

self-organising learning

participatory action research at Schumacher College
toward an ecological, sustainable social order

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Consequently he who wants to have right without wrong,

Order without disorder,

Does not understand the principles

Of heaven and earth.

He does not know how

Things hang together.

—Chuang Tzu, Great and Small

acknowledgement

"...What does that mean--'tame'?"

"It is an act too often neglected," said the fox. It means to establish ties."

"To establish ties'?"

"Just that," said the fox. "To me, you are still nothing more than a little boy who is just like a hundred thousand other little boys. And I have no need of you. And you, on your part, have no need of me. To you, I am nothing more than a fox like a hundred thousand other foxes. But if you tame me, then we shall need each other. To me, you will be unique in all the world. To you, I shall be unique in all the world . . ."

"I am beginning to understand," said the little prince.

"There is a flower . . . I think that she has tamed me . . ."

"It is possible," said the fox. "On the Earth one sees all sorts of things."

—The Little Prince. Antoine De Saint-Exupery. 1943

I would like to thank everyone at Schumacher College. You are so special for me: because it is you that I shared my experience with; because it is you that I learned your story from; because it is you that I got worried about in stormy nights. You have tamed me.

I am grateful to all who participated in my research. Thank you for letting me explore the learning process of the College. Anita, Anne, Brian, Gideon, Satish, Stephan, Terry and William, thank you for your respectful attitude toward my work. I thank with love my fellow MScs; Carolyn, Damian, Daniel, Justin, Marjana, Mark, Minni, Paul, Rachel and Todd. And a very special thanks to Philip! I could not have made it without your support and your smile. You are the one who tamed me most and you are the one who told me Unity, which was the most joyful learning in my life.

Finally, I thank my family, friends and colleagues in Japan who trusted and supported me throughout this year. I will bring back my learning to Japan and return the favour.

invitation

This thesis evaluates self-organising systems in the creation of ecological, sustainable social order. The main study is conducted at Schumacher College assessing the learning process of short course participants and MSc students, using participatory action research. I examine how the learning process works as a self-organising system. The system is analysed in terms of complexity theory and evaluated for the holistic nature of the College that results: integration of learning with living, one academic discipline with another, and science with spirituality. Applying self-organising systems in science to human organisations and meaning making processes, I demonstrate its significance for sustainability.

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abbreviations

The quotations from the field research are indicated by the following codes:

FQ: facilitator questionnaire

MD: MSc student discussion

MQ: MSc student questionnaire

SI: staff interview

SQ: short course participant questionnaire

TI: teacher interview

chapter 1

introduction

introduction

It is often said that modern science relies on the three 'M's: Materialism, Mechanism and Measurement, focusing on prediction and linear systems. The basis of modern science is rooted in the metaphysical assumption of universal physical causality: everything in the universe is exclusively caused by physical processes and made up by physical objects. (de Quincey 2005: 70) This machine imagery leads to the belief that studying the parts is the key to understanding the whole. Furthermore, the methodology of modern science has excluded contextual subject; mind and physical reality are separate.

These principles of modern science are relevant to current human organisational structures. Margaret Wheatley (1999) says so many people in organisations feel discouraged and fearful about the future. Moreover, people feel that the best efforts for the creation of organisational change result in failures. Wheatley believes that these problems in organisations can be traced to a fundamental assumption which sees organisations as machines:

“Organizations-as-machines is a 17th century notion, from a time when scientists began to describe the universe as a great clock. Our modern belief in prediction and control originated in these clockwork images. Cause and effect were simple relationships; everything could be known; organizations and people could be engineered into efficient solutions. Three hundred years later, we still search for "tools and techniques" and "change levers"; we attempt to "drive" change through our organizations; we want to "build" solutions and "reengineer" for peak efficiencies.” (Wheatley and Kellner-Rogers 1996b)

Organisations as machines only follow the instructions given to them, and they only work in the specific conditions controlled by their founders. Machinelike organisations have no capacity to adapt to change.

These are just small examples. In modern times, it seems that all social systems, including the economy, education and health, are treated in a similar way by focusing on physical objects, mechanism and causality. Many writers and commentators are suggesting that this modern worldview is resulting in social and environmental crisis because it makes us blind to the 'essential' connection with other beings and it causes us to embrace the illusion that we can control everything. This conceited notion has become the cause of ecological devastation, human and social fragmentation and moral danger. Thus, it necessarily results in a fundamental shift of our worldview and contorts our experience.

So I have come to the conclusion that one of the important concepts for ecological, sustainable society is self-organisation:

“self-organization is the spontaneous emergence of new structures and new forms of behavior in open systems far from equilibrium, characterized by

internal feedback loops and described mathematically by nonlinear equations." (Capra 1996: 85)

Many 'new' scientists now have recognised the importance of nonlinearity and complexity, moving away from machine imagery and focusing on interconnectedness and relationships. The development of holistic science, focusing on process rather than result, quality rather than quantity, and the whole rather than its parts, is the outstanding example of this. Similar shifts have appeared in human society. For example, human health is seen as an integrated system rather than as a collection of discrete parts:

"Some biologists offer the perspective that what we thought of as discrete systems (such as the immune, endocrine, and neurological systems) are better understood as one system, totally interdependent in their functioning" (Wheatley 1999: 12)

In contrast to machinelike organisations, Wheatley says that organisations can be and should be living self-organising systems. Self-organising systems are "adaptive, flexible, self-renewing, resilient, learning, intelligent-attributes". (Wheatley and Kellner-Rogers 1996b) They have the capacity to respond appropriately to changes and to support themselves in adaptive patterns and structures without externally imposed blueprints:

"Structures and solutions are temporary. Resources and people come together to create new initiatives, to respond to new regulations, to shift the organization's processes. Leaders emerge from the needs of the moment. There are far fewer levels of management. Experimentation is the norm. Local solutions predominate but are kept local, not elevated to models for the whole organization. Involvement and participation constantly deepen. These organizations are experts at the process of change. They understand their organization as a process of continuous organizing." (Wheatley and Kellner-Rogers 1996b)

While closed, isolated systems like machines decay to the state of least order, open, connected systems like self-organising systems have an inherent possibility to evolve to states of increasing complexity and emergent order.

We belong to a greater or lesser extent to organisations such as a company, educational institution, scientific committee, community and society. We create our own understanding, our perspective and our meaning through the experience in these places. Therefore, the concept of organisation is crucial for the creation of the world.

research areas and aim of thesis

In this thesis, toward ecological, sustainable social order, I explore self-organising systems from both a scientific point of view and using human organisational theory. Specifically, my research focuses on Schumacher College as an educational institution. The reason why I study the College is; firstly, I have the sense of self-organisation within the learning process of the College and I believe it is worth exploring its relevance to the creation of ecological, sustainable social order (explored in Chapter 3, 4 and 5); secondly, I can conduct “participatory action research” (discussed in Chapter 4) through the fact that I am living in the College as one of the participants throughout this MSc year; thirdly, education is one of the most important aspects for the creation of our worldview:

While the economic and technical dimensions are important, I believe that current educational forms are at the centre of our social and ecological crisis. Because the crisis we face is, first and foremost, due to our mindset, perceptions and values, the influence of education is crucial.

Peter Reason (2005) comments:

“they [educational forms] tend to divide the world by academic discipline, advocate domination over nature, promote individualism and rights over citizenship and responsibility and separate rationality from feeling and valuing.”

Our worldview has co-arisen with the modern worldview characterised by reduction, abstraction and fragmentation.

Thus, toward ecological, sustainable social order, I explore the self-organising learning process at Schumacher College. Through this endeavor, I aim to evaluate self-organisation as an influence on sustainability and communicate the idea of self-organising learning of the College to a wider audience.

outline of thesis

chapter 1: **introduction**

chapter 2: **background to the research** gives information about self-organising systems from scientific theory to human organisational theory. This literature review becomes a basis of fundamental concepts of the field research at Schumacher College.

chapter 3: **context** establishes the context for the research project at the College. This gives the background to the College, in its history, philosophy, and programme structures, as they relate to the learning process of short course participants and MSc students. This chapter also reviews the research concepts regarding to adult learning.

chapter 4: **purpose, methods and procedures** presents the goals of the inquiry, methods used, procedures followed and introduces the concept of participatory action research and its significance. Some issues regarding validity and human ethics are also explored.

chapter 5: **the research project** gives the results and examines the significance of the research data from the field. In line with participatory action research, my own experience and perspective are discussed at the end of each section.

chapter 6: **conclusion** discusses the significance of the research and its potential implications, reflecting on the whole story of this thesis.

chapter 2

background to the research

Introduction

In this chapter, I explain fundamental concepts related to my field research at Schumacher College. I give the framework for understanding self-organising systems in science and human society. First of all, I review the Western history of science, tracing the path from reductionist science to holistic science. Next, I explain self-organising systems through scientific definition: dissipative structure and complexity theory are the key for understanding self-organising systems. Lastly, applying self-organising systems in science, I explore the implication of them in human society, especially in terms of human organisations and the emergence of responsibility, ethics and leadership.

western history: from Reductionist Science to Holistic Science

The ancient idea of nature saw the earth as an animate living being, which was based on reciprocal relationships between all existences. People had known that their life was a part of the greater universe, and that every being was interconnected and interdependent. Our ancestors were always in awe of nature, respected its power, and behaved cautiously in the belief that the *unity* of nature was something above them. The reality of their lives was seen through awed animistic perspectives.

We could see this philosophy in Western culture from the birth of Greek myth in the sixteenth century B.C. The concept of animate nature was retained in the writings of many influential thinkers such as Johannes Kepler:

“The doctrines of Stoicism, Platonism, and other ancient schools of thought envisioned a living Earth or living cosmos, composed of innumerable beings and living systems that together form a complete unit.” (Scofield 2004: 151-159)

In seventeenth century, this worldview was radically changed by concepts of two scientists: Rene Descartes and Issac Newton. Descartes created the framework of natural science, which captured nature as a perfect and complete machine. In his words:

“All science is certain, evident knowledge.... We reject all knowledge which is merely probable and judge that only those things should be believed which are perfectly known and about which there can be no doubts.” (Garber 1978 cited in Capra 1983: 42)

He thought that all phenomena of nature could be described by linear mathematical laws and understood by reducing the whole complex phenomena into its parts. For him the earth, including living organisms, was a machine, so that the behavior of the whole was understood from a knowledge of its parts.

Fritjof Capra (1996: 19-20) explains that this analytical Cartesian thinking underlies the fundamental division between mind and matter. Descartes believed the properties of the material universe to obey the following principle:

“I admit nothing as true of them that is not deduced, with the clarity of a mathematical demonstration, from common notions whose truth we cannot doubt. Because all the phenomena of nature can be explained in this way, I think that no other principles of physics need be admired, nor are to be desired.” (Garber 1978 cited in Capra 1983: 43)

In line with the Cartesian thought, Newton developed and created a new scientific paradigm. He formulated mathematical equations of motion, which postulated that all physical phenomena are reduced to the motion of material particles caused by forces

including gravity. For Newton, the whole universe could be regulated by substantial laws. Capra (1983: 52) then points out that the Newtonian mechanism concerns causality and determination of the universe:

“All that happened had a definite cause and gave rise to a definite effect, and the future of any part of the system could — in principle — be predicted with absolute certainty if its state at any time was known in all details.”

In the 1920s, however, quantum theory overturned the Cartesian, Newtonian assumption. It was discovered that atoms, the very basis of all matter, consist of vast regions in which electrons move around the nucleus. In addition, the subatomic particles, not only the electrons but also the protons and neutrons in the nucleus, also move and they are not hard, solid particles. (Capra 1983: 67) Interesting to note is that these subatomic objects have dual aspects: the same objects sometimes appear to be acting like particles and sometimes as waves. That is, the very nature of objects depends not on the intrinsic properties of themselves but on the reciprocal relationship of the objects and the experimental situation, i.e., including the apparatus used for the interaction. In other words, subatomic particles are not ‘things’ but *interconnections* themselves among things. (Capra 1983: 68-9) The careful analysis of atoms ironically shows that we cannot understand things by reducing the whole phenomena into its small parts such as subatomic particles.

Subatomic particles are interrelated patterns in an ongoing dynamic process, which “do not ‘contain’ one another but rather ‘involve’ one another”. (Capra 1983: 86) All particles, all parts embrace the wholeness within itself. Quantum theory reveals that subatomic particles are not isolated entities of matter but are the probabilities of interconnections in the inseparable universe.

