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HUB RESEARCH PAPER

Spirits of ecological thinking

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HUB RESEARCH PAPER 2007/24.
SEPTEMBER 2007

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Abstract

The main focus of this article is to discern the ontological meaning of concepts related to sustainability. This fits within Linda Starke's (1990) "hopeful signs" about the need for new ways of thinking about our common future instead of merely continuing with concrete policy changes within the accustomed mode of thinking. The article aims to prevent sustainability from being encapsulated within a prearranged framework. The popularization of sustainability within the corporate sector and education sustainability is mainly being perceived as a goal, as an end. An end for which one is searching for the right processes, the best tools to reach that goal. What was once a marginal concept has been captured by the dominant way of thinking which is based on a top-down approach to management and hence sustainability where system and environment are identified as being separate. By tracing the tensions within this approach and investigating a process of creating meaning in action shows how the division between system and environment is problematic. Instead, an argument is offered for openness, inclusion, tolerance, difference, reflection to be the guiding principles of education for sustainable development.

Introduction

More and more, as well in research as in education for sustainable development, the focus is on how one can best reach sustainability. Sustainability is then seen as a solution to environmental problems. The question whether the problems are indeed soluble is not asked. Even if sustainability is a solution, "every solution creates a new problem, new needs and demands" (cf. Annan, introducing Berlin, 1997: xiv). Problems are often *relocated* instead of solved. Solving problems when they become visible, is often too late. In the nineteen sixties air pollution had become unacceptable in *Rijnmond*, a Dutch industrial area near Rotterdam (cf. Van Arkel, 1990). More severe regulations and higher chimneys were thought to be remedial. The problem was partially solved. Emissions were removed to another area. Sustainable development as a possible remedy for the negative impact of tourism in the *Dominican Republic* was announced in the nineteen nineties (cf. Sago, 1998). A lot of damage can never be undone. One should have thought about sustainability before.

This text is an attempt to break through an excessively functionalist approach. We will emphasize that a part, like a system, only has meaning in its relation with other parts, like its environment. We draw on ideas and images of many sources such as organization theory, economics, philosophy, art, language and literature. René Magritte's painting 'Les Jours Gigantesques' and Maurits Escher's 'Air and water' are the main sources of inspiration for the ideas developed about sustainability and ecology.

Using art and language is not the common way to educate sustainable development. However, if one perceives sustainability as another way of thinking, one has to transgress the boundaries

of disciplines. Ideas become very important, regardless of the origin of specific sources. This fits within the scope of growing criticism on *thinking in compartments*. Norbert Wiener (1962: 2) already reacted against a narrow, disciplinary thinking: "... the most fruitful cross areas for the growth of science [are] those which had been neglected as a no-man's land between the various established fields. ... Since the time of Leibniz science has been increasingly the task of specialists, in fields which show a tendency to grow progressively narrower". In a complex world it is no longer possible to do as if *the other* is irrelevant.

One may wonder whether art and language should be included in education for sustainable development. Gunther Anders' (1962) concept of *functional responsibility* (referred to by Van Dijck, 1999) fits in with this point. Responsibility today is limited to the execution of the job. It does not permit one to feel responsible for aspects that go beyond fulfilling tasks, to ask *deeper* questions. A mere functional responsibility deprives people of their inner voice. Considering education as forming students into technicians disconnects them from their environment, from other human beings, from the significant *other*. An *open* approach *includes* language and multiple ways of teaching. Diversity is important. For Stephen Toulmin *dissenters* are vital for the survival of a university (in Eekhaut, 1998). He prefers the term *dissenters* to *dissidents*. The word dissident has a depreciative meaning and is especially used in a political context. Dissenters have explicit ideas that differ from what is commonly accepted. *University* includes *diversity*. Also Charles Handy (in Verreert, 1998) has a voice in this line of thought, arguing that one lives to make a difference, or, to be different.

An opening to sustainability

Sustainability is related to so many different topics that there is confusion when the term is used. The context may be that of either economy or ecology. Think of 'a sustainable growth rate' in finance, Michael Porter's (1985) 'sustainable competitive advantage' and 'the sustainable use of natural resources' in environmental jargon. Sustainability is associated foremost with *sustainable development*.

