lump of rough fresh clay (weighing several kilograms) in the very centre of the circle. This is the prelude to the final phase of the artistic group activity. I invite the participants to move one last time, now to the very centre of the circle. There, I ask them to collectively work in silence on the mass of new clay and to make what I call (with a hint to Joseph Beuys) a "social sculpture" together. The idea is that they try, in this group artwork, to give a three-dimensional expression to what each of them has experienced thus far, in and through the whole process. When they together sculpt the big common clay piece in the centre, they can add parts to forms that others create, but they are requested not to modify them. At a certain moment, usually after about ten minutes, I determine that the art-making part of the MOOF workshop is finished. I then encourage participants to move around a bit and to look carefully at all the fantastic forms that have evolved throughout the art-making event. They are stimulated to ask each other questions like: "What caused you to take the metamorphosis of the organic form that I made into *this* particular direction?" Or, "What do you think of the way I imagined what the next step would be in the emerging sequence?" Now, at last, words *can* be used.

Figure 11.3: Working together on one "social sculpture"

In the end, all disperse at the fringes of the outer circle and find a comfortable position to sit, overlooking the clay landscape of organic shapes and forms with the common sculpture at its centre. Being the facilitator of the session, I initiate a conversation with open questions such as: "How was it for you to experience this?" or: "What do you *see* in front of you?" This often evolves into a most animated conversation; people can be full of excitement about having been part of this demanding but also rewarding process. Because of the accumulated flow of energy in the group, what I have referred to elsewhere as a presence of "light in the eyes",[2] this lively conversation can involve deep reflection and highly original thinking. I usually ask people to comment on what the difference to them is between the very start of the process, with all its unfamiliarity, and its final stage, when they worked together intimately on one common sculpture, negotiating in silence, through gesture and body language, how it is best to evolve. The dialogue may then further develop into addressing questions like, "Is it conceivable that the experience of an imaginative, embodied and artistic investigation of organic forms such as practised in this workshop, can be a fruitful way of learning about nature and ecological relationships, in addition to merely science-based understandings? And if so, in what ways?" Or: "Did the practice of a workshop such as this one have an impact on the development of your material sensitivity to the ways in which you perceive and tune in with the shared world of human and non-human relations?" Subsequently, I also try to connect to themes that on first glance have *no* apparent relation to the whole experience. I may ask, for example, "Does this experience make sense to you in the context of the theme of sustainability, or with respect to how we find novel ways to face the climate crisis? And, again, *if* so, in what way?"

[2] In my lecture entitled "A pedagogy of the light in the eyes", at CEMUS, in Uppsala, Sweden, 21 January 2019. This lecture is the basis of a forthcoming paper.

EXPANDING THE WORKSHOP TO OTHER DOMAINS

In the wake of my own facilitation of this clay workshop over the years, other people have facilitated it in their own ways, such as Scottish anthropologist Tim Ingold, who prefers to call it, perhaps more accurately, an exercise in "*morphogenesis* of organic forms" (Ingold, personal communication, 2017).[3] It does not take much effort to see that there are multiple ways in which the MOOF workshop would lend itself to follow-up lessons in biology and natural history (e.g. botany and zoology), as it would for example allow further exploration of what processes of metamorphosis or morphogenesis in nature are about, or of how the (now dated) notion of "missing links" figured in early evolutionary thinking.

The art-making activity itself could also be elaborated in new directions. Participants could for example be invited to imagine (and create in clay) organisms that are in symbiosis with (or a parasite to) another imaginative organism that has been crafted previously by someone else in the group. Or there is the option to link the MOOF workshop with a (Batesonian) apprehension of evolution, where the unit of survival is always the "organism-*in*-its-environment" (Bateson, 1972: 451). What would it look like in clay, an environment that would accommodate (and itself be co-dependent on) the individual organic form that another group member just created? How would they together *co*-evolve in time? Botanical and other natural forms are always in transformation and interdependent on each other; yet this is just one epistemological layer that can be accessed in and through the MOOF workshop.