Dealing with the very essence of existences, Relativity theory discovered by Albert Einstein also explains the foundation of the universe, which intrinsically enfolds dynamics of interconnection. (Capra 1983: 82-83) Relativity overthrows Newton’s idea of gravity with the dynamic theory of interaction between the relative viewpoints of observers:

“space and time are intimately and inseparably connected and form a four-dimensional continuum called ‘space-time.’” (Capra 1983: 80)

In contrast to the mechanistic Cartesian, Newtonian worldview, modern physics treats the world as innumerable patterns of a cosmic process in which dynamic whole phenomena *emerge* through the interaction of its entities. The very nature of the dynamics of a physical system is the reciprocal interactions between the whole and its parts rather than just the parts themselves.

Capra (1983: 82-83) articulates this beautifully:

“There is motion but there are, ultimately, no moving objects; there is activity but there are no actors; there are no dancers, there is only the dance.”

In the late eighteenth and nineteenth centuries, there were also movements from reductionism to holism in art, literature, philosophy and so on. Goethe and Kant were the towering figures of this time; they also challenged science with holistic, systemic and ecological description.

Goethe explained the relationship of light and colour as Newton had done. Newton analysed the source of colour concentrating on experimental apparatus: He put a glass prism between a wall and a small hole in the opposite window. Light went through the hole, which made the prism project colours on the wall. He concluded that colours already materially existed in the light, and the prism played a role to separate each colour. However, for Goethe, Newton's procedure was upside-down. He used his intuition and everyday experience. He *dwells* in the phenomena of colours instead of replacing it with artificial experiments. (Bortoft 1996: 19) For Goethe, colours were emergent phenomena of the combination of light and dark. Figure 2-1. shows how we perceive the colour of the sun during the daytime as bright yellow, and during the evening as red and orange. The colours appear in the boundary between light and dark; when we look through a prism at the light side of the boundary, one finds the red nearest to the boundary, then orange, and yellow furthest away from the boundary.

"Far from the colors somehow being already *contained* in light, for Goethe they *came into being* out of a relationship between light and darkness". (Bortoft 1996: 19-20)

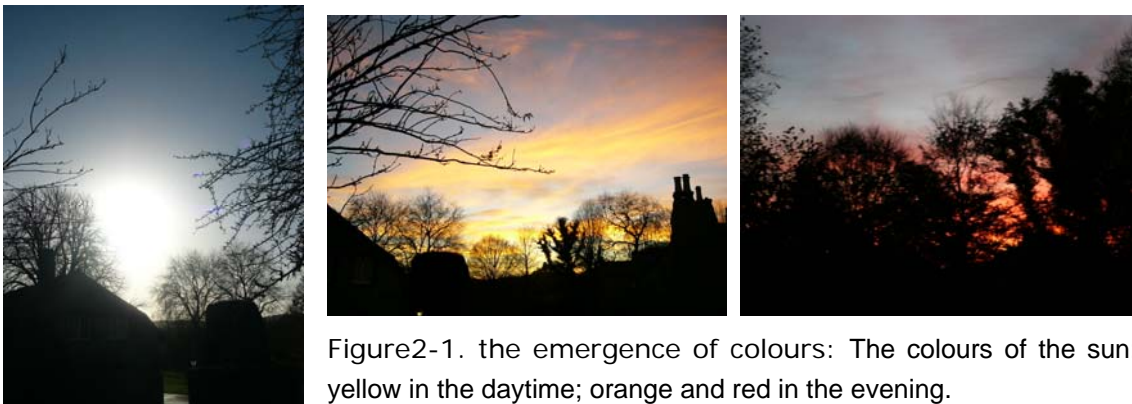


Figure2-1. the emergence of colours: The colours of the sun: yellow in the daytime; orange and red in the evening.

Kant described nature as *self-organising systems* seeing its phenomena as a whole. He was the first person who used the term self-organisation to explain the nature of organisms. In contrast with a machine, he believed that organisms were maintained by self-reproducing, self-organising *processes* through connections among its elements.

"In a machine, according to Kant, the parts only exist *for* each other, in the sense of supporting each other within a functional whole. In an organism the parts also exist *by means of* each other, in the sense of producing one another." (Capra 1996: 22)

In the words of Kant:

"We must think of each part as an organ.... that produced the other parts (so

that each reciprocally produces the other) Because of this, [the organism] will be both an organized and self-organizing being." (Webster and Goodwin 1982 cited in Capra 1996: 22)

Self-organisation offers holistic, systemic science, because it cannot be understood from the study of its singular parts alone: The *interacting process* of parts itself is the very nature of self-organising systems. Donella Meadows (1982: 23 cited in Wheatley 1999: 10) notes:

"You think because you understand *one* you must understand *two*, because one and one makes two. But you must also understand *and*."

This '*and*' can be interpreted for living organisms as a nonphysical entity.

"Vitalists assert that some nonphysical entity, force, or field must be added to the laws of physics and chemistry to understand life." (Capra 1996: 25)

exploring self-organising systems

Evolving Systems and Structure-Preserving Systems

Erich Jantsch (1979: 32-35) suggests two fundamentally different types of system: evolving systems and structure-preserving systems. He explains the distinctions taking six characteristics of systems; relationship with environment, internal state, logical organisation, function, structure, and total dynamics. (see Table 2-1.)

First of all, with respect to its ***relations with the environment***, evolving systems are open and structure-preserving systems are isolated or closed. The former is maintained by exchange with its environment, especially exchange of matter, energy and information. All the exchange brings the system toward the new and unexpected. On the other hand, the latter system maintains itself without the exchange so that the ***internal states*** of these two systems are different. In open systems, the exchange with the environment is maintained by their non-equilibrium state because the process requires the flow of input and output. In contrast, isolated systems maintain themselves by equilibrium or near equilibrium states.

The third aspect is ***logical organisation***, which shows how the system links its processes. In open systems, particularly interesting are 'hypercycles' which are multiple feedback loops for maintaining system organisation. By combining each hypercycle and forming complex networks, the systems create higher levels of organisation which are characterised by diversity of components and structures. (Capra 1996: 94) This type of multidimensional organisation creates holarchy, i.e., systems are within systems within systems ... within the ***totality of a system***. A particular example is a human body which is organised by multilevel cells, tissues and organs.

Then, the ***function*** of a system embraces the total characteristics of its processes. An important example in open systems is the function of 'autopoiesis'. *Auto* means self and *poiesis* means producing, i.e., autopoiesis refers to self-producing. A system is autopoietic when its function is self-renewing, and such a system does not stay the same over long periods. In a biological cell, for instance, anabolic and catabolic reactions are examples of autopoietic functions: Thousands of molecular components in the cell are dynamically interrelated by complex networks and the biochemicals are transformed through metabolism. (Maturana and Varela 1992: 44) Thus, the systemic function autopoiesis corresponds with the ***total system dynamics*** named self-organisation. In contrast, the function of an 'allopoietic' system, such as a machine, depends on outside regulation. (Jantsch 1979: 33)

Lastly, the focus shifts to the ***structure***. Self-organising open systems are

characterised by a so-called dissipative structure. Jantsch (1979: 34) explains:

“It is the dissipative structure which is responsible for ordering the processes in such a way that there is balance between generation and degeneration, that the autocatalytic self-reproduction in the system does not blow it up into pieces and keeps it imprisoned in its own tread-mill.”

On the other hand, isolated systems embrace a static equilibrium structure.

Jantsch (1979: 35) besides subdivides structure-preserving systems into two systems: One has already reached its equilibrium state and became static. The other is on the way to equilibrium and its dynamics are already geared to arriving into equilibrium:

“this dynamic may be called *devolution* since it runs in the opposite direction of evolution.” (Jantsch 1979: 34)

Table 2-1. overview of evolving systems and structure preserving systems: Structure-preserving systems are in their irreversible equilibrium states. Evolution systems are far from equilibrium and evolve through dissipative structures. (Jantsch 1979: 34)

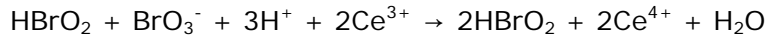
Characteristic system aspect	Evolving systems	Structure-preserving systems	
Total system dynamics	Dissipative self-organization (evolution)	Static (no dynamics)	Conservative self-organization
Structure	Dissipative structure (far from equilibrium), evolving	Equilibrium structure, permanent	Devolution toward equilibrium structure
Function	Autopoiesis (self-reference)	No function or allopoiesis	Reference to equilibrium state
Logical organisation	Cyclical (hypercycle), irreversible sense of cycle rotation	Statistical oscillations in reversible processes	Irreversible processes in direction of equilibrium state
Internal state	Non-equilibrium	Equilibrium	Near equilibrium
Relationship with environment	Open (continuous, balanced exchange)	Isolated or open (growth possible)	

Emergence of Order through Totality of Processes

Self-organisation is deterministically characterised by a dissipative structure which continuously renews itself and maintains the global stability by exchanging energy and matter with its environment. With the exchange, the system maintains its inner non-equilibrium, and in turn, the non-equilibrium maintains the exchange processes. Jantsch (1979: 31) calls this mechanism as the *metabolism* of a system. In open systems dissipation becomes a source of stability and order.

To show how self-organising systems work, I will give the example of a dissipative structure, the Belousov-Zhabotinskii reaction (BZ reaction). The mixture of malonic acids (BrO_3^-), bromic acids (HBrO_2) and cerium ions (Ce^{3+}) generates concentric wave

patterns, when the reaction is carried out in a shallow dish. (Figure 2-1 a.) This pattern follows the equation:



Malonic acid is oxidised by bromic acid in the presence of cerium ions, which results in more bromous acid stimulating the production of the acid in neighbouring regions. However, as bromous acid accumulates carbon dioxide generates, which causes the inhibition of the generation of bromous acid. This gradient of chemicals creates the different domains, which results in the wave pattern in a dish. (Goodwin 1994: 47-48) (Figure 2-2. left)

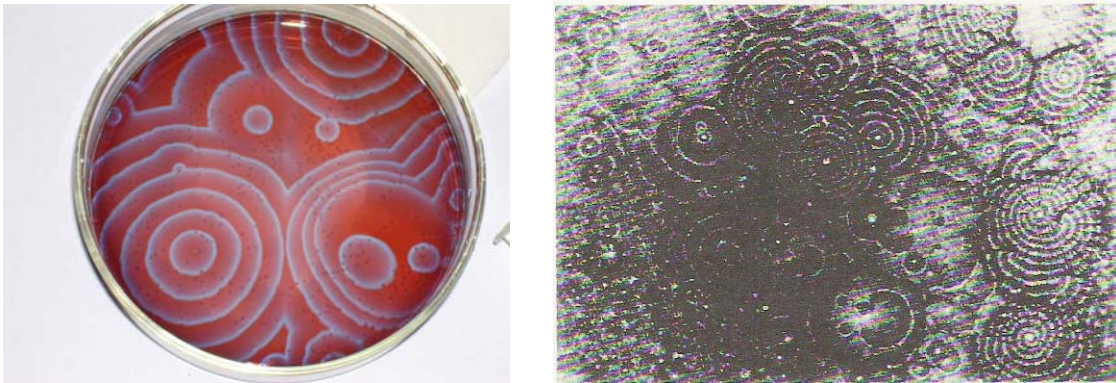


Figure 2-2. wavelike pattern in BZ reaction (left: © Damian Orvananos 2005) and slime mold amoebae (right: Goodwin 1994: 45)

As BZ reaction creates the pattern through chemical interaction so the living systems of propagation of slime mold amoebae create the similar pattern by exchanging chemicals. (Figure 2-2. right) An amoeba stimulated by cAMP releases cAMP, which stimulates another amoeba nearby, and through the chain reaction cAMP diffuses into adjacent regions among amoebae. After releasing cAMP, however, an amoeba secretes an enzyme, phosphodiesterase which destroys cAMP. Consequently, cAMP has a brief lifetime, which causes the concentration gradient of cAMP. This gradient can show a directional signal which enables amoebae to communicate using chemotaxis¹. Furthermore, after an amoeba releases a burst of cAMP, it cannot immediately respond to cAMP signal so that it impossible to release another burst. The signal travels one way resulting in a wave pattern. (Goodwin 1994: 48) Thus the action of the individual components and the behaviour the whole is similar to the BZ reaction.

Both the BZ reaction and the propagation of amoebae show a similar wave pattern by dividing an initially identical region into separate domains, although chemical compounds are totally different. The generation of the wave pattern is not because of the instructions by chemical compounds but because of the organising system.