Being popular has disadvantages. People jump on the bandwagon because it gives them a good, i.e. environmentally friendly, image. However, people who truly reconsider their *site* in a wider environment are unhappy with sustainability being reduced to a *buzzword*. Sustainability loses essence and remains solely as a label. Its content is changed according to circumstances. This abuse of sustainability relates to Martin Heidegger's (1959) idea about words. The word is used as a streetcar; anybody can jump on and ride along for as long as they like. Signifiers may even become outmoded. If this becomes the destiny of sustainability, then this will not fit with one of its meanings. To sustain is also to keep in continuance, to endure, to last. As popular as sustainability is nowadays in an 'environmental' context, it is easy to rely on mere rhetoric. Yet, one may attempt to go beyond that.

Researching sustainability puts people on the wrong track quite quickly. The concept has been linked with drastic transformations according to the way the world is organised. But it is not necessary to emphasise change to really make a difference. If one wants to make things better, the question can be asked for whom it will be better. Combining *sustainability* with *better* results is a paradox. *Better* is cognate with *advantage*, *favour* and also with *to redeem*, *to make something good*. *Making things better* goes beyond merely *improving*. It suggests that what existed before is in some way not good enough any more. Links with the past are disrupted. Compare how the Dutch for *to change*, i.e. *ver-ander-en*, associates with to be *far* ('*ver-*') from *the other* ('*-ander-*'), with to be *disconnected*. *Better* as endless improvement implies

continuous escalation. *Endless* means eternal duration, with no *end*, without a goal. Limits are only temporary, they are forever passed.

Instead of being disconnected, sustainability refers to *connections* with what was before. *Sustainable* is derived from the Latin *tenere*, which means *to hold, to hold firm, to endure* (Partridge, 1990). *To endure* and *sustainability* refer to the long term, to something that must last. Something lasts when it is durable or when it is dear to us. *Dear* also means valuable, not necessarily in the sense of being worth a lot of money, but of being attached to, of being involved with for a substantial length of time. Something can only be sensibly *dear* if a significant span of time is involved. Compare to human relations, love, partnership. In this way *durable* includes the past because it is difficult to be attached to someone or something not yet known and not known for long enough.

However, most of the time sustainability is perceived as a solution to environmental problems. Sustainability fits in a framework of *causality*: if certain actions are undertaken, sustainability can be reached. According to Riccardo Petrella (1997) this transition will take approximately fifty years. However, by then we could all be dead. Compare this to the unfortunate dictum of Keynes, often abused and wrongly quoted: *in the long run, we are all dead*. Keynes meant precisely that immediate action needs to be taken for the present and for the short term for there to be a long term anyway. Nobody can wait some fifty years before the *goal* of sustainability is obtained, or is convinced that it will be realised then. The result is that apart from solidarity, there is no stimulus to change now.

Bottom-up and/or top-down

Thinking about sustainability must go beyond an excessively functionalist approach: "... parts ... are not made independently and then assembled as in a machine, but arise as a result of interactions ..." (Goodwin, 1995: 183). Also John Elkington (1997) has made this clear. He is mainly known for sustainability as how one performs against the triple bottom line, i.e. the economic, social and environmental bottom line. He emphasizes that the shear zones between people and planet, planet and profit, profit and people are the most challenging. This is also the way we perceive *ecological thinking*. *Ecology* goes beyond the common concern for an environmentally friendly way of behaving and organising. Ecology conceals that we are part of the environment. Ecology refers to the Greek *oikos*, home or *la demeure* (in French). The root *meure* associates with *mourir* or *to die*. From the Greek and the French words for home, we can venture that *ecology* implies to die a little, not in the literal sense, but in a metaphorical way to make ourselves less important or to *de-centre* ourselves. 'No man is an island', but is instead connected with the world. We will use two cases to illustrate the idea of ecological thinking.

People living in the Hunza Valley, the extreme north of Pakistan are known for their extraordinary good health, a very low infant mortality rate and high life expectancy rate (cf. Goodwin, 1995: 192-196; Clark, 1956; McCarry, 1994). They attribute their old age to their diet. Being largely vegetarians is mainly an outcome of the remote area they live in. Long, hard winters are nearly always associated with diseases and (early) death. Still, there must be something more than only a temperate climate. Comparisons to neighbouring communities show that: "A remote ... habitat is certainly not in itself sufficient to stimulate this kind of health, vigour and well-being in people who have made this environment their home" (Goodwin, 1995: 194). Goodwin mentions the Ishkamanis, among others. It is neither the habitat nor the genetic differences between the communities that can account for their different living conditions. According to Goodwin (1995: 195): "An explanation is more likely to be found at the level of sociality, the

relationships that have been developed and perpetuated among the Hunza and with their environment, from which have arisen the traditions that stabilize their distinctive patterns of emergent social and cultural order".