Next to delving into aspects that touch on (evolutionary) biology – through working with processes of metamorphosis and morphogenesis – there are also more heterogeneous elaborations that can be given to this artful workshop. As said, the often rather lively follow-up conversation can provide openings to take up a theme like climate change. To pursue such an incongruous thematic expansion as a sequel to it is by no means obvious. But *if* one opts for this, one can build, interestingly, on the common circumstance that things "have shifted" in the sense of presence, the overall mindset, of the participants when they have moved from the first timid engagements with the rough clay to more elaborate and imaginative artistic activities later on. They also make a sheer physical move, from being first bodily dispersed on the outskirts of the outer circle, to entering the inner circle in a following step, and finally to working collectively on *one* clay work within the confined space at the centre.

Here are two reflections by participants:

> My experience of the clay workshop is that we had these three different stages. First we worked with only the constraint of the biological form and our own creativity and imagination, then more and more constraints followed, fixed tasks and also responding to the work of someone else. It went from complete openness to more and more constraints. It made me realise that it is easier to be creative within the constraints, whereas I was struggling a bit with the completely open. It was harder for me to just begin. Probably the most important skill that young people can learn today is cooperation. And this activity is definitely helpful there.[4]

For another participant, the change happened in the opposite direction:

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[3] Morphogenesis literally means the "beginning of shape", derived from Greek *morphê* (shape) and *genesis* (creation). It is the biological process that causes an organism to develop its shape. It is one of three fundamental aspects of developmental biology along with the control of cell growth and cellular differentiation, unified in evolutionary developmental biology.

[4] The quotations from participants in a MOOF workshop presented here were recorded in Sweden in the spring of 2019. I have edited them slightly for readability.

> What I experienced in the workshop was this tension between trying out something, and simultaneously knowing that it is never going to be as good as I want it to be because I am not good with the clay. Once I got past that initial friction, there was a support structure that helped me become part of it and that led me into a community of fellow travellers facing the same challenges. The next steps became gradually easier, more spontaneous, reciprocal and mutually supportive, until the point where you lose the sense of individual intention and you just participate. For me, it relates directly to the work I am doing of finding a structure for ordinary citizens to come to terms with the different problems we are facing as society. How people can play a bigger part than just through their individual actions, as part of a great collective whole.

As said above, I look at this art-based activity with clay as a primarily and fundamentally open-ended form of meaning making. The outcome is not given, though the participants follow certain sequential steps that frame the process. Through inviting participants to engage in an imaginative, hands-on creative process, it aims to afford new, embodied rather than merely cognitive appreciations and understandings of relationships between biological phenomena. As such, it is a form of art-based environmental education, a way of learning which, according to Meri-Helga Mantere (who coined the concept in 1995), aims to develop environmental understanding and responsibility "by becoming more receptive to sense perceptions and observations and by using artistic methods to express personal environmental experiences and thoughts" (Mantere 1995: 1). Such educational innovations centre on embodied art-making activity, as practised in the clay workshop, thereby affording a fundamental remaking and re-configuring of our attention to the materiality of the world and engendering a heightened sensitivity to the kinds of spatial and temporal dynamics that come into play in the process.

Tim Ingold (thereby following Jan Masschelein) emphasises the *two* root origins of the word "education". One is, in Latin, *educare*, with connotations of rearing, of bringing up. This form of education foregrounds "instilling knowledge *in* to the mind of novices". The other form is *educere*, that comes from *ex* (out) and *ducere* (to lead): "leading novices *out* into the world" (Ingold, 2013b: 7). Here, the idea of education is not primarily the transmission of knowledge, but rather the education of *attention* (Ingold, 2018: 31). In such learning processes, the factor of uncertainty inevitably gains more prominence, as I will discuss further below.