¹ directed movements according to certain chemicals in the environment. (Goodwin 1994: 48)

The autonomy represented by the wave patterns appears as an expression of the fundamental *interdependence of organisation and function*. The spontaneously emerging pattern corresponds to the systemic function, and vice versa. In other words, the complementarity of organisation and function results from the *totality of processes* in a specific dynamics. (Jantsch 1979: 40-41)

The earth itself is now thought of a self-organising living system, which is newly-named Gaia by James Lovelock in honour of the Earth Goddess of Greek myth. Gaia is seen as:

“a single physiological system, an entity that is alive at least to the extent that, like other living organisms, its chemistry and temperature are self-regulated at a state favourable for its inhabitants”. (Lovelock 2000: 11)

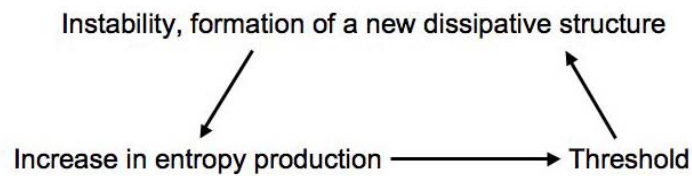
Lovelock, furthermore, suggests that the evolution of the rocks, atmosphere and oceans and evolution of the species of organisms as a single tightly-coupled process. (Lovelock and Margulis 1989: 1) When the earth is taken as a whole, we can understand it as a self-organising system including the interaction of life and its environment. In the theory neither life nor its environment but the emergent property of self-regulation is in charge. This emergent property indicates that Gaia as a whole is more than a mere collection of all component parts.

Fluctuations and Evolution

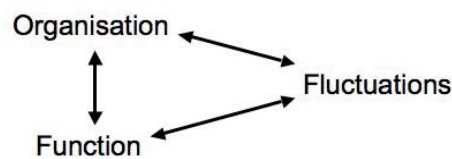
The striking feature of dissipative self-organisation is that the system regulates itself in the connection with its environment. The stability of a system is maintained by negative feedbacks, which reduce the deviation from the balanced state. (Capra 1983: 311) Especially, this adjustment mechanism supports the important functions of higher organisms such as the regulation of body temperature and blood pressure.

However, generally speaking, most of the dissipative structure evolves beyond its stable states. When the fluctuations reach a critical size, the structure is driven into new regime through positive feedbacks. This means a *qualitative* change in the dynamic existence of the system with emergence of new order. The structure is never absolute and is always moving toward transformation and evolution. (Jantsch 1979: 42-43)

The fluctuations are reinforced internally and externally. Fluctuations from environment may force change, and fluctuations may be built up within the system through positive feedback as follows: (Jantsch 1979: 42-43)



To sum up, dissipative self-organisation is described as complementary manifestation of autopoiesis seeking global stability and evolution realising coherent change. While autopoiesis has been described earlier in terms of the complementarity of organisation and function, the whole self-organising system including evolution is as follows: (Jantsch 1979: 44)



Complexity Theory

Structure-preserving systems can be described by the linear relationship between cause and effect. However, evolving systems embracing the system dynamics of a dissipative self-organisation are not linear but complex processes, so that it cannot be described by reducing the whole systems to its parts. Then, complexity theory is the key for understanding the self-organising systems.

Complexity is in general characterised by two aspects. The first is the **emergence** of order, as shown above. In complex systems, many components are networked through rich interactions and self-organising behaviour emerges spontaneously.

The second aspect of complexity is the **sensitivity to initial conditions**. The sensitivity emphasises a divergent aspect of complex systems, i.e., small changes in a chaotic system's initial state leads over time to large-scale consequences. This is known as 'butterfly effect'².

Take the weather as a case example. In the early 1960s Edward Lorenz discovered the flow pattern of the air shown in Figure 2-3. He designed a computer model of weather patterns consisting of three coupled nonlinear equations, which represented the major causes of weather; the behaviour of the atmospheric gases and sun's radiant energy. (Sole and Goodwin 2000: 9) Then, he found that the solutions to his equations were extremely sensitive to the initial conditions. As shown in two wing-like

² The assumption that a butterfly fluttering in Beijing today can cause a storm in New York next month. (Capra 1996: 134)

trajectories of the Figure, from nearby starting points two trajectories develop in completely different ways. (Capra 1996: 134) That is, small differences of initial condition are amplified and result in totally different consequences, and which means long-range prediction is not possible. (Capra 1996: 134)

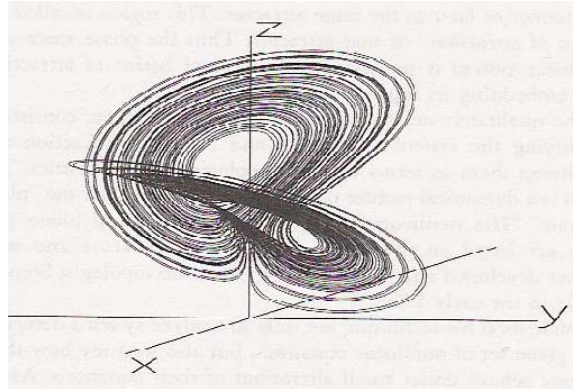


Figure 2-3. the Lorenz attractor. (Capra 1996: 135)

This nonlinearity and unpredictability do not imply the randomness of chaotic systems. The trajectories trace the specific patterns such as the Lorenz attractor, an example of a strange attractor. A strange attractor follows a certain kind of order, which arises through cycles of iteration that holds change within certain bounds.

“Chaos behavior is deterministic and patterned, and strange attractors allow us to transform the seemingly random data into distinctive visible shapes.”
(Capra 1996: 133-134)

In addition, complex systems have a potential to evolve into a new phase through fluctuations. The strange attractor may disappear or change, and new attractors may suddenly appear. This critical point is called a ‘bifurcation point’ where a fork suddenly appears and the system chooses a new direction. (Capra 1996: 137)

An ant colony is a good example of the bifurcation point. It is observed that individual ants act very chaotically in low colony densities, but as many of them gather together, the density is increased and a certain kind of order emerges. This emergent phenomenon concerns extended fluctuations of ant’s activities. In low colony density, fluctuations spread to few ants. As the colony density increases the fluctuations involve many ants and transient patterns of activity arise, which causes the emergence of order from chaos. (Reason and Goodwin 1999: 289, 290) There emerges a ‘superorganism’, which is a higher-order unit through collective behaviour of chaotic individuals. (Reason and Goodwin 1999: 289, 290) Conversely, the transition from order to chaos also emerges as the density of colony decrease.

A dissipative self-organising system accomplishes both stability and flexibility simultaneously. Some scientists such as Stuart Kauffman came to the conclusion that these are achieved on the edge of chaos, which is the meeting point of chaos and order.

Reason and Goodwin (1999: 290) explain the region where emergent processes of self-organisation occur:

“This region of the dynamic spectrum has a rich and distinctive pattern of fluctuations which can be seen as transient manifestations of the pattern that emerges when parameters (such as the density of ants, above) change such that there is a transition to relatively stable expression of the order. If the system moves far into the ordered regime, particular dynamic patterns may become firmly established and there is a loss of capacity to respond flexibly to an unpredictably changing environment.”

Complexity is especially characterised by the edge of chaos because just between chaos and order most complex behaviour occurs. On the edge of chaos a system can achieve both stability and flexibility at the same time (Kauffman 1995: 87).

Box 2-1: Six Principles of Complexity

Peter Reason and Brian Goodwin (1999: 287-290) summarise the features of complexity in six principles.

1. Rich interconnections

Complex systems are defined in terms of rich patterns of interconnections between diverse components.

2. Iteration

Complexity theory describes novel, emergent form and behaviour as arising through cycles of iteration in which a pattern of activity, defined by rules or regularities, is repeated over and over again, giving rise to coherent order. The order arises as a rich network of interacting elements is built up through the iterative process and the consequences of the process emerge.

3. Emergence

The order that emerges is not predictable from the characteristics of the interconnected components and can be discovered only by operating the iterative cycle, despite the fact that the emergent whole is in some sense contained within the dynamic relationships of the generating parts.

4. Holism

The emergent order is holistic in the sense that it is a consequence of the interactions between all the component parts of the system and is not coded in or determined by the properties of a privileged set of components.

5. Fluctuations

During the process of iteration and emergence there are critical phases characterised by fluctuations in state variable whose amplitude can be described by a well-defined pattern (a power-law distribution) in which most fluctuations are small, a few are very large, with a characteristic pattern in between. These fluctuations presage the novel, emergent order.

6. Edge of Chaos

Living systems are most creative, with the great potential for discovering order that expresses an emergent property of the whole system, when they are living near the edge of chaos.

Systemic Self-Organisation and Participative Self-Organisation

Kant, who first used the term self-organisation, is considered as the first systems thinker. He captured nature as a dynamic self-organising system enfolding its own organisation and functions in the interrelation of its parts.

However, he believed that human beings could be distinguished from natural systems, because humans were considered to rationally understand the law of nature and to choose their own goal in relation to it: Kant saw humans as subject to the laws of nature but also free to set their own goals. For him, a scientist is *both* an observer discovering the laws of nature *and* a free, autonomous individual. He did not see this view as paradoxical because he saw the laws of nature and human action separately. (Griffin 2002: 4-7)

In addition, Kant saw nature *as if* it unfolded its organisation and functions for its final state *purposefully*. He believed that:

“the parts of an organism exist because of, and in order to sustain, the whole as an emergent property”. (Griffin 2002: 5)

This assumption was again allowed by the separated view between the natural system and himself as observer. He set himself outside of a system hypothesising and imputing the self-organisation into the system, as if the system were itself intending its goal. (Griffin 2002: 12)

Douglas Griffin calls Kant's view **systemic self-organisation**:

“Human freedom is thus retained when nature is understood as systemic self-organization because it is the human who is postulating the “as if” goal of the system and because, within that understanding of nature, humans can rationally choose goals for their own actions.” (Griffin 2002: 5)

The Kantian view of self-organisation was limited in its systemic aspects. He made a clear distinction between himself and systems.

In contrast with Kant, Ilya Prigogine, who discovered the dissipative structure of a self-organising system, captured the system as a *process* itself. In other words, parts are not *in* the system but *of* the system, and the process is doing its own work. Metaphorically, the process is seen to have ‘its own’ cause or purpose, instead of the ‘as if’ purpose imputed by scientists. There is no simple possibility of knowing its goal because the future is being constructed in the interacting processes: The parts are forming the interactions and being formed by the process of interaction at the same time. Such a process is understood as transforming itself from within. (Griffin 2002: 14, 15) Griffin calls this view, in contrast to systemic self-organisation, **participative self-organisation**.

By means of participative self-organisation, Prigogine is able to hold paradoxical aspects of dissipative structure: *both* order *and* disorder, *both* stability *and* flexibility

present in the system *at the same time*. Participative self-organisation accepts paradox rather than eliminates it.

Table 2-2. comparison of systemic self-organisation and participative self-organisation: Whereas systemic self-organisation distinguishes between observer and system, participative self-organisation sees both of them emerging through the same processes. (Griffin 2002: 14)

Systemic self-organization	Participative self-organization
... posits <i>both</i> an autonomous individual as external observer (subject) <i>and</i> a self-organizing system (object) of which the subject is a participating part	... posits a process of interactive participation between self-conscious embodied subjects who are observers and participants, subjects and objects at the same time
... describes system evolution as unfolding in accordance with some hypothesis ascribed to it by the observer/scientist. The cause of the movement is this hypothesis	... describes the process of evolving interaction as transformation from within, as its own cause
... eliminates paradox in order to describe the system as a whole	... accepts paradox in order to understand the immediate phenomenon of experience
... is viewed as moving toward purpose which has originated externally and been put into the system which is then viewed "as if" it had the purpose itself	... causes itself in moving toward the purpose which is intrinsic to the process
... views change in terms of the formulation of a new hypothesis	... views change as the perpetual construction of the future (sustaining identity and potentially transforming it)

Participative self-organisation shows a fundamental relationship between parts and the whole: The whole, the function of a self-organising system, cannot be recognised as a 'thing' because the whole is the *process* of interaction and interrelation of its parts. Henri Bortoft (1996: 14) says:

"the whole comes into presence within its parts, and we cannot encounter the whole in the same way that we encounter the parts."

The whole self-organising system comes into being through its parts, and each part embraces the whole within itself. Thus, while a whole system is composed of parts, the whole is more than the sum of its parts.

Applying this theory to human organisational realm, Margaret Wheatley (1999: 139-140) writes:

"We need to *work with the whole of a system*, even as we work with individual parts or isolated problems. From a systems consciousness, we understand that no problem or behavior can be understood in isolation. We must account for dynamics operating in the whole system that are displaying themselves in these individual moments."