The Hunza case shows that the meaning of being is essentially *being with the environment*. It also illustrates that (*deep*) *ecology* goes further than solving problems of waste. It is a way of living. Some have abused the Hunza case as a proof of the causal relationship between lifestyle and sustainability. Yet a specific community cannot be copied. This would mean merely separating the different parts as functional units and perceiving a body as a machine, disconnected from its environment. A part - like a body - only has meaning in its relation with other parts. In this way Goodwin demonstrates that organisms and situations are the temporary result of relationships, of different processes. From this position of rest, heterogeneous processes that are moving and shaping will continue to give form. Each part has an intrinsic value and meaning and is important to the whole process. It is not a supplement in the conventional way of thinking, which is basically an additional amount of something that is not really vital. Following Derrida's *logic of supplementarity* (in Cooper, 1989: 486) *supplement* also means: "that which is required to complete some deficiency in the present state of things". The supplement is necessary to the whole tapestry of life.

Quite the opposite of ecological thinking is exemplified in Clive Ponting's explanation of the mystery of Easter Island. Nowadays, Easter Island is one of the most remote, inhabited places on earth. Before people settled there, it had a dense vegetation. It is now covered with more than 600 massive stone statues which are on average over twenty feet high. According to Ponting (1993: 2): "The history of Easter Island is not one of lost civilisations and esoteric knowledge. It is a striking example of the dependence of human societies on their environment and of the consequences of irreversibly damaging that environment". Increasing conflicts over diminishing resources resulted in a state of almost permanent warfare on the island. The island, with its limited resources, was not fit for supporting human beings and their needs. Limited resources led to quarrels, slaughters, extinction.

These two cases illustrate essentially two different approaches of man's role in the world, i.e. *a bottom-up approach*, or 'we are *with* the environment' and *a top-down approach*, or 'we are *within* the environment'. They highlight two different ways one can look at dualisms in general, and in particular, i.e. system/environment. System and environment are essential elements in relation to sustainability. Identifying system and environment as separate entities facilitates considering them as 'static'. One sits on top, above everything else, considering all as mere material at one's disposal. A bottom-up approach focuses on organising as a process of creating meaning in action and therefore makes the division between system and environment rather problematic.

Top-down versus bottom-up goes back to two modes of thought that existed in pre-Socratic times (4th-5th century B.C.) (Chia, 1996a: 34-35). While Heraclitus emphasised the primacy of flux and transformation, his successor Parmenides insisted upon the permanent and unchangeable nature of reality. Heraclitus was convinced that reality is multiple, heterogeneous and always changing. Parmenides saw one world which is constituted and unchanging. In our own time, these ideas have been discussed in great depth by Alfred North Whitehead (1929). This distinction has been given different names by different authors, as in *strong* and *weak* by Gianni Vattimo (1988), the *already* and the *un-ready* by Robert Cooper (1993), *being* and *becoming* by Robert Chia (1995, 1996a, 1996b, 2002, 2003), *distal* and *proximal* by Robert Cooper and John Law (1995), downstream and upstream thinking (Chia, 1996b).

About dualisms, divisions and dilemmas

René Magritte's painting *Les Jours Gigantesques* from 1928 (*Figure 1*) shows how difficult it is to make a division between two entities, in this case man and woman (cf. Molderez, 2002).

Figure 1 : 'Les Jours Gigantesques' by René Magritte.

Source: Sylvester & Whitfield, 1992: 276 - 277.

Although one can see that it is about a man and a woman, it is unclear where the woman ends and the man begins. The joining between the two makes this undecidable. The function of the boundary is not to separate man and woman. It symbolises that they share something, a *being together*. They are not really the same, nor completely different. To use Deleuze and Parnet (1989: 3), it is *the woman-becoming of man* and *the man-becoming of woman*. This does not imply that man and woman result in a kind of hybrid, or something in-between which is also a no-thing. We know man and woman only through the relationship between them. Both are in interplay with each other. *The other* is important and necessary.

Magritte's creative impulse for this painting was a man raping a woman. In *Les Jours Gigantesques* this violent act is not one of victory. Man is not suffocating woman. The painting shows a very tense and vulnerable relationship.

Les Jours Gigantesques is about movement and production. Contact brings forth tact and care, but also anger and fear. It is never either the one *or* the other, but *both* at the same time. A couple is never only man or woman, but *both* in togetherness. A (married) couple is a true companion. Consequently *one* cannot claim that the product belongs to him or her only.