THE ABILITY TO INHABIT UNCERTAINTY

On a December day in 1817, Romantic poet John Keats wrote a letter to his brothers in which he expressed his theory of "negative capability". Asking himself what quality went to form a "man of achievement" such as Shakespeare, he came upon the view that such a person is, first and foremost, "capable of being in uncertainties, Mysteries, doubts, without any irritable reaching after fact and reason" (Keats' Kingdom, 2019). Basically it is the ability to accept that not everything can be resolved. Keats had a high regard for receptive intuition, for which the intellectual self could be standing in the way. Negative capability has been defined as "the ability to contemplate the world without the desire to try to reconcile contradictory aspects or fit it into closed and rational systems" (Keats' Kingdom, 2019). This capability, I believe, is something that can be nourished through an art workshop such as Metamorphoses of Organic Forms. There are several instances where participants are encouraged to dwell, at least for some moments, in the doubt about how to go on. Again and again they are faced with

new challenges. It is only by immersing oneself in the activity, "without any irritable reaching after fact and reason", that they later perhaps begin to grasp some of the possible meanings it may have – which are different for each individual participant.

The protocol for such a workshop could of course have been different; as the facilitator, one could, for starters, have explained *why* one is expected to make a naturalistic or imaginary organic form and to what purpose. To me, however, there resides a meaning in *not* disclosing the aim. Participating, then, involves surrendering oneself to the process, without knowing how or where it will go. I invite each member of the group to work out imaginatively how a form made by someone else may change in time, either towards its blossoming, its maturation, or towards its decay, its death. The clay objects that are made are always original – something is suddenly there and it grows further in new forms through the successive imaginative sculpturing by others, each work acquiring a new expression. Any given artwork brings its own connotations and associations which will be different from person to person, and new interpretations may continue to reveal themselves over time, adding up to each other. In artistic activities – practiced individually or in groups – there can be room for different meanings. One has licence, so to speak, to elongate a state in which one is being confronted with opposing viewpoints, with ambiguity. And indeed this happens because one, as an embodied being, is thinking and feeling *through* making, *through* doing (Pallasmaa, 2009; Ingold, 2013a), suspending an (in other cases more predominant) one-sided cognitive engagement with the world.

Gregory Bateson held that encountering paradoxes is a basic part of life and of evolution, a thought that is concisely expressed in the title of Stewart Brand's (1973) interview with him, "Both sides of the necessary paradox". For Bateson, a paradox is a contradiction in which you take sides – *both* sides. One half of the paradox proposes the other. Dwelling a little longer with paradoxes, and not opting for one side at the expense of the other too soon, is like embarking on a sort of voyage, in his view: "you come out knowing something you didn't know before, something about the nature of where you are in the universe" (Bateson, as quoted in Brand, 1973: 35). Paradox, in Bateson's view, is healthy; the truth for him is always one of complexity. Psychologist Carl Rogers defines openness towards new experience as the opposite of the psychological attitude of defence. For him it involves a "lack of rigidity and a permeability of the boundary lines of the spheres of concepts, perceptions, and hypotheses". It means a tolerance of ambiguity, where ambiguity exists. This signifies, says Rogers, "the ability to receive very conflicting information, without forcing the closure of the given situation" (Rogers, as quoted in Pitruzzella, 2009: 28–29).

An important aspect of the MOOF workshop is to put the participants, as it were, on the "wrong foot", a sporting term. You suggest with your movements that you will kick the ball in a certain direction, and your opponent believes it will go there. But then at the last moment, you kick the ball quickly with your foot in the opposite direction, and your opponent finds him or herself standing on their wrong foot – unable to adapt to the abrupt and unforeseen change. Understood more broadly, the other is intentionally put into an unexpected or difficult situation. He or she will be expecting a certain outcome, but you predetermine that that result is not bound to happen. This intervention, the organised surprise, tends to cause confusion, and in some cases also frustration. The other person may feel that they are trapped into a situation that is not of their choosing and over which they do not have control. For many participants, this new way of relating to the artistic process is at first completely new, foreign and frightening. When I practise (what I call) "wrong footing" in art-based environmental education activities (cf. Van Boeckel, 2013: 219, 378), deliberately causing defamiliarisation, I try to evoke participants' imaginative capacity, which they will need to face and overcome this unexpected threshold.