Self-Organisation for Human Organisation

Taking the current non-participatory human world, David Bohm (1996: 35) explains that people are treated as objects; people are treated not as whole people but through their function as a worker, a banker, this or that. As a result, we are isolated from each other, and our ways of participation are very limited. Bohm warns that we treat other people as objects, and eventually we must treat ourselves as an object, saying "I must fit in here, and I must do this and be that and become better." (Bohm 1996: 35)

Bohm (cited in Wheatley 1999: 26) says, furthermore:

"For fragmentation is now very widespread, not only throughout society, but also in each individual; and this is leading to a kind of general confusion of the mind, which creates an endless series of problems and interferes with our clarity of perception so seriously as to prevent us from being able to solve most of them The notion that all these fragments are separately existent is evidently an illusion, and this illusion cannot do other than lead to endless conflict and confusion."

We individuals have a tendency to lose sight of the connection with the contextual whole, of which the individual is a part. In other words, we tend to lose the relationship between the autonomous individual and the organisation, community and society, of which the individual is a part. (Griffin 2002: 10) In this way, fragmented organisations impact on individuals.

However, the ones who form the organisations are individuals. Wheatley (1999: 82) says that people typically try to secure organisational structures in order to preserve the 'precious' stability they have acquired. Then, people struggle against the environment, seeing it as the source of disruption and change. Even though they know they need to be responsive to new situations, people still focus their efforts on maintaining the structure. Humans are afraid of what would happen if they allow organisational change: they fear that organisations will fall apart. People see an inherent duality between stability and change; they have to choose one over the other.

However, as I have mentioned through this chapter, self-organising systems achieve stability and flexibility at the same time; dynamical balance between chaos and creativity, and between disruption and growth. The things we fear most in organisations, disruptions, confusion, chaos, need not be interpreted as signs of danger any more. The duality of stability and change does not exist. (Wheatley 1999: 21-22) Here is the system, which allows individuals and organisations to be alive together.

"Effective self-organization is supported by two critical elements: a clear sense of identity, and freedom. In organizations, if people are free to make their own decisions, guided by a clear organizational identity for them to reference, the whole system develops greater coherence and strength. The organization is

less controlling, but more orderly." (Wheatley 1999: 87)

Dissipative structure of self-organising system refers to *process structure*. It maintains itself by forming and evolving the order which fits the moment. It is not fixed into any one structure; it is capable of organising whatever best suits the present situation. In this sense, self-organising systems are characterised by *self-reference*. When the situation shifts and the system notices that it needs to change, it always changes in such a way. The self-reference then causes their *continuous stability*. The total system achieves stability over time by the change within itself. (Wheatley 1999: 82-87)

Wheatley (1999: 83-84) explains:

"While a self-organizing system's openness to disequilibrium might seem to make it too unpredictable, even temporal, this is not the case. Its stability comes from a deepening center, a clarity about who it is, what it needs, what is required to survive in its environment. Self-organizing systems are never passive, hapless victims, forced to react to their environments. As the system matures and develops self-knowledge, it becomes more adept at working with its environment.... This stability enables it to continue to develop in ways of its own choosing, not as a fearful reactant."

This is contrary thinking to the current organisational structure in the human world:

"We believe that in order to maintain ourselves and protect our individual freedom, we must defend ourselves from external forces. We tend to think that isolation, secrecy and strong boundaries are the best way to preserve individuality." (Wheatley 1999: 85)

Jantsch (1979: 40) then notes the lesson embedded in the self-organising system:

"The natural dynamics of simple dissipative structures teach the optimistic principle of which we tend to despair in the human world: the more freedom in self-organization, the more order!"

Self-organising systems create their own structures, patterns of behavior, and processes in its functioning. They are designed by what is needed to do the work.

Emerging Responsibility, Ethics and Leadership

According to Wheatley, generally speaking, leadership has been defined in terms of control functions as an emphasis on material structure and multiple parts: This is typified in the words of Vladimir Lenin, "Freedom is good, but control is better." (Wheatley 1999: 24-25) When this happens, responsibility and ethics are imposed on organisations.

In contrast, there is a new way of thinking about responsibility, ethics and leadership.

The shift from separation to participation and from control to self-organisation offers very different understandings of responsibility, ethics and leadership. What Wheatley suggests is that they emerge in the interaction among people and organisations as spontaneous, autonomous acts.

The self-reference function of self-organisation can be applied to human social interaction in general.

“Self-reference conjures up such different possibilities how to be together. It explains how life creates order without control, and stable identities that are open to change. It describes systems of relationships where both interdependence and individual autonomy are necessary conditions. It promises that as individuals together reference a chosen, shared identity, a coherent system can emerge.” (Wheatley 1999:168)

In self-organising systems, people come to know their own governance and do what ought to be done. Responsibility and ethics emerge together through the everyday interacting processes.

“The sense of connectedness and compassion characteristic of individuals with high levels of personal mastery naturally leads to a broader vision... Individuals committed to a vision beyond their self-interest find they have energy not available when pursuing narrower goals, as will organizations that tap this level of commitment. (Senge, 1990: 171 cited in Griffin 2002: 106)”

Leadership also emerges in the on-going interacting processes: leaders emerge from the group, not by self-assertion or external force, but because they make sense, given what the individuals and group need so that they can survive and evolve. Leadership continually emerges in the interaction itself. (Wheatley 1999: 24)

It is the connection and interaction among people and groups which really makes responsibility, ethics and leaderships come into being.

“When more interactions are care-full rather than care-less in an organization, a community of care and connection develops, creating a space for the soul at work to emerge” (Lewin and Regine 2002: 26 cited in Griffin 2002: 77)

Responsibility, ethics and leadership, splitting off from individuals, is located in the self-organising system itself; they really become themselves in the *process* of interaction.

According to Wheatley (1999: 82), there are increasing numbers of groups, organisations and communities which have given up preserving permanent structures of organisations. They have applied self-organising systems to their structure both physically and psychologically; for instance,

“They have simplified roles into minimal categories; they have knocked down walls and created workplaces where people, ideas, and information circulate freely.” (Wheatley 1999: 82)

Box 2-2. Applying Six Principles of Complexity to Human Organisation

Peter Reason and Brian Goodwin (1999: 302-312) argue the relevance of six principles of complexity in social, organisational groups.

1. Rich Interaction

Rich interaction integrates people and groups, encouraging diversity of individual and increasing dynamic processes of emerging order.

2. Iteration

Relational form in society and organisations emerges through simple patterns of interaction: The iterative cycles of action and reflection leads coherent order in groups.

3. Emergence

Order, such as ethics and leadership, emerges from rich interactions and iterative cycles within groups, but does not come from designed blueprints or imposed norms from outside.

4. Holism

The process itself of interaction and everyday experience brings order, so that there are no privileged individuals, no primary causes, and no blueprints which define the emergent order.

5. Fluctuations

The social, organisational order is open to fluctuation, which enables groups to adapt to the moment: The instant of emergence of order is in the accommodation of large fluctuation.

6. Edge of Chaos

Groups are most adaptive and creative at the edge of chaos where there are many small fluctuations and a few large ones. The relationship between fluctuation and adaptation allows a group to achieve both stability and flexibility.

Reason and Goodwin quote the following reflective piece of group dynamics.

“From our early inquiries we came to the conclusion that a descent into chaos would often facilitate the emergence of new creative order. There is an element of arbitrariness, randomness, chaos, indeterminism, in the scheme of things. If the group is really going to be open, adventurous, exploratory, creative, innovative, to put all at risk to reach out for the truth beyond fear and collusion, then once the inquiry is well under way, divergence of thought and expression is likely to descend into confusion, uncertainty, ambiguity, disorder, and even chaos, with most if not all co-researchers feeling lost to a greater or lesser degree.

There can be no guarantee that chaos will occur; certainly one cannot plan it. The key validity issue is to be prepared for it, to be able to tolerate it, to go with the confusions and uncertainty; not to pull out of it anxiously, but to wait until there's a real sense of creative resolution. We make this argument for openness to extreme uncertainty to counterbalance the human being's enormous capacity for creating and sustaining order, even when such order is no longer appropriate.” (Reason and Heron 1986: 470, cited in Reason and Goodwin 1999: 311)

chapter 3

context

introduction

This chapter is divided into two parts: firstly, I present a background to Schumacher College; and secondly, I give detailed observation on the learning process of the College. For the first part, I briefly introduce the College presenting its history and philosophy. Next, in relation to self-organising learning, I give contextual information for short courses and the MSc programme (2005/2006 academic year). For the second part, I discuss the difference between education and learning, the meaning making process, and the concept of ecological self presented by Arne Naess. Lastly, at the end of the chapter, my self-organising learning experience at the College is introduced.

the background of Schumacher College

History

Schumacher College is a part of the Dartington Hall Trust, which occupies a thousand acre estate located near Totnes in South Devon, UK. The Dartington Hall Trust was set up in 1925 by Leonard Elmhirst and his wife Dorothy Whitney Elmhirst as an experiment in rural reconstruction with the aim of living ecologically with respect for the natural world and encouraging human creativity. In 1926 the Elmhirsts summed up their aims as:

“no less than rehabilitation in the broadest sense: not only physical reconstruction and the redevelopment of all the resources in contemporary terms, but also scope for a full life for everyone connected with the enterprise. Further, that the multifarious experience arising from the Dartington experiment should wherever possible have a wider application to rural problems as a whole: and that this experiment should, whatever the results, be made available to all those who had the future of the countryside at heart.”(Dartington Press. 1976)

The Dartington Hall Trust in 1980 set their vision with seven values:

- 1) A belief in the value of human community in which people share and live together in cooperation.
- 2) A belief in the value of the small scale, in which people may know each other and meet each other regularly in the course of their daily activities.
- 3) Care for the land and concern for the whole natural ecology of an area. A desire to live in harmony and balance with nature.
- 4) A realization that the microprocessor revolution is with us to stay and that if we choose, we can associate with it in such a way that our lives are enriched.
- 5) A desire to re-integrate ‘working’, ‘learning’ and ‘living’ so that they are no longer separate but are closely integrated in the daily life of the community.
- 6) A belief in the practicality and advantage of as much local self-government as possible, so that ‘community self-help’ and ‘self-government’ begin to mean the same thing, and higher levels of more distant government are reduced to a necessary minimum.
- 7) An intuition that life is about more than simply material goals and that the material aspects of life should be such that they assist the pursuit of these goals and do not hinder them.

(Page 1980: 5-6)

Schumacher College was set up in 1991 as an educational venture, which not only

inherits the spirit of the Dartington Hall Trust but also promotes and develops the idea of ecology. The College was named in honour of E.F. Schumacher the author of *Small is Beautiful*. E.F. Schumacher wrote about the dangers of the global economy and sought the path of development based on human-scale, local community. The college aims to explore the foundations of the ecological worldview needed for human society and its relationship to the earth. The College is the place where people come to live his idea in order to promote these human values all over the world.

After experimental periods, from 1991 to 1994, the College redesigned its structure, contents, facilities, administrative functions and so on. These changes included:

- Defining and limiting the curriculum in terms of three main areas: ecological economics and development; eco-psychology and eco-philosophy; and holistic science.
- Reducing length of courses from five weeks to three weeks.
- Reducing numbers of course participants from 40 to a maximum of 25 to improve the learning dynamic.
- Engaging a facilitator for each course to assist with the learning process.
- Negotiating with the University of Plymouth to offer optional masters credits on some courses.

(Sterling and Baines 2002: 14)

These changes have been taken on and introduced in the current philosophy and the structural foundations of the College.

Philosophy and Ethos

The philosophy is strongly driven and developed by Satish Kumar, one of the founders and the programme director of the College. He explains that the ethos is influenced by Mahatma Gandhi:

“Mahatma Gandhi’s vision was to create a balanced system where learning by doing would be as essential as learning by reading; education of the hands would be as important as education of the head. Development of the heart would be valued as much as the development of the mind.” (Kumar 2002: 145)

The ethos of the College is represented on the website:

“That everyone should take care of each other’s needs is a central tenet of the philosophy. It is not an economy measure, but a practical expression of our intention that living and learning be part of one whole. In attending to daily tasks, the issues raised in study sessions are brought into the focus of daily practice. In these activities, a balance to the intellectual input of the courses is created. People often say that one of the most enjoyable aspects

of College life is cooking, housekeeping and gardening in a small group with other course participants." (Schumacher College. 2006a)

Moreover, whatever the focus of study, each course is based on the following three aims:

- 1) interweave meditation, reflection, shared work, study, field trips, and community life
- 2) explore issues of sustainability, equity and wholeness
- 3) take an active part in the self-organising processes that enhance individual and group learning.