In general we are used to thinking in binary or polar terms (Cooper, 1990: 180) or in *dualisms*. They have become so much part of our way of thinking that we do not see them as something over which we should be puzzled. We are accustomed to dualisms, or contrasts, because the meaning of one term becomes more explicit in combination with its opposite. The two terms of a dualism are inseparably linked to each other. However, there is still tension present when we make a distinction between the two and when we see a dualism as a *dichotomy*, as a *division* into two separate parts. Dualism as division creates a dilemma because the splitting up leads to a forced choice between two options. A dualism is not about *the one or the other*, not an *either/or*, but a *both/and* combination.

Claude Lévi-Strauss' (1968) idea of *concentric dualisms* is applicable. Analysing a dualism like system/environment or man/woman will soon become incorporated within the dualism part/whole. One can wonder whether system and environment, man and woman are really apart or a whole. *Apart from* also means to be a *part of*. One can only be or become apart *in relation to*, and therefore as *part of* something else or something different. The dualism part/whole is in its turn embedded within sameness/difference. System and environment, man and woman are not so different. On the contrary, they also share something which is the same. Think of female, or *fe-male*, and woman, or *wo-man*. The signifiers show something which is different, i.e. *fe-* or *wo*, and something which is the same, i.e. *male* or *man*.

Dualisms as clear-cut divisions and as dichotomies

The most well known dualisms are Plato's dualism of eternal/temporal objects and Descartes' dualisms of mind/body, nature/humanity and rational/emotional. Other examples are nature/culture, inside/outside, organization/disorganization (Cooper, 1990), stability/instability (Prigogine, 1989), sameness/difference, order/disorder, modernism/postmodernism, certainty/uncertainty, being/becoming and system/environment. These come alongside old/young, man/woman, day/night, summer/winter, black/white. According to *The Fontana Dictionary of Modern Thought* (cf. Bullock, et al., 1990: 242-243) a dualism is: "Any theory which holds that there is, either in the universe at large or in some significant part of it, an ultimate and irreducible distinction of nature between two different kind of things". This definition already gives the idea that dualisms are about dichotomies, or about oppositions without any links between them.

Learning by heart highlights the joining between the parts of the dualism *mind/body*. Memorising - or making use of our memory - is not possible when the heart is not involved. The word, though, has become an expression in itself. The connection between the two has been forgotten. Mind and body or memory and heart are torn apart and disconnected. Focussing on dualism as dichotomy emphasises a division into two halves, so that each is what the other is not (Strathern, 1992: 182). According to Robert Cooper (1995, 1999) *divisions* are a collected system of *defences*. *Defence* associates with *fence*, or enclosure. A division is therefore more like a fence, and "good fences make good friends". Yet, what is really protected is the contamination which is present in the idea of mixing. Mixing means that parts would lose their identity. Divisions make sure that there is no blending. However, when the emphasis is on parts, it is much more difficult to see the whole. Or, if one is concerned with the *holes* only, one cannot see the whole. Yet, only focussing on the whole system (cf. *system theory*) leads to another extreme of being oblivious to the parts. Exclusion of interactions simplifies the world, although the latter is much more complex.

Think of an *organisation* divided into different departments such as financing, production and marketing. They are separated from each other. Still, the processes within an organisation are so

intimately linked to each other that it is impossible to make these breaks or to concentrate on just one section (cf. Senge, 1990). In a metaphorical way, an organisation and its departments can be compared with a fractal. Pointing to one department gives the impression that complexity - or relatedness - is reduced. This is just an illusion. A large number of parts that are connected to each other can be found on a more basic level and in this case complexity is not reduced but deliberately denied.

A clear-cut division implies that it is possible to make a difference *between* the (two) terms. Differences *within* are then ignored. Barbara Johnson (1982: x-xi) states that: "The starting point is often a binary difference that is subsequently shown to be an illusion created by the workings of differences much harder to pin down. The differences *between* entities (prose and poetry, man and woman, literature and theory, guilt and innocence) are shown to be based on a repression of differences *within* entities, ways in which an entity differs from itself". The various demands for equal rights have already shown how difficult it is to unite, for example, all women on the basis of sameness. This asks for an essence by which women can be defined. The group of women has been gradually reduced so that, for example, mothers who enjoy taking care of their household no longer feel comfortable with feminist hardliners who started to attack the idea of having a family. Emphasising differences *between* and trying to exclude the differences *within*, or focussing on sameness, may lead to a further production of differences between and a suppression of differences within, thereby further producing exclusions. The end result is an infinitesimally small crossing between the two terms that are growing apart from each other.

To create a unity with clear and closed boundaries necessitates distinguishing this unity from the rest. The border between internal and external is accentuated by stressing that which excludes and that which is different. John Law (1994) situates this search for sameness, which has led to *purity*, within the Enlightenment drive for order, security, certainty and more order. Purity is the cleanest form of sameness and leads to exclusion and even expulsion of everything that is different.