FANTASTIC BINOMINALS

How can we foster imagination in education? This is a theme that Italian children's author Gianni Rodari explores in *The grammar of fantasy* (1996). In all his pedagogical projects, Rodari underlined the importance of the social context: different types of children can collaborate and use their imaginations together. An impetus to do so, he found, is to entice them to develop stories, whereby they uncover new skills as they go along. A catalytic intervention to set such a process in motion that Rodari came up with was the juxtaposition of two entirely unrelated words: the first word must be sufficiently strange or different from the other. The unusual coupling triggers the imagination to establish a relationship between the two. For our mind aims to construct a new, *fantastic* whole, "in which the two foreign elements can live together" (Rodari, 1996: 12). Two words that are utterly at odds with each other can still always be linked, says Rodari, and thus they become a fertile way to guide the imagination further:

> In reality one electrical pole is not enough to cause a spark; it takes two. The single word "acts" only when it encounters a second that provokes it and compels it to leave the track of habit and to discover new possibilities of meaning. To live means to struggle. (1996: 12)

It is this tension that is important to Rodari. If one takes the word pair of, say, horse and dog, it would be a simple association within the same zoological classification of four-legged animals. In such cases the imagination remains indifferent: it does not promise anything exciting. This leads Rodari to his concept of a "fantastic binominal", of two words having a distance between them. Rodari gives the example of the words "dog" and "closet". Such a combination, propelled by chance, can be an exciting stimulus. In this way the whole ground is shifted; one word is thrown into a completely unrelated context. Words are not taken in their colloquial meaning, but freed from the verbal chains that hold them together on a daily basis. They are estranged or, as Rodari puts it, "thrown against one another in a sky *that has never been seen before*" (1996: 13, emphasis added). In that way, he suggests, they are in the best possible condition for generating a story. Or, one could say in the context of this book, they can initiate art creativities in domains that seem at odds with imaginative artful engagement such as much of contemporary science education.

Just like Rodari, Bateson was very fond of a kind of thinking that looks for associations that combine phenomena in metaphoric terms. Elaborating on this, Bateson (1991) would bring up the contrast between two types of syllogisms. The first one is called a "syllogism in Barbara", and goes like this:

> Men die.
> Socrates is a man.
> Socrates will die.

Bateson's alternative was what he termed a "syllogism in grass":

> Grass dies.
> Men die.
> Men are grass.

The common response to the latter syllogism would be that it "does not hold water". It could only be condoned if it were the lyric lines of a poet, but regarded as utter nonsense when stated by a biologist. Bateson, however, felt that such a "syllogism in grass" was actually truer to the way he thought himself, as it uses the language of metaphor: "while not always logically sound, it might be a very useful contribution to the principles of life. Life, perhaps, doesn't always ask what is logically sound. I'd be surprised if it did" (1991: 240–241). The syllogism in Barbara identifies Socrates as a member of a class; this kind of syllogism deals with subjects, nouns, things. The grass syllogism, in contrast, is concerned with the equation of *predicates*: "that which dies is equal to that other thing which dies" (1991: 241). This is the way poets think. Bateson believes that the syllogism in grass is the way organisms manage to organise themselves:

> It became evident that metaphor was not just pretty poetry, it was not either good or bad logic, but was in fact the logic upon which the biological world had been built, the main characteristic and organizing glue of the world of mental process. (1991: 241)

To me, the use of the language of metaphor – which Bateson saw as an organising principle both in nature and in his own thinking – is also intrinsic to the kind of art-based environmental education that I facilitate. For, as an artist educator, I often seek ways to encourage participants to discover similarities between things that appear to be utterly foreign to one another. Participants can be encouraged to dwell a little longer with what appears to be contradictory, paradoxical or nonsensical, such as statements like "men are grass". The poetry of the incomprehensible can be both the starting point and the outcome of meaning making in a creative process that aims to meet the natural environment from a fresh perspective, not clouded by one's presuppositions. From the perspective of analogy, men are indeed grass – to the extent that what unites both is an underlying and shared pattern of the living world. It takes effort to find this "pattern that connects", as it often is not readily discernible at an obvious level.