(Schumacher College 2006b)

background information for Short Courses

Short Course Participants

In 15 years since the college was launched, 2678 people from 88 countries and aged from 18 to 80 years old have attended short courses. They come from a very wide range of backgrounds and this is one of the uniqueness of the College:

“One distinguishing feature of Schumacher College participants is their diversity. Nationalities, cultures, ages, experience can differ markedly and it is not unusual for any course group to have individuals from ten or more different countries. Most, but not all, possess some sort of ecological awareness or experience in this field either on a personal or professional level, or both.” (Sterling and Baines. 2002: 16)

Group Size

The College limits the number of participants on one course to a maximum of around 25 people due to the various reasons; e.g. accommodation availability, financial situation, Schumacher ethos and learning dynamics. Participants are divided into five small groups, which consist of approximately three to six people. They work with small groups in morning house works and tutorial sessions with teachers.

Course Structure

This is the typical schedule for short courses:

	Monday	Tuesday	Wednesday	Thursday	Friday
7:150-7:45	Meditation				
7:45-8:30	Breakfast				
8:30-8:45	Morning Meeting				
8:45-9:30	Housework Groups				
10:00-11:15	1st Morning Session				
11:15-11:45	Coffee Break				
11:45-13:00	2nd Morning Session				
13:00-14:00	Lunch				
14:00-18:30		14:00-18:30 Field Trip			14:30-15:30 Group Review
18:30-20:00	Supper				
20:00-21:30			20:00-22:00 Open Evening		21:00- Soiree

The structure of short courses integrates learning with working and living outside class-time. I identified the five main elements:

1. Formal Study
2. (Self) Organised Activities
3. Community Work/Living
4. Open Space
5. Reflection

1. Formal Study

This includes morning lectures and tutorials with teachers (informal discussion with a small group of participants).

2. (Self) Organised Activities

This mainly consists of afternoon activities such as informal discussion, field trips, presentation and soiree. While the morning course structure is fixed into the schedule, the afternoon and evening are flexible. For example, participants' presentation and discussion are organised at the request and suggestion of participants.

3. Community Work/Living

Each weekday morning, participants in their small-groups carry out house works together, such as cooking, cleaning, composting and gardening. All residents of the college³, staff, helpers, short course participants, MSc students and visitors, contribute to house works and have every meal together.

4. Open Space

This includes free time in which participants take their own time individually. This is also an opportunity for participants to self-organise activities based on their needs and interests. The weekend(s), Saturday and Sunday, are completely free time for participants: some read books and some go sightseeing.

5. Reflection

This includes meditation, reflective reading in the morning meeting and a few minutes silence before sessions. In addition, the College schedules formal reflective sessions: Once a week participants are offered small-group review with one of the staff members. This is the opportunity to reflect on the course overall. At the end of the week, normally Friday afternoon, group review is scheduled; in which participants share their learning experience, and a facilitator checks the progress of the course

³ **Residents**

Staff: Some staff live on the site of the college, some with their family.

Helpers: Volunteers from the alumni help to maintain the College. They lead short course participants in daily jobs such as cleaning, gardening and composting.

Short Course participants: from five days to three weeks residential courses

MSc students: one year full-time MSc in Holistic Science

Visitors: guests of current residents, past students and staff

and schedules the following week(s). Furthermore, on the last date of the course, there is a closing circle in which all residents share their comments and thoughts reflecting on the whole experience at the College.

Teachers

Visiting teachers are invited by the College from all over the world. Generally speaking, teachers are comfortable within the philosophy and ethos of the College.

“All tutors are people who have a significant level of achievement in their field. Many are established figures or authors with a reputation to match. Others are less well known, but have demonstrated some expert level of achievement. Some tutors appear fairly regularly, while others may be used only once or twice over a period of a few years. Some are not re-invited depending on how well their courses recruited or ran, or are unavailable.”

(Sterling and Baines. 2002: 17-18)

The visiting teachers in 2006 include; Arthur Zajonc, Bernard Lietaer, Fritjof Capra, Margaret Wheatley, Tim Lang, Vandana Shiva and Wolfgang Sachs.

In addition, the College has residential faculty who teach particular subjects to most courses such as complexity theory, Gaia theory and deep ecology. The residential teachers include Brian Goodwin and Stephan Harding.

Facilitators

Each course is supported by one or two facilitators who are offered by the College. Anybody who has been to the College can apply to become a facilitator and he/she is chosen by the College. The facilitator is not paid and he/she has the opportunity to take the course for free including food and accommodation. The level of facilitation experience varies strikingly from person to person.

The role of facilitator varies from timekeeping, photocopying and scheduling activities to working with teachers to communicate the infrastructure of the College and smoothing the interaction among participants, teachers and the College staff.

background information for MSc Programme

(2005-2006 academic year)

MSc in Holistic Science programme was launched in 1998 and 74 students participated in total. The aims of the programme are represented in *05/06 Msc in Holistic Science Student Handbook* (2005: 13) as follows:

“The Masters in Holistic Science has the aim of cultivating an approach to the natural world that deals rigorously with the understanding of complex wholes while including qualities and values as essential components of an extended science. The whole person is then acknowledged as a participant in the process of gaining reliable knowledge of the world, which can inform sensitive participation in natural processes rather than being used for control of nature from the stance of an objective, detached observer. In addition to cognitive skills, transferable employment skills, personal skills and skills in research methodology are cultivated.”

Students

In the 2005/2006 academic year, 10 students went through the programme. Students' background is very diverse: they came from 8 different countries aged from 24 to 47 with various academic backgrounds including Biology, Ecology, Economics, Mathematics, and Psychology.

Teachers

The programme is taught by a wide range of teachers from various academia; e.g. Art, Biology, Ecology, Philosophy, Physics and Sociology. Full-time residential teachers are Brian Goodwin, Stephan Harding, Gideon Kossoff and Terry Irwin. Visiting teachers, who come to teach for a couple of days to one week, include Françoise Wemelsfelder, Henri Bortoft, James Lovelock, Margaret Colquhoun, Patrick Harpur, Peter Reason and Rupert Sheldrake.

Programme Structure

The Programme consists of three modules: the core module, the dissertation module and the optional module.

1) **Core Modules:** This provides basic knowledge and the framework of holistic science. Core modules range from individual to community and global levels. Research skills and methodologies relevant to this area are also offered. These are taught from September to December. [see appendix A: Holistic Science Map]

2) **Dissertation Module:** This allows students to choose their dissertation topic and an appropriate supervisor for their study from the University of Plymouth, and then to carry out their project throughout the MSc year.

3) **Optional Modules:** Students have the opportunity to take two short courses (3 weeks) during the MSc year after the core modules. The short courses vary each year because they are part of the College programme rather than the Holistic Science programme.

In general, students are resident at the College during the core module periods. They participate in house works such as cleaning and cooking alongside short course participants. In the dissertation term, whereas students can be away from the College for their project, the majority of students live in the College. They are asked to lead house work groups of short courses. Then, students are required to be resident for the optional two short courses.

05/06 MSc Holistic Science Programme Schedule is as follows:

	Core Modules	Dissertation Module	Optional Modules
September			
October			
November			
December			
January			
February			
March			
April			
May			
June			
July			
August			

Optional modules for 2005-06 academic year are:

- 1) The Future of Money. January 8-27 2006
- 2) Development: Holy Grail or Poisoned Chalice? February 5-24 2006
- 3) Food, Health and Society. March 5-24 2006
- 4) The Science of Quality. April 23 - May 12 2006
- 5) The New Science at Work and Nature and Consciousness. June 11-30 2006

Teaching Methods

Various teaching methods are used during the programme, "aimed at systematically developing the students' ability to understand and apply the principles of holistic science in research." (05/06 Student Handbook 2005: 7):

1. Cooperative Inquiry

Cooperative Inquiry, which is a part of participatory action research, has been under active development since the early 1970s in response to the perceived need for a methodology of inquiry by people into their own activities and organisations. In such circumstances there is no well-defined separation of subject and object, of researcher and researched; all participants are subjects and researchers as well as objects of investigation. Procedures have emerged that are relevant to those required in a science of qualities, and these are used by students in the context of the studies of suitable subjects.

2. Intuitive Development

The cultivation of intuitive ways of knowing, leading to an appreciation of the qualitative as well as the quantitative characteristics of complex systems, is less familiar. The methodologies that are used are analogous to those employed in mainstream science to arrive at consensus concerning quantitative data and its organisation into coherent theories.

3. Lectures, Tutorials, Seminars, Research Projects and Case Studies

- Lectures provide students with overviews and detailed explorations of central themes in the course. They are supplemented by reading lists and with relevant audio-visual material, including videos and computer models. The core module lectures are given primarily by the two principal teachers, with additional lectures by a number of visiting teachers.
- Two tutorial styles are used. Group tutorials complement the lectures by focusing in greater detail on the subject matter of a given course, thereby giving scope for detailed discussions. Regular individually based tutorials, by arrangement, allow students to discuss a specific piece of work (such as an essay, research proposal or research results) with one of the programme teachers.
- Seminars provide students with opportunities to present their own work and to develop their research ideas with the support and help of the group as a whole.
- Group activities in the form of exercises, projects and field trips are used to cultivate skills of sharing and co-operation while simultaneously developing methods of arriving at consensus for collective action directed by intuitive and analytical ways of knowing.

4. Journals

Students are encouraged to keep a journal of their learning process throughout the programme.... It is hoped that in general the journal promotes deeper reflection about how the course has changed the student's broader perspectives.

5. Dissertation

Students are required to maintain a close academic contact with their University of Plymouth Dissertation Advisor through personal visits and the use of email. They are required to start the process of choosing their dissertation project at the beginning of the programme.

(05/06 Student Handbook 2005: 8-9)

education and learning

Schumacher College is characterised by 'learning' rather than 'education'. Professor Schugurensky (2006) differentiates between them as follows:

"education tends to imply formal schooling whereas learning occurs both inside and outside of classrooms" or "learning is something which people do, while education is a social institution which provides learning opportunities for people."

People take initiatives to 'learn', because they are *participating in the process* of learning:

"The most important role that is associated with learning is that of "member" and what is important as a distinction is the feeling that individuals learn more as members than they do as students."
(Schugurensky 2006)

Learning is then a continuous process throughout a person's lifetime.

The college learning process is not only in classes as formal study but in the whole experience including housework. Frank Chase (no date), one of the short course participants reflects the learning at Schumacher College as follows:

"I soon learned the value of a holistic approach to academia. Education at Schumacher includes working in small groups as cooks, dish washers, and housekeepers in which participants become part of an overall intentional support system that focuses on sharing experiences, insights and information in addition to assimilating readings. The participants come from a wide range of backgrounds and ages and are encouraged to share their deepest feelings and groundings, all of which are honored by the others. Lectures, small group discussions, field trips, quiet time to stroll along the Dart River, celebrations, an excellent library of books and video tapes, and informal chats at morning and afternoon tea all create a flow that is caring, inclusive and stimulating. The instructors bring rich backgrounds of experience that are offered and shared. What was most stimulating about this inclusive approach to education was the extent to which one discovers how much the participant's own backgrounds embellish course content. There was a murmuring going on in my thoughts about connection, unity, oneness."

the emergence of meaning

In andragogical tradition, experience is considered as the most important resource for learning because experience is the foundation for knowledge creation, in other words, *meaning* making.

According to Bortoft (1996: 50-51), and to common sense, we know the world through personal experience. This experience does not simply mean sensory experience. Knowledge of our world is based on sensory experience but knowledge is not the same as sensory experience. Take the example of Figure 3-1: Many people at first see a random mix of black and white areas; but on looking further, some people suddenly see the head and upper neck of a giraffe. (Bortoft 1996: 51) There is no change in the pattern of the figure, so the difference cannot be explained as a difference in sensory experience: The change is in the nonsensory factor in perception, which is part of seeing, i.e., "more than meets the eye." (Bortoft 1996: 52)

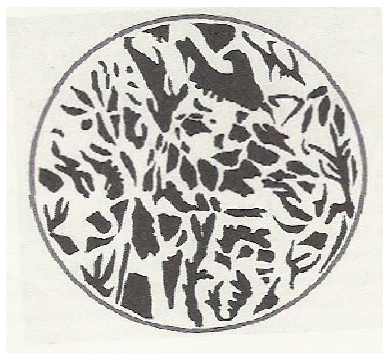


Figure 3-1. the emergence of giraffe's figure

The nonsensory perception of the organising of the giraffe's figure is called *cognitive perception*, which refers to the perception of *meaning*. The experience of seeing the giraffe is the experience of seeing meaning where previously there had been only a meaningless patchwork.