Chuangtse's story (in Feyerabend, 1991: 135) illustrates how difference is excluded and dissolved in sameness:

The Emperor of the South was called Shu and the Emperor of the North, Hu, each meaning *very fast* and both together *in a flash*. The Emperor of the Centre was known as Hun-t'un, which means *chaos*. One time the emperors of the South and the North visited Hun-t'un's territories where they met with him. Hun-t'un made them heartily welcome. Shu and Hu conferred together as to how they could show their gratitude. They said: 'All people have seven apertures - the eyes, the ears, the mouth and the nose whereby they see, hear, eat and breathe. Yet this Hun-t'un, unlike other men, is quite smooth with no apertures at all. He must find it very awkward. As a sign of gratitude, therefore, let us try making some holes for him.' So each day they made a fresh hole and on the seventh day, Hun-t'un died".

Paul Feyerabend calls this story: "an analogy for colonization". Everything is made the same. Only one side of the dualism is highlighted, while the other is excluded.

Perceiving a dualism as a dichotomy can lead towards a dilemma because one cannot have both at the same time. It is "either *p* or *not p*" (Lyotard, 1988: 5-6). One could have the impression that one is free to choose. But it is a *no-return choice*. In the end one cannot even remember the so-called different options. Emphasising only one part of the dualism has been criticised by non-conventional scientists (cf. Prigogine, 1989). A unilateral shift from one part of the dualism to the other will lead to the same monolithic block as its antipole. In relation to this, Derrida (in *Positions*, referred to by Cooper, 1989: 483) warned for: "The potential trap of merely overturning the *higher* term and replacing it with the *lower* term which then of course becomes the *higher* and is thus itself ripe for overturning". In this way the opposing terms are kept

separate and discrete: "The hierarchy of dual oppositions always reestablishes itself". According to Derrida (in Cooper, 1989: 483): "... we are not dealing with the peaceful co-existence of a vis-à-vis, but rather with a violent hierarchy. One of the two terms governs the other (axiologically, logically, etc.) or has the upper hand". One can also be very specific about the most dominant or preferred one because it always succeeds in being named first. Although the right-hand side forms part of the dualism, its existence is only required to give the left-hand side something to suppress.

A dualism as two separate terms makes it difficult to pay attention to both at the same time. Robert Cooper (1990: 173) illustrates this by using Rubin's double profiles: "The separate faces share the same profile yet at the same time they repress each other in the sense that the perception of one face is always at the expense of the other" (*Figure 2*).

Figure 2 : Rubin's double profiles.

Source : Cooper, 1990: 173.

By accentuating one term the other one disappears. This is comparable with the photographic technique of focussing on one part of a particular scenery whereby the rest turns out to be hazy and eventually ceases to exist. The same kind of myopia results from looking through a microscope (cf. Porter, 1997).

The drawing by W.E. Hill (cf. Lefebvre, 1997: 65; Feyerabend, 1991: 151-152) is also widely used to illustrate the act of suppression. The old lady, wearing a scarf over her head, can only be perceived or come to the foreground when a young lady, wearing a rather large hat, is suppressed in the background. Although both women are there *simultaneously* they can only be seen *alternately*. The cartoon was first published in 1915, but the idea was not new. An anonymous dated German postcard from 1888 shows the same idea, as well as an American advertisement from 1890. The figure was made rather popular in psychologic circles by Boring (1930).

Figure 3: *Old lady* (Original from W. E. Hill, 1915).

Source : www.informatik.uni-bremen.de.

Maurits Escher's *symmetry work* is also characterised by this play between foreground and background (Figure 4): "Our eyes never see a continuous pattern but fix their attention either on the one or on the other" (Escher, 1989: 35).

Figure 4: 'Air and water II', by Maurits Escher, (1990).

Not only the oscillation between foreground and background is intellectually stimulating. Foreground becomes background and background foreground where the contours of birds and fish are, where they meet or where the border is. The border does not belong to the one or the

other, but differentiates between the two and thus: "must be understood as a structure which produces two mutually defining points of view" (Cooper, 1990: 170). According to Cooper (1990: 168): "Boundaries are seen as the loci of paradoxical interactions constituted by the mutuality of *separation* and *joining*". The figures, like Rubin's double profiles and in Escher's symmetry work, are therefore: "mutually parasitic and it is this property which makes them inseparable and their overall structure radically undecidable" (Cooper, 1990: 173-174).