Dutch novelist Jaap Robben explains why, in general, children are much better at engaging with this way of thinking:

> Children are much less restrained by the "rules of life". So they fantasize two truths that they *do* understand, between which there is something that they *don't* understand. With their fantasy they then make that all into one whole. If you do that as an adult, you are crazy, or you're taken to a mental hospital. But for a child it makes sense. One doesn't need to know it all, but one can make one's *own* connections between facts. (DWDD, 2017)

Overcoming one's initial hesitation or resistance to having to bring together what is seemingly unrelated, and does not seem to make sense, is one of the principles at work in the MOOF art-making activity. The invitation to participants to sculpt an imaginative organic form that acts as a "missing link" between two forms utterly at odds with each other seems pointless, even ridiculous, and when they try to do it they do not have any help. As various participants have mentioned, they would never do such a thing on their own. But once they *do* surrender themselves to the process, it is like entering a new territory.

My practice of "wrong footing", of inviting students to unexpectedly make a "missing link" or to switch to creating a common sculpture collectively, is like a gentle disturbance in what they were just getting habituated to. In his book *Letting art teach*, Gert Biesta (2017) discusses the value of interruption. For Biesta (2017: 86), the educational gesture is the act of showing, of focusing the attention of another

human being on something "outside", with the suggestion that there is something that the teacher believes may be important for the student to pay attention to. (Here we can see clear correspondence with the understanding of education as *educere*, of leading students out into the world.) This gesture, says Biesta, interrupts where someone is, what someone is doing or wants. The point of education, he insists, is not that students focus on what they fancy or desire to focus on, but that they are turned in a particular direction.

A POOR PEDAGOGY

A MOOF workshop requires from participants an attitude of receptivity, of "attending to one's own attending". Another activity to which such a guided artistic process can perhaps be compared, in that respect, is the practice of walking and not knowing where it will lead you. As part of his courses in "world-forming education", Belgian philosopher of education Jan Masschelein would ask his students to walk day and night along arbitrary lines drawn on city maps, crossing at random neighbourhoods. For him, such experiments in "e-ducating the gaze" are part of what he calls a "poor pedagogy" (Masschelein, 2010). The key is its grounding in an exploring, open-ended activity. Masschelein is interested in how we can turn the world into something "real", how to make the world "present". Here, education is about being exposed to the world. By foregrounding the act of walking, we question the act of taking a position, a standpoint. The walker's attention comes not from having arrived at a position but from being pulled away from it, from displacement (Masschelein, 2010: 46). Ingold comments:

> to walk is to be commanded by what is not yet given but *on the way* to being given … It is not, then, that the walker's attention is being educated; rather the reverse: his education is rendered attentive, opened up in readiness of the "not yet" of what is to come. (Ingold, 2015: 136)

Both Masschelein and Ingold seem to fear that a unilateral focus on the stern deployment of a fixed methodology runs the risk of turning means into ends: divorcing knowledge-as-content from ways of coming to know, enforcing a kind of closure that is the very antithesis of the opening up to the present which a poor pedagogy offers. The kind of education that Biesta, Ingold and Masschelein advocate focuses on being present in the present to what presents itself. For this, both acceptance and attention are needed to be able to read what is happening today. It implies a kind of curiosity that is not driven by the "will to know" but by a caring attitude to what is happening now. Further, it is not driven by the willingness to merely accumulate knowledge. In an attitude of caring, we open up to our current conditions of living together. Such education is about being in the world, being exposed, being out of position, or being captured by questions of living together (Simons & Masschelein, 2009). The price of being present in such a way, says Ingold (2015), is vulnerability, but its reward is an understanding, founded on immediate experience, that goes beyond knowledge.

A NEW CONVERSATION ON CLIMATE CHANGE?

We need an artistic turn in sustainability science and research, says Sacha Kagan (2017: 151). In the face of a threat like climate change, one of the challenges is how to work wisely with intricate combinations of knowing and not-knowing, relative certainties and uncertainties, hard limits and open possibilities. It requires a deepened understanding of what resilience really implies. For Kagan our current

predicament calls for "the necessity to learn from the unexpected" (2017: 153). Kagan's term for this is "serendipitous learning". We need experiences that train the capacity to perceive and interpret the world in complex ways, and such learning "*requires* artful qualities" (Kagan, 2017: 153, emphasis added). Psychologist and educator Maureen O'Hara argues in a similar vein that what we need today is a cultivation of "the necessary capacities of mind to live well in an unavoidably uncertain world" (2005: 2). In our time, she says, we need the capacity to hold many opposing ideas at the same time, and we have to resist the desire for easy certainty and premature closure. We need to invent new kinds of socialising experiences, so that people learn to see the world through new eyes and to take in its complexity without becoming overwhelmed by it:

> We need to cultivate intuition and appreciation of the non-rational; not as substitutes for reason and skepticism, but as a complement to them. We need to cultivate both/and thinking, enhance our capacity for holistic perception, gestalt awareness, network logic and pattern recognition. Along with a capacity to focus, we need to be at home with fuzziness and a wide-angle view. We will need to balance a fear that we have not enough information with the problems of having too much. People will need to become comfortable in a world of fluid boundaries, understanding the world as a continuous web of relationally connected integrities. (O'Hara, 2005: 7)

What is the relevance of an artful activity such as the MOOF workshop and sustainability education, or more broadly, learning to be at home with fuzziness and a wide-angle view? Such relationships are not necessarily explicit or obvious. Perhaps we should start by first appreciating what happens to participants on a very basic, corporeal level. What happens is that people often feel mentally and physically invigorated through doing the workshop. They have just been together as a group in a completely different way than usual. By consequence, any conversation that takes place immediately afterwards on a theme like climate change or living in an increasingly uncertain world immediately tends to become more animated and interesting. If the participants were invited to start the workshop by partaking in a group conversation on a sustainability theme, then chances would be high that they would contribute more expected and "socially desirable" statements. But if, before entering into such a conversation, they have first engaged with an activity that is intensive and embodied, and they have felt that they, through the art making, have been in a "new territory", there is at least the likelihood that this experience will have caused their ways of thinking to become more "stretched" as well, possibly leading to the input of more original perspectives in the ensuing dialogue.

In artistic processes, there are always a lot of things happening in the so-called "in-between space", where things are not always explicit. The in-between space is like the imaginary jump in time that takes place between one created organic form and the next. One does not know exactly what has happened in this interval: it needs to be filled in by one's imagination.

But there is also *another* in-between space, and that is the physical space between the bodies of participants: as the workshop unfolds the participants move slowly more and more to the centre. Part of each participant is busy finding a link between "missing links". But in the meantime, they and the other participants also move closer to each other as a group. The bodily engagement is different and this partly helps to prepare them for being ready to make the common sculpture later together in the confined and more intimate central space.

One of the participants in a MOOF workshop reflected on the experience like this:

> I definitively think it wouldn't work if you'd laid out the whole plan. If you have a sense of where we are headed, then you have expectations of where it is going to go. And then

> when it doesn't match your expectations, you are disappointed before you even get to its conclusion. By only revealing the next step when you actually are there, you don't focus on the big picture of what it is becoming. At some point you invited people to go around the circle and to see the whole. Mostly, as a participant you just focus on the one small thing that you actually can affect. I like that, because people can get paralyzed by the size of the challenges of living today and the things they feel they need to change. What I am interested in is how you can make it easy for people to take those first steps, how they can find others who are in a similar situation so that they can support each other in this. What the workshop did was that you had to build on other people's work. You had to acknowledge that we work together. For me, this losing of a sense of ownership, forgetting which bits are yours, just looking at the whole, is all of value.

I began this chapter with Antony Gormley's reflections on the impact of working with the materiality of clay, and I will end by quoting him:

> As a material, [clay] is earth … This is about reconnecting flesh with earth, through touch … It is strange and powerful that something connected to landscape and geology, distant both in terms of time and space, comes into your intimate, subjective zone when formed by the hand, first being worked on at arm's length before being brought into the inner orbit of the maker's body. You work on the clay in this zone between the place of speech and the heart, before placing it away from you and, once again, standing apart. (Gormley, as quoted in Van Boeckel, 2013: 330)

On a metaphysical level, the participants in the project brought a material close to themselves that was "forgotten", because clay resides, literally, *below* the surface of things. "In a post-religious and post-political ideological vacuum", Gormley asserts, "the issue is the recovery of an agency. Whether we recognise it or not, each of us is an agent; making the world out of the earth" (as quoted in Van Boeckel, 2013: 331).

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