"The nonsensory wholeness or unity, which we see in the instant this patchwork becomes organized, is the meaning "giraffe." This is not the meaning of what is seen, but the meaning which is what is seen." (Bortoft 1996: 52)

The figure itself does not have any meaning at all. Thus, knowing is not created by something in fact on the figure, but by the emergence of meaning between oneself and the figure.

We, in this way, create our *own meaning through experience*. Experience is involving oneself so that one self-organises one's own meaning. Thus, meaning through experience is characterised by participative self-organisation but not systemic self-organisation.

Usher (1997: 93) explains:

“ ‘autonomy’ in the context of adult learning refers both to a goal of self-awareness, of empowerment in the sense of an ability to exercise choice in relation to needs, and to an approach to learning of active personal involvement and self-direction.”

This emphasis is based on the notion that experience differs from person to person. Learners are not to be seen as empty buckets to be filled with formal knowledge by didactic, objective teaching, which emphasises ‘educational’ aspects, but rather as self-directed, contextual autonomies who come to learning situations with valuable diverse personal resources in the form of experience. They are then considered as ***meaning givers***.

On the other hand, of course, learners are affected and influenced by their environment, i.e. by their learning situation. They are always embedded socially, culturally and environmentally. In this sense, learners are also ***meaning takers***.

“The meaning of experience comes from ‘outside’ selves, although at the same time this outside is so much a part of us that we experience it as ‘inside.’” (Usher 1997: 96)

the self and the world

Meaning is always individualised, yet the individualisation does not mean simply 'subjective'. Arne Naess (1987: 48-49) argues that meaning is not subjective but rather "*bound in an interdependent relationship* to our conception of the world":

"if we take characteristics like 'oblong' and 'square', for example, they cannot objectively be qualities of a table, as the quality cannot be separated from the concepts of time and velocity in the theory of relativity. The mentioned characteristics are not subjective, but, like smell, *bound in an interdependent relationship* to our conception of the world. This is what is meant by calling them 'relational' —rather than 'relative' or 'subjective' We arrive, not at the things themselves, but at networks or fields of relations in which things participate and from which they cannot be isolated."

Usher (1997: 102) comments on the current Western worldview which sees subjectivity as held in self-enclosed, inner-directed and independent individuals:

"In other cultures and in Western culture at different historical periods, subjectivity, or the sense of self, has been seen as relationally constituted - for example, in relation to family and kinship, to community, to the natural world. Modern subjectivity, however, is rooted in a logic of identity rather than difference and thus bound to a predominantly individualistic or monological conception of human beings as unique selves where subjectivity is inseparably linked to an essentialised and non-relational self."

Moreover, this modern view is rooted in the anthropocentric tradition which placed humans at the center of the universe with a superior position in respect to everything else.

However, as I mentioned earlier, quantum theory, relativity theory, cognitive perception and meaning making reveal that the very basis of our existence is in relationship. There can be no individual person without context of community, environment and culture. The subjectivity is the self as a contextual phenomenon. As a result, the definition of the individual only gets completed by relationships with 'the others'.

the ecological self

Arne Naess (1995: 227) introduced the concept of the *ecological-self*, which he describes as “everything with which a person identifies”. The self does not mean the narrow ego, and it cannot be identified without others including nonhumans and nonliving beings. The ecological self means “being mature in *all* major relationships” (Naess 1995: 226) beyond maturity in social relations between humans.

Naess furthermore suggests the ecological self is a description of a form of self-realisation, which is interpreted as fulfillment of all the potentials of the individual through experiencing. Naess (1995: 236) points out:

“If reality is as it is experienced by the ecological self, our behavior *naturally* and beautifully follows strict norms of environmental ethics. We certainly need to hear about our ethical shortcoming from time to time, but we change more easily through encouragement and through a deepened perception of reality and our own self.”

Margaret Wheatley (1999: 167) writes on the self as follows:

“All living beings create themselves and use the “self” to filter new information and co-create their worlds. We refer to this self to determine what’s important for us to notice. ...Yet it is very important to note that in all life, the self is not a selfish individual. “Self” includes awareness of those others it must relate to as part of its system. Even among simple cells, there is an unerring recognition that they are in a system; there is a profound relationship between individual activity and the whole.”

Box 3-1: the ecological self

Arne Naess (1995: 225-226) summarises the ecological self as follows:

1. We underestimate ourselves. And I emphasize "self." We tend to confuse our "self" with the narrow ego.
2. Human nature is such that, with sufficient comprehensive (all-sided) maturity, we cannot help but "identify" our self with all living beings; beautiful or ugly, big or small, sentient or not. The adjective comprehensive ("all-sided") as in "comprehensive maturity" deserves a note: Descartes seemed to be rather immature in his relationship with animals; Schopenhauer was not very advanced in his relationship to his family (kicking his mother down a staircase?); Heidegger was amateurish - to say the least - in his political behavior. Weak identification with nonhumans is compatible with maturity in some major sets of relationships, such as those towards one's family or friends. And so I use the qualification *comprehensive* to mean "being mature in *all* major relationships."
3. Traditionally, the *maturity of the self* has been considered to develop through three stages: from ego to social self (comprising the ego), and from social self to a metaphysical self (comprising the social self). But in this conception of the maturity of the self, Nature is largely left out. Our immediate environment, our home (where we belong as children), and the identification with nonhuman living beings, are largely ignored. Therefore, I tentatively introduce, perhaps for the very first time, the concept of *ecological self*. We may be said to be in, and of, Nature from the very beginning of our selves. Society and human relationships are important, but our self is much richer in its constitutive relationships. These relationships are not only those we have with other humans and the human community (I have elsewhere introduced the term *mixed community* to mean those communities where we consciously and deliberately live closely together with certain animals.)
4. The meaning of life, and the joy we experience in living, is increased through increased self-realization; that is, through the fulfillment of potentials each of us has, but which are never exactly the same for any two living beings. Whatever the differences between beings, nevertheless, increased self-realization implies a broadening and deepening of the self.
5. Because of an inescapable process of identification with others, with increasing maturity, the self is widened and deepened. We "see ourselves in others." Our self-realization is hindered if the self-realization of others, with whom we identify, is hindered. Our love of ourselves will fight this hindering process by assisting in the self-realization of others according to the formula "Live and let live!" Thus, everything that can be achieved by altruism - the *dutiful, moral* consideration for others - can be achieved, and much more, by the process of widening and deepening ourselves.
6. One of the great challenges today is to save the planet from further ecological devastation which violates both the enlightened self-interest of humans and nonhumans, and decreases the potential of joyful existence for all.

the sense of self-organising learning

A Personal Reflective Piece

From learning about Schumacher's background and andragogic theory, I have become interested in self-organising learning processes at the College; "How do we create our own *meaning* through the *experience* at Schumacher College?" This question relates to my personal *experience* and *self-realisation* at the College. I have the sense of self-organising learning within this community: the College appreciates participation and spontaneous, autonomic action rather than fixed norms and rules.

The following description about self-organising experience at the College was written in January 2006 as the initial footprint of this project:

Participation is greatly appreciated in Schumacher. For instance, on the very first day of the MSc course, Anne Phillips, the director of the College, started her talk by saying that "we do not judge you but just explain to you about our college". Her words gave me the sense of participation in this community. This is because she did not impose fixed rules, and she implied the willingness of our participation in the creation of the community. Taking another example, we all, from staff and teachers to students, have taken on house duties such as cleaning and cooking. We are participating in our life interdependently, using our time and energy for other people and for our community.

Our learning process is also participative. We are encouraged to take charge to modify and improve our activities; students can suggest the styles and contents of lectures, for example. There is no authority; teachers are not dominant or central. Students and teachers are all in development; nothing is present or established. The MSc programme appreciates the process of coming-into-being and creates the conditions for personal experiences. We MSc students decided by ourselves to hold a meeting once a week in order to keep the tie among us and to support each other. In this meeting, we adopt a style in which leaders emerge and shift with our needs. For example, the people who say 'I want to talk about this' will take a lead supported by others. There is no central facilitator. Furthermore, we are developing this meeting-style, so if problems occur, we would change the style. In this manner, we are fully participating in the learning process.

Schumacher embraces unity as well as diversity and freedom, so that the people who realise this can behave appropriately within the unity, even in an anarchic situation. The oneness of the community creates the responsibility in our actions. Initially, I was really confused about this anarchic situation because I have grown up in Japan, in

which we are governed by many rules. I sometimes did not know what I should ('want to') do, and I became idle and non-cooperative without regulation. However, since I have realised the wholeness of Schumacher, I am vividly aware of 'what I want to do' for myself and for the whole community.

The realisation of Schumacher's wholeness was created gradually through daily life. My thought and action has changed by the making of relationships with others. For instance, in lectures we have the custom to calm down by playing the Tibetan bowl. Although I have appreciated the time to meditate hearing the sound, at first I felt uncomfortable with it. I also felt somewhat selfish in the deed, because I had thought that the right timing for taking a pause is different for each of us. One day, however, I found out the meaning of the playing of the bowl, i.e. to live in harmony with others means to embrace them the same as myself. When I take the bowl-play, which is played by another person, as a part of me, I appreciate and respect the action. In the same way, when I take myself as a part of the whole Schumacher, I embrace the whole Schumacher community; that is the real participation, to live in harmony with Schumacher wholeness.

Taking another example, at the beginning of the MSc year, I objectified other people, saying "you guys are different to me". This is because I have cultural differences and English language problems, and it seemed these were huge gaps between other people and myself. So, I just objectified them rather than accepting them. However, becoming involved in the process of knowing each other, I found each and every person as different, but not the others and myself as different. Subsequently, I realised if I address other people in the *relationship* between you and I, I can accept other people, because I am engaged in the process of getting to know them.

With the participation to things, I have also made my own sense of the relationship between the whole and the parts in our community. Schumacher respects individuals. Living in harmony with wholeness requires respect for others. If we look down on others, our relationship to them would be ignorance, control and exploitation, while if we humble ourselves, it would turn into self-immolation, abnegation, and surrender. Respect is, however, the midpoint between both of them. The respectful attitude means to embrace others the same as ourselves. Through the days at Schumacher, I have been reinforced in the awareness that we are the parts of whole Schumacher, but at the same time, we as the parts embrace the wholeness of the Schumacher community.

Schumacher is a very meaningful and transformative place for me. Although I used to live within imposed regulations in Japan, I have changed my lifestyle and have much appreciated self-organising living. Furthermore, I have come to feel strongly the connection to each other, to nature and to myself. I believe this participative worldview is the key to the creation of a sustainable society. I am seeking sustainable living through the days at Schumacher College.

chapter 4

purpose, methods and procedures

introduction

In this chapter, I give an explanation of my overall research design, which includes purpose, research questions, methods and procedures. I discuss the significance of participatory action research as well as its limitations and its foundation, and the question of subjectivity and ethical issues.

purpose

The self-organising learning processes of Schumacher College live alongside the meaning making processes (see Chapter 3). The equal emphasis on both intellectual and spiritual dimensions makes the learning environment of the College unique. The director Anne Phillips said that the distinctive feature of the College is the interweaving of learning in the community, the small scale and the special focus of the curriculum: In her words,

“You do not often get that sort of intellectual academic study focus together with this mutual respect, this taking care of each other, this living in community and so on, which is really a spiritual focus and it is spiritual in a general sense rather than in a specific dogma.... There are some similarities with university and college; students live together, study together and there are common rooms for communication... but it does not in that instance have the shared endeavor, and the kind of intellectual challenge is nothing about living together and exploring issues to do with the community. There is nothing like that.” (SI)

The programme director Satish Kumar also said:

“They [most educational institutions] do not have ecological and spiritual balance. There are places where they are purely spiritual or purely environmental but the combination which we have here is not very much available.” (SI)

I have never experienced this kind of learning environment with both an intellectual and spiritual dimensions in Japan, and at the same time, through my one year experience, I feel strongly that this kind of learning environment would be valuable for the creation of a sustainable future. Therefore, I would like to communicate the idea of Schumacher College to people especially who are involved in the educational field and in my home country Japan.

The purpose of this research is to understand and evaluate the self-organising learning processes of Schumacher College in order to propose recommendations to improve the learning processes and to communicate the idea of the College to a wider audience.