Movement and movement

Another way of seeing dualisms, like stability/instability, order/disorder, certainty/uncertainty is that the terms of these dualisms are created simultaneously. Considering both at the same time leads to dynamism, to movement from one element, e.g. instability, to the other, e.g. stability, and vice versa. The life of a human being is not only stable or unstable, but continuously searches for and tries to create both, although not necessarily at the same time. Total stability makes life dull while a life full of instability is unbearable. This does not mean that stability and instability cannot be without gradations or that everybody will have the same interpretation of what stable and unstable lifestyles are.

This movement from one pole of the dualism to the other and vice versa emphasises the coexistence of the two oppositions, but it is as if the two have risen from their ashes and have become two unchangeable entities. There is movement between them, but what is between them is hidden. Foucault's analysis of Velázquez's painting, *Las Meninas*, focuses on: "the space between the things and not the things in the space" (in *The Order of Things*, referred to by Cooper, 1993: 291) (cf. figure 5). This distinction between movements that occur between entities and those that enact and re-enact these entities into existence relates to the earlier analysis of top-down and bottom-up.

Figure 5 : *Las Meninas*, painting by Velázquez.

Source : www.wimdeegroot.nl/.../foto/las-meninas.jpg

Movement can therefore be read in two different ways: *movement*, stressing the result or the end (cf. '-ent') of an action, and *movement* to stress the happening itself. *Movement* signifies moving from one definite location to another, while the process of creating is denied. *Movement* is co-defining and creating. It is not a static process, but a shaping one. For Whitehead (1927, referred to by Cooper, 1995: 3 and 1998: 108): "movement resides in the infinite flow of mutual relatedness", or, because it is unfinished, "movement is the action of the between".

The two different ways in which dualisms can be interpreted, i.e. strong/weak, already/unready, being/becoming, distal/proximal, top-down/bottom-up, are in themselves dualisms. One can either emphasise the two separate terms or stress the actual process of joining. Take being/becoming. On the one hand, it is *either being or becoming*. On the other hand, it is *both becoming and being* in which being can be seen as a temporary result of becoming. *Being* is therefore always part of *be-com-ing* or *becoming* is *being* that is *coming*. Distal and proximal thinking (cf. Cooper & Law, 1995) are exemplary ways of typifying the bond between the two parts. The pivotal word is *joining* to a central point. Although the point of joining may be far (cf. distal) or near (cf. proximal) it is still a joining or it shows that there is a link, a connection with something, with another.

Dualisms are strange creatures. They are creatures because they are the result of a human process or constructed by humans (cf. also Law, 1994: 150) and strange because they are *a-part*, but at the same time together. There is a separation between the two, but at the same time a kind of integration because one needs both to give meaning. Although there is a *slash* between the two poles, one cannot imagine the one without the other. The dualism is then threefold: two parts and a structuring *boundary* as joining them together. According to Gregory Bateson (1979: 68-69): "There must be two entities such that the difference between them can be immanent in their mutual relationship. Each alone is a non-entity, a non-being. Not different from being and not different from non-being". Derrida (in Cooper, 1989: 483, also in Norris, 1987: 35) calls this: "a perpetual double movement within the opposition so that the positively valued term is defined only by contrast to the negatively valued second term which continually threatens the former's sovereignty. In fact the relationship between the apparently opposing terms is really one of mutual definition in which the individual terms actually inhabit each other". We know one term of the dualism only through the *echo* of the other one. Or, again *ecological thinking*. This difference becomes more visible where they join each other, where they meet or where the middle is. Meaning lies on the fence, in the between. By stressing two poles one forgets this third element which is the middle, the between, the medium, or even the mediator. Magritte's painting *Les Jours Gigantesques* symbolises the importance of the middle, of the boundary as structuring parts.

We are familiar with dualisms as a kind of dichotomy, but it is a false one: "The oppositions are constantly collapsing into each other and losing their separate identities" (Cooper, 1993: 289). Take nature/culture. Nature is not simply nature and culture not simply culture. Even imagining dualisms as a continuum, like being more or less natural or having lower or higher degrees of what cultural is - like a kind of a gradient - does not really stress the interrelationships between the two because there is still an essence of the one that is not yet influenced by the other. It goes further than thinking that nature can become culture or that culture can become nature. *Movement* denies dualisms in this static sense of perceiving a process. According to Deleuze and Parnet (1989: 6-7, 2-3): "it is not one term which becomes the other, but each encounters the other, it is a single becoming which is not common to the two, since they have nothing to do with one another, but which is between the two, which has its own direction". Compare to

archery. As an observer we see the archer, the bow, the drawing of the bow all as separate actions. For the archer the boundaries between the arch and the bow resolve in a continuous *movement*, in a pure state of non-distinction. The archery just happens for him.