Research Questions

- 1) How does the learning process at Schumacher College work as a self-organising system?
- 2) How do we (short course participants and MSc students) create our own meaning through our experience at Schumacher College?
- 3) How can we improve the learning process of Schumacher College through effective self-organising systems?

participatory action research

I am studying the learning processes at Schumacher College where I have been a participant throughout this year. This is not only because I am interested in self-organising systems and I have a feeling of self-organisation in relation to the learning process of the College, but also because I have realised the importance of participatory **action research**; which may be defined as follows:

“action research is a participatory, democratic process concerned with developing practical knowing in the pursuit of worthwhile human purposes, grounded in a participatory worldview which we believe is emerging at this historical moment. It seeks to bring together action and reflection, theory and practice, in participation with others, in the pursuit of practical solutions to issues of pressing concern to people, and more generally the flourishing of individual persons and their communities.” (Reason and Bradbury 2001: 1)

In traditional research methodology, the researcher stands outside the research and observes what other people are doing. This approach emphasises a technical rational forms of knowing in terms of ‘knowledge’, which has grown up alongside the propositional, abstract theories of academia. (Reason 2004)

In action research, in contrast, the researcher is the centre of the research and the experiential process of ‘knowing’ is crucial:

“if we want our research to be a truly living inquiry we must go beyond the orthodox empirical and rational Western epistemology. We must consider ways of knowing that are rooted in everyday experience, and are expressed through story as well as through concepts, and which directly support our practice” (Reason 2004)

Action research focuses on whole experience rather than only behavioural performance, and concentrates on understanding and exploring the relationships among people and between people and their environments.

Action Research is no longer a search for one objective truth, but the creation of multiple truths communicated by living experiences. (McNiff 2003: 16) Reason (2005) says:

“It can be argued that these approaches [inquiry and education *with* people rather than *on* people] are more effective because they are based directly on experience and tap people’s own meanings rather than filtering them through the researcher’s or educator’s preconceptions. Participation as a *methodological* imperative means that the inquiry process must be based directly on the inquirer’s understanding of their own actions and experience.”

Furthermore, action research is deeply connected to ecological, sustainable living.

Heron and Reason (1997) point out:

“The participatory worldview allows us as human persons to know that we are part of the whole, rather than separated as mind over and against matter, or placed here in the relatively separate creation of a transcendent god. It allows us to join with fellow humans in collaborative forms of inquiry. It places us back in relation with the living world—and we note that to be *in relation* means that we live with the rest of creation as *relatives*, with all the rights and obligations that implies.”

The participatory worldview shows us how to move away from the mechanical abstraction of the Cartesian, Newtonian worldview, and how to move towards a participatory reality created by the multiple living experiences of our fellow human beings.

“To heal means to make whole: we can only understand our world as a whole if we are part of it; as soon as we attempt to stand outside, we divide and separate. In contrast, making whole necessarily implies participation: one characteristic of a participative worldview is that the individual person is restored to the circle of community and the human community to the context of the wider natural world. To make whole also means to make holy: another characteristic of a participatory worldview is that meaning and mystery are restored to human experience, so that the world is once again experienced as a sacred place.” (Reason 1998)

By means of the participatory action research, I study the learning processes of Schumacher College, focusing on the self-organising learning and meaning making processes of participants including myself.

methods and procedures

I used a new type of methodology called ***mixed methods*** which has *both* quantitative *and* qualitative methodologies. John Creswell (2003: 16) explains the features of mixed methods, taking the three aspects: ***sequential, concurrent and transformational*** procedures:

1) "*Sequential* procedures, in which the researcher seeks to elaborate on or expand the findings of one method with another method. This may involve beginning with a qualitative method for exploratory purposes and following with a quantitative method with a large sample so that the researcher can generalize results to a population."

2) "*Concurrent* procedures, in which the researcher converges quantitative and qualitative data in order to provide a comprehensive analysis of the research problem. In this design, the investigator collects both forms of data at the same time during the study and then integrates the information in the interpretation of the overall results. Also, in this design, the researcher nests one form of data within another, larger data collection procedure in order to analyze different questions or levels of units in an organization."

3) "*Transformative* procedures, in which the researcher uses a theoretical lens.... as an overarching perspective within a design that contains both quantitative and qualitative data. This lens provides a framework for topics of interest, methods for collecting data, and outcomes or changes anticipated by the study. Within this lens could be a data collection method that involves a sequential or a concurrent approach."

Quantitative research methods support qualitative research in order to "expand an understanding from one method to another, to converge or confirm findings from different data sources." (Creswell 2003: 210) For the purpose of the research, I chose the most effective mixed methods integrating quantitative and qualitative methodologies:

1. Research Methods for Short Courses

Questionnaire to 89 short course participants of the short courses from February 2006 to June 2006 (excluding MSc students⁴), and to 12 facilitators from July 2004 to June 2006. I asked them to fill in a questionnaire by e-mail from 12 June 2006 to 14th July 2006, and I got 42 answers from the short course participants and 6 answers

⁴ I excluded MSc students as short course participants for this questionnaire because their position is different to other participants.

form the facilitators. The questionnaire offered a description of their learning experience rather than yes or no answers. (see appendix B and C) The questionnaire is a simple way to get broad and rich information from participants in order to explore trends and tendencies.

Table 4-1. the numbers of answered and offered questionnaires: the numbers of participants of the five short courses.

Short Course	Numbers of questionnaires answered	Numbers of questionnaires offered ⁵	Numbers of participants excluding MSc students
Development February 5-24 2006	5	18	19
Food, Health and Society March 5-24 2006	4	11	11
The Science of Quality April 23 - May 12 2006	11	22	23
The New Science at Work June 11-16 2006	14	23	23
Nature and Consciousness June 18-30 2006	8	15	17

Interview with three visiting teachers of the short courses in June. At the end of their teaching at Schumacher, I interviewed the teachers about their teaching experience at the College. I was a participant of the courses taken by the three teachers, so that I could interview them reflecting on their way of teaching; this is important because each and every teacher has a different teaching style.

Interviewing is a method which can yield rich material and can give solid support to the questionnaire for short course participants.

Head Counting

On the two short courses in June, where I was one of the participants, I counted the number of participants on each and every course activities such as meditation, morning lecture, field trip and presentations. This quantitative data can be used for qualitative interpretation of self-organising learning.

Interaction Charting

In order to get a feeling for the working of interactions, I carried out an interaction charting study. This sampled interactions in discussions between three to four short course participants in the morning lectures of the two short courses in June in which I participated. "The idea of interaction charting is to draw a graphic that communicates dynamically what is going on." (McNiff 2003: 119) Figure 4-1. shows the example of interaction charting among five people: The arrows show who speaks to whom and the small cross-lines indicate the number of times different people interact. An interaction implies a proper sentence and does not mean nods or physical

⁵ I could not find some participants' contact address so that the number of participants are different; this has a practical reason and is not intentional.

communications.

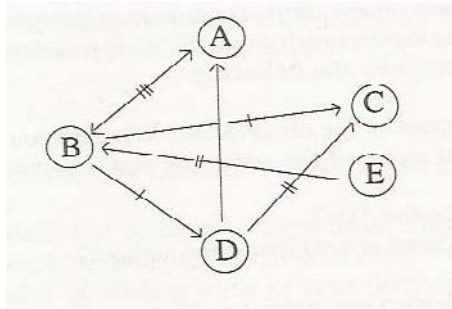


Figure 4-1. the example of interaction charting (McNiff 2003: 119)

2. Research Methods for MSc Programme

Questionnaire to nine MSc students in the academic year 2005-2006. I asked them to fill in the questionnaire (see appendix D) from 15-22 May 2006 and I got nine answers.

Group Discussion among eight MSc students (including myself) on 24 May 2006. The topics of discussion were based on their answers to the questionnaire: I presented the trends of the answers as well as my own perspectives, and set the topics for the discussion.

Interview with two residential teachers of the MSc programme.

In addition, in order to get a general idea of the College, I interviewed the director Anne Philips, the programme director Satish Kumar, and one staff member of the College.

Self-reflective writing is also used as one of the mixed methods. Ralph Stacey and Douglas Griffin clarify why personal narratives are important as a research method. They argue that the appropriate research method should be essentially reflective in two senses:

“First, the individual researcher is required to reflect upon his or her own life history and how this has shaped the manner in which he or she reflects upon experience. Second, there is a social form of reflexivity requiring the researcher to locate his or her ways of making sense of experience in the wider traditions of thought that have evolved in the history of human interaction, critically distinguishing between one tradition of thought and another.” (Stacey and Griffin. 2005. 9-10)

The first point was the basis of Chapter 3 reflecting on the personal experience in which research questions arose. The second point is the main subject of my research project. In Chapter 5, I will report and interpret the data from the field through the perspective of my experience. At the end of each section in Chapter 5, the "Summary" will focus attention on the second point.

"If one takes the view that knowledge emerges and evolves in a history of social interaction, rather than being developed by an autonomous individual, then one attaches central importance to research as a participative, social process." (Stacey and Griffin 2005: 10)

limitations and verification

It is difficult to capture the whole picture of Schumacher College, as past researchers of the College say:

“The College is a rich and busy environment – with many things going on often in different parts of the College at any time, on different time-scales, involving different groupings of people. Everything changes – participants, courses, tutors, facilitators, helpers, and even staff over time – and yet everything is recognisably part of the Schumacher College whole... We have been aware therefore, that it is difficult to both obtain and provide an adequate picture or description of the whole.” (Sterling and Baines 2002: 9)

Due to limitation of time for my research, I decided to collect data mainly from short course participants in 2006 and MSc students in 2005-2006 academic year, and not from many staff and helpers, and not in relation to organisational management systems, resource use and physical environment of the College; although they are essential components of the whole learning process of the College. Also in the time available, I was not able to look at the experience of other institutions for comparison with the College. However, combining the result of an internal review of the College in 2002 and making use of my own experience through one year, I have tried to look at the main features of the learning processes of the College in relation to the experience of short course participants and MSc students.

To ensure validity, the following strategies were used:

- 1) Multi Data Collection: Data was collected through multiple sources including questionnaire, interview and document analysis. Furthermore, mixed methods integrating quantitative and qualitative methodologies were used.
- 2) Repeated Research: Questionnaire data was collected from five short courses and head-counting and interaction charting data was from two short courses.
- 3) Clarification of Researcher Bias: In the following section I discuss the researcher's potential bias in order to minimise it.

rapport and subjectivity

The research questions are based on my personal experience, and I am participating in the process of research as one of the participants. Thus, rapport and subjectivity need to be discussed.

The dictionary definition of rapport is:

“the ‘relation characterized by harmony, conformity, accord, or affinity,’ and notes that it refers to the ‘confidence of a subject in the operator as in hypnotism, psychotherapy, or mental testing with willingness to cooperate’.” (Webster’s 1986 cited in Glesne 1998: 95)

In traditional methodologies, rapport was considered as the bias which can skew qualitative data in order to attain ends shaped primarily by the researcher’s own needs. However, currently, rapport is generally acknowledged as the function of distance-reducing, anxiety-quieting, trust-building:

“Rapport encourages informants to talk about their culture.” (Spradley 1979: 78 cited in Glesne 1998: 96)

Recognising the advantage and disadvantage of rapport allowed me to communicate with it in the best way: My personal friendship with participants helped me to get their honest opinions, and I tried to listen to their answers without interposing my own ideas or assumptions.

In the qualitative research tradition, subjectivity is warned against because of the hazards of sample bias and loss of objectivity. However, Glesne (1998: 105) points out that if the researcher recognises that subjectivity is always a part of research from deciding on the research topic to selecting frames of interpretation, they can monitor their subjectivity and the subjectivity can contribute to research. Then, Glesne (1998: 105) suggests:

“It is when you feel angry, irritable, gleeful, excited, or sad that you can be sure that your subjectivity is at work. The goal is to explore such feelings to learn what they are telling you about who you are in relationship to what you are learning and to what you may be keeping yourself from learning.”

I pay attention to this point through the research project.

Finally, I made sure that my engagement in this research is scrupulously honest in the analysis and reporting of data.

ethical issues

In engaging in the research, approval was granted by the Human Ethics Committee of the University of Plymouth (see appendix E). In addition, I explained my research to the director of Schumacher College Anne Phillips, and I got approval for my research from her.

It is essential to promise participants, the people who are involved in my research, that the research is confidential: Never to reveal participants' name without their permission or to reveal anything of a personal or sensitive nature. All information from the research is used for my dissertation project only: I do not use the information for any other purpose, and all primary data including answers to questionnaires and voice records, will be destroyed when I finish this project.