In this way a dualism is more like a *mobius-strip* because the two sides the strip had before it took the shape of a mobius-strip, become indistinguishable after the twist. The mobius-strip was named after the German mathematician August Ferdinand Mobius who lived from 1790 until 1868. This two-dimensional surface has unusual properties, i.e. a single closed curve with a *one-sided* surface so that any two points on its surface can be joined by a line that does not cross a midline drawn down the strip. It can be visualised by taking a long, thin rectangular piece of paper, of which one of the narrow ends is twisted 180 degrees after which the two ends are glued together. If the paper had not been twisted before joining the ends, it would have formed a cylinder with two edges. The two sides have dissolved in one which does not mean that they have become a unity, but only that it is no longer clear which side is the inner one and which the outer one. The twist is a crucial element because it is there where the two sides meet, where they join each other. The twist is just another word for boundary, frame, middle or between. It much more captures *movement* because one cannot think about *twist* without making the link with moving and turning, with action. It is not a *movement* in one direction, but a back-and-forth one.

Comparing a boundary to a twist allows for a much more dynamic relation between the two oppositions. *Twist* is also cognate with *two* and in Dutch the word *twist* means also a *quarrel*, a *dispute*. When a couple is disputing the twofold unity falls apart into two pieces. Remarkably, boundaries are often the cause of differences of opinion leading to argument, to quarrel, to discord, to a row. The fence or boundary is also a row - *one rows over the row*. The boundary does not function as a separation between the two, but: "is an active process of differentiation which serves both binary elements equally" (Cooper, 1990: 170). It is difficult to say what is included and what is excluded, or what is inside and what is outside. This asks for a sharp boundary between the two and for a specific and stable location (cf. Cooper & Law, 1995: 243), or, definition. Inside/outside also depends on the perspective from which one looks. Often *movement* across the fence turns inside into outside and vice versa. We are not isolated, but are part of a flux that does not necessarily consist of human beings only. John Law (1992: 381) underlines the heterogeneity of relationships because: "these networks are not only composed of people, but also of machines, animals, texts, money, architectures, or any material that one cares to mention. The social isn't simply social. It is all these other materials too". Law thereby shows the difficulty in making separations between inside and outside and of the importance of connections and interactions. Think about the clothes of one's youth that cannot be thrown away because they are an extension of oneself, a part of you and partially you. Although they are *from* the past, they still *form* something of you, of your present and future.

The twist is equivalent to the point of *reversal* (Cooper, 1983: 211, 208) or to "circularity, which is merely another way of saying in-one-anotherness". This idea of reversibility is central to Escher's and Magritte's work. They also apply it to themselves. Magritte (cf. James Harkness, in Foucault, 1982: 2) disliked being called an artist, but preferred to be considered a thinker who communicated by means of paint. The paradox of the inside and the outside is shown in almost all his paintings. In *La Condition Humaine* for example, a painting from 1935, the sea's horizon follows the horizon on the canvas without a break, whereby it becomes difficult to tell where the landscape ends and the canvas begins, or where the border is. In fact there is no border because both are within the frame of the painting. This repeating can also be found in Escher's work. He did not see himself as an artist, but as an artisan, a graphic artist with heart and soul:

"A graphic artist has something of the troubadour with him. He always repeats the *same* song in every copy he makes" (Escher, 1989: 90). Some art critics (cf. Methuen, 1974) do not like the idea of *sameness* because it is different from their principle of uniqueness that is inherent in the so-called art of painting. Sameness is in their view not considered as original, but sameness, on the contrary, or repetition, becomes difference. The usual properties of *sameness* and *difference* are reversed by making use of the art of rereading: "It is the consuming of different stories that is equated with the repetition of the same, while it is the rereading of the same that engenders what Barthes calls *the text's difference*" (Johnson, 1982: 3-4).

The story of the inside versus the outside is often one in which the inside tries to make the outside like itself. The dualism is dissolved: "There are constant pressures to transform its complex rhizomic folds into roots that can be cultivated and stems that can be pruned" (Taylor, 1995: 35). Reversibility is not exclusive, but integrates three elements of the dualism, i.e. two terms and their boundary, in a never-ending *movement*. It seems to be a story with a happy ending. But the mediating part of it, i.e. the boundary acting as a peace-maker between two opposing sides, is often forgotten, which leads us to a never-ending oscillation between the two.

system/environment as dualism

The analysis of *movement/movement* is applicable to system/environment. Within *movement* the finished *end* of system and environment is centralised. The boundary between both is maintained and supported. The system is conceptually removed from its environment and leads a *solitary life*. System and environment are separated as is illustrated in *figure 6 (i)*. Recall again the top-down way of thinking.

Movement demonstrates how system and environment structure one another. This interaction is centred upon the boundary. The boundary is (not only) a line of separation, but a *texture* that keeps system and environment together. The boundary paradoxically shows that both elements are also bound to each other. The combination of connection and disconnection allows for action. The system is *with* the environment instead of *within*. Or, system is as well in the environment as the environment is in the system. Without the environment there is no system and vice versa. *Figure 6 (ii)* represents how system and environment are a fold of each other. The boundary refers to a transition which is unmarked (cf. Guépin, 1998), or *open*. This way of reading system/environment fits within the bottom-up way of thinking.

Figure 6 : System/Environment as:

Source : Drawing on Curt, 1994: 50.

Figure 7 is another way of illustrating the dualism system/environment. In *figure 5 (i)* only differences are emphasised. System and environment stand apart from each other since there is nothing which unites them. *Similarity* is the binding element in *figure 7 (ii)*. The significance of system and environment is not contained in the isolation of the one and the other, but in differences and similarities. The boundary between system and environment is *a bond*. The boundary as *limit* is *glueing* parts. Limits attach system and environment into real parts and wholes. What is *between* system and environment is not only their differences, but also their similarities. The *between* is where system and environment touch each other. Meaning is found in the between of system and environment.

Figure 7 : System/Environment as:

To conclude

Kamagurka is a famous cartoonist in Belgium. The figure he always uses is Bert, a middle aged man. One of his cartoons shows Bert sitting in his house, windows closed, looking at the countryside and saying: “Nature is wonderful, but I don’t allow her into my house”. It illustrates how much we are used to putting boundaries between the inside and the outside, to think top-down. At the same time it adds to the idea that it is almost unreal to put boundaries. From the moment on that Bert opens the window, nature enters into his life, of course.

In this text a way towards ‘ecological thinking’, i.e. a bottom-up way of thinking about sustainability, has been suggested. A ‘bottom-up’ approach focuses on organizing as a process of creating meaning in action and therefore makes the division between system and environment rather problematic. The margin as boundary is now ‘binding’ system and environment. Education for sustainable development should be open for this other way of thinking. More often a top-down way of thinking is taught: man is still in the centre of everything, but he needs to take nature into account out of self-interest. *Sustainable development* is an example of a concept which is mainly injected into our language system via politics. As a result, it particularly bears the marks of a *top-down* approach. A seldom mentioned *bottom-up* approach exists besides this top-down approach. The bottom-up meaning of sustainability originated from actions of forest workers. This corresponds with the conception of language as based on the activity of people in a community. Think of the rubber tappers in the Brazilian rainforest. They do not chop down a naturally grown tree in its own biotope, but tap the rubber little by little in order to keep the tree alive. One of them was Chico Mendez, an environmentalist and union militant. He was the first to reveal the exhaustion of the Amazon forest from the inside. He was killed on the 22nd December in 1988 by two large landowners. Mendez used sustainable development in the sense of protecting the rainforest in a way that is also beneficial to the poor, local people in terms of income. Recently, Brazil has started to appreciate the traditional rubber tapping, instead of sacrificing the rainforest to the large-scale

wood industry which only has a short-term benefit for a few. In the short term, less rubber is extracted, but the output is larger in the long term.

The aim of this paper was not to suggest a series of sustainable metamorphoses; nor did we plead for a simple return to the past. Neither an atmosphere of risk nor danger was created (cf. Beck, 1992 and 1995). The text was not therapeutic in the sense of curing, although the world and its people may be ill. If there is a relationship between the text and therapy then it is with the text as *humble servant*. Prime attention was devoted to conceptual analysis. The main focus was to discern the ontological meaning of concepts related to sustainability. This corresponds with Arne Naess' (1973: 95) *deep* thinking about ecology: "Ecologically responsible policies are concerned only in part with pollution and resource depletion. There are deeper concerns which touch upon principles of diversity, complexity, autonomy, decentralization, symbiosis, egalitarianism and classlessness". A *shallow* concept of sustainable development would be concerned with solutions for environmental problems only. A *deep* concept *problematises* solutions and asks for reflection. It seems that a fourth P, apart from people, planet and profit, may be needed, the one from *pneuma*, or *spirit*. Pneuma also refers to breath, therefore life, to wind, movement.

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