I made sure to explain to participants the purpose, methods and uses of this research at the outset, and got approval from them. Also I provided a copy of a consent form at each interview and group discussion. When recording was required I asked participants, and only when I got approval I recorded. All participants also have the right to withdraw from the research whenever they wish. Lastly, participants are offered a copy of the final dissertation, if they wish.

These are my intentions to protect the identities of people who are involved in the research and to show my respect for the participants and Schumacher College.

chapter 5

the research project

introduction

In this chapter, I report and interpret the data from the field.⁶ This chapter consists of three sections: 1) Short Courses, 2) MSc Programme, and 3) Encountering Ecological Self in which participants' transformation will be explored. My understanding of the data and my own perspective will be introduced at the end of each section as "Summary."

⁶ In order to protect the identity of participants, participants' names have been modified into [person A, B, C...].

section 1: short courses

Introduction

In order to discuss the self-organising learning process of short course participants, I use the “Six Principles of Complexity” presented by Brian Goodwin and Peter Reason. (see Box 2-1 and 2-2). The Six Principles of Complexity; **rich interaction, iteration, emergence, holism, fluctuation** and **edge of chaos**, articulate the nature of self-organisation: In self-organisation, complex non-linear systems and emergent order arises through rich interaction and iterative processes. Self-organising systems evolve through fluctuations at the edge of chaos. Then, the dynamics of self-organisation are understood as holistic phenomena more than the sum of its components.

1. rich interaction

Complex rich interaction enhances the generation of a certain kind of pattern spontaneously. "Complex, non-linear interactions result in a dynamic field which is self-organizing." (Reason and Goodwin 1999: 303) Rich interaction is the very ground from which new coherent order can emerge.

Interaction between Participants

On the learning process of short course participants, the interactions between participants are very effective and very rich, due to the diversity of participants' backgrounds, the course structure and the group size.

Diversity of Participants' Backgrounds

The result of the questionnaire for short course participants (42 answers) showed the diversity of their backgrounds in terms of sex, age, nationality and title. They came from many different countries with various backgrounds:

Sex: 18 Male, 24 Female

Age:

Age	20-29	30-39	40-49	50-59	60-69	70-79
Number of Participants	2	9	12	11	6	2

Nationality: American, Australian, British, Canadian, Columbian, Greek, Irish, Kenyan, New Zealand, Scottish, Welsh etc.

Title: Architect, Artist, Businessman, Designer, Engineer, Farmer, Governmental Officer, Photographer, Professor, Scientist, Student, Teacher, Therapist etc.

The diversity of participants' background shows a variety of knowledge and interests, which can enhance the learning process. Especially, the presence of international participants gives broad perspectives and rich interaction.

"The opportunity to do this with an international group of students enhanced the learning experience tremendously." (SQ)

However, one participant felt that the diversity of their interests discourages his/her learning:

"as I did not feel I connected well with all members of my group, their interests were

too diverse.” (SQ)

Dispersed interests of participants can result in less focused study, but many participants comment on the stimulus gained from the diversity:

“I get the greatest reward from merely making the contacts I have from various students from all over the world. To discover common ground with those so far away and from such different professional worlds, it can help to put one’s own ideas and work in context.” (SQ)

Furthermore, the past researchers of the College, Stephan Sterling and John Baines (2002: 17) point out:

“Most courses [of Schumacher College] comprise participants with both commonality and difference - a mixture of ‘unity and diversity’ which, compared to many structured learning situations, is unusual. Taken together with the other characteristics such as experience and motivation, this mixture seems an important contributory condition to the learning dynamic.”

Course Structure

As I mentioned in Chapter 3, Schumacher College integrates learning into working and living outside classes with these five elements of structure.

1. **Formal Study** (e.g. morning lectures, tutorials)
2. **(Self) Organised Activities** (e.g. discussion, field trips, presentation, soiree)
3. **Community Work/Living** (e.g. cooking, cleaning, meals)
4. **Open Space** (e.g. free time, weekend)
5. **Reflection** (e.g. a few minutes silence; the morning small-group reflection with staff; the Friday afternoon course review with facilitator; the last reflective meeting with all people of the College)

Through the integrated learning among these elements, participants build strong relationships to each other. They are not only studying together, but working together, eating together, going on hikes together, playing together and presenting their own materials to each other. These are important especially in terms of making connections. The rich interaction results in effective communication:

“Communication between participants tends to be good because of the ample opportunity to meet.” (SQ)

“With the set up of Schumacher, eating together, working in small groups etc – I think we have the best chance to get to communicate with others. Also coming together as a large group first thing reminds us who we are sharing time and space with.” (SQ)

It is shown that, especially, in (self) organised activities and community work/living,

participants interact effectively:

Interaction through (self) organised activities:

“The discussion sessions, and field trips helped us continue the conversations about what we were learning. ... The Soiree contributed to relieving the stress and sorrow associated with the serious topics we were discussing and helped us bond and be comfortable with each other.” (SQ)

“The open day presentation is also uniquely important, both by reinforcing what the lecturers present during the course, and in engaging course members in dialogue with people from the area who have some interesting ideas of their own, and some challenging questions, making it a test of what we have learned.” (SQ)

Interaction through community work/living:

“Helping around the house was helpful in building relationships and making me feel at home.” (SQ)

“This [community work/living] is one of the great strengths of the course, helping us all to feel connected with the buildings and each other. There is a special pleasure in sharing a meal that you and your colleagues have helped prepare.” (SQ)

These “non-formal” studies are very powerful activities for rich interaction and making connection between participants.

Group Size

The number of participants differs from course to course, which results in the difference of the numbers of small groups. (Table 5-1.) Small groups are for house works and tutorials with teachers. (Tutorials are sometimes taken by two small groups due to the availability of the time of teachers.)

Table 5-1. the numbers of short course participants in total and in five small groups: The numbers of participants can vary more than twofold; the number of participants of “New Science at Work” was 30 and “Development” was 14.

Short Course	Numbers in total	Numbers in small groups
Development February 5-24 2006	25	5
Food, Health and Society March 5-24 2006	14	2-3
The Science of Quality April 23 - May 12 2006	27	5-6
The New Science at Work June 11-16 2006	30	6
Nature and Consciousness June 18-30 2006	24	4-5

A significant finding about group size is that different participants have different feelings about the same group size. For example, one participant who attended the course with 14 participants says that it was too small and another says big:

“I feel we could have been a little larger up to 18 or so and our small work groups were a

little too small with mine only have 2 people” (SQ)

“14 participants – any more would have been too many. I have a very low people tolerance, I found it difficult at times as it was.” (SQ)

Similarly, the voices from the same group consisting of 30 participants differ as follows:

“Thirty was too large for me and while this provide some variety it also kept everything at a fairly superficial level.” (SQ)

“Both the large group and the small groups were fine for me. I am the large group one was able to for other people’s questions and contradictions and this was stimulating and helpful.” (SQ)

What is the most effective group size for rich interaction? It depends on the nature of individuals, group dynamics and everything. The director Anne Philips says:

“it depends upon not literal size but psychic size.” (SI)

However, I could see a general tendency that the interaction between participants is equally effective whatever the size. Although the numbers of participants differed each course, many participants felt their group size, both size in total and in small groups, was effective for their interaction. Especially, small groups provided intensive discussions with teachers and the basis for making connections between them.

“I felt that the size of the whole group worked well for the topics and different teaching styles of the lecturers. It was important to have the small group opportunity to get to know the lecturer and get more detailed questions answered. I thought the combination was very effective.” (SQ)

“Both group [whole group and small groups] size are perfect for the objective of sharing and learning experience. Within the small groups there is more feedback and interaction than in the big one.” (SQ)

Interaction between Participants and Teachers

There are various opportunities for participants to interact with the teachers; e.g. in morning lectures, tutorials, and over meals. Teachers stay at the College for from a couple of days to a week, and live in the same building and have meals with participants; which provides time for regular interaction with participants and teachers.

“In terms of communication between teachers and ‘learners’ ... there were many opportunities for conversation/questions within the formal teaching, tutorials, over meals etc.” (SQ)

However, the manner of interaction between participants and teachers varies significantly. The answers of the questionnaire show that participants felt the quality and quantity of interaction depended on the character of the teachers.

“One teacher was incredibly respectful of student feedback and discussion, while another was totally concerned with only [his/her] own ideas and judgments, leaving no room for debate.” (SQ)

“We needed more clarity from each instructor about how we were to participate. Some of the sessions felt like lectures, others felt like seminars. It was not always clear if the session was participatory or not.” (SQ)

A number of participants comment that they wanted to have more open discussion and to interact actively with teachers in morning lectures.

On the other hand, generally speaking, participants value tutorials with teachers in small numbers of people as a forum for effective interaction.

“Tutorials gave the participants an opportunity to share with the teachers on the issues of their interest. This made the talk be face to face thus giving time for the issues were was not addressed in the class.” (SQ)

Interaction between Participants and the College

Generally speaking, interaction between participants and the staff is just as effective as between participants.

“In terms of communication to keep everything running smoothly administratively, things seemed to function fine.” (SQ)

“I thought communication between everyone at Schumacher was excellent. All the regular people – staff and MSc students were very friendly” (SQ)

“The staff and the students (course participants) are like a family. Unlike other experiences where the organizers / teachers don’t want to be close with the participants.” (SQ)

However, participants sense different atmosphere within the College; some felt it open and friendly and some felt it uncomfortable:

“Between participants and staff is usually very good due to the open receptive nature of the staff. Work groups help here.” (SQ)

“I felt the atmosphere at the college was a little patronizing and preachy.” (SQ)

“As a broad generalization I found the level of communication between course participants of a higher order than that between participants and students/ staff/ helpers.” (SQ)

Whereas voices of participants vary, to sum up, the interaction is generally effective due to the house activities in which everybody in the College engages. One participant summarises this as follows:

“Communication was very effective among all the groups listed [between participants and among participants, teachers and staff]. I believe this was due to the morning check-in, in class and on-site facilitator, group reflection, living/working responsibilities, and positive attitude of staff and participants.” (SQ)

The Role of Facilitator

Facilitators are invaluable for rich interaction among participants, teachers, staff and helpers. They are the first point of contact for participants, and they arrange and co-ordinate the activities. They play roles as a liaison between participants and teachers and the College.

"It is the facilitator that course members' turn to for information, and who provides important day-to-day feedback to the college on how well the course members are enjoying the course, and of any problems." (SQ)

Schumacher College offers one or two facilitators for each short course from its alumni. Anybody in the circle can apply to be a facilitator and it does not matter whether they have facilitation experience or skills. Thus, their way of facilitation differs significantly, resulting in the following various feedback from participants about the value of facilitators:

"[He/she] is an excellent facilitator and holds the space of the course well, and is familiar enough with the college to know the lines of communication. This is important for the smooth running of the course." (SQ)

"[A facilitator] was the problem. A facilitator shouldn't dominate...." (SQ)

"I felt that the facilitator should have taken a more active role in 'facilitating' discussion, encouraging others to speak etc." (SQ)

"The facilitator needs to hold the structure so it doesn't run-away. [A facilitator] couldn't do that do but the group was highly motivated, with lots of goodwill and self-organised which was fine. In fact fascinating to observe the process unfold." (SQ)

"I cannot think of anything the facilitator did that was satisfactory. [He/she] had no idea of how to act as a facilitator, too much of the time [he/she] could not hear what was being said, and [he/she] seemed to have [his/her] own agenda." (SQ)

Some facilitators said that they did not get clear guideline from the College about what the role of facilitator is nor what ought to be done.

"I was never given any clear description of my role from the management and their requirements differed (and sometimes contradicted) at various times.... That was rather confusing and, for obvious reasons, those requirements didn't always comply with my idea of the facilitator's role." (FQ)

"I don't in general think that the college provides enough support and instruction and sets clear expectations. I don't think we place enough importance on the role of a facilitator and therefore our expectations are not clear or high enough. It should be a paid role that is filled by people with experience." (FQ)

It seems that the unclear defined role of the facilitators results in dependence on the experiences, skills and intentions of individual facilitators.

Interaction Charting

The outcome of interaction charting in one group of people shows that interaction between participants became richer day by day. (Figure 5-1.) On the first day, it was the very first opportunity to talk among four participants and there were 40 interaction times in total. More than half of them, 23 times, was counted between two participants (C and D). On the second day, the interaction frequency became higher, 54 times, and was more dispersed than the first day. On the third day, conversation was again largely dominated by two participants (C and D), but the interaction became richer, 76 times in total. Finally, on the fourth day, the richest interaction among the four days was observed in terms of time frequency and dispersed communication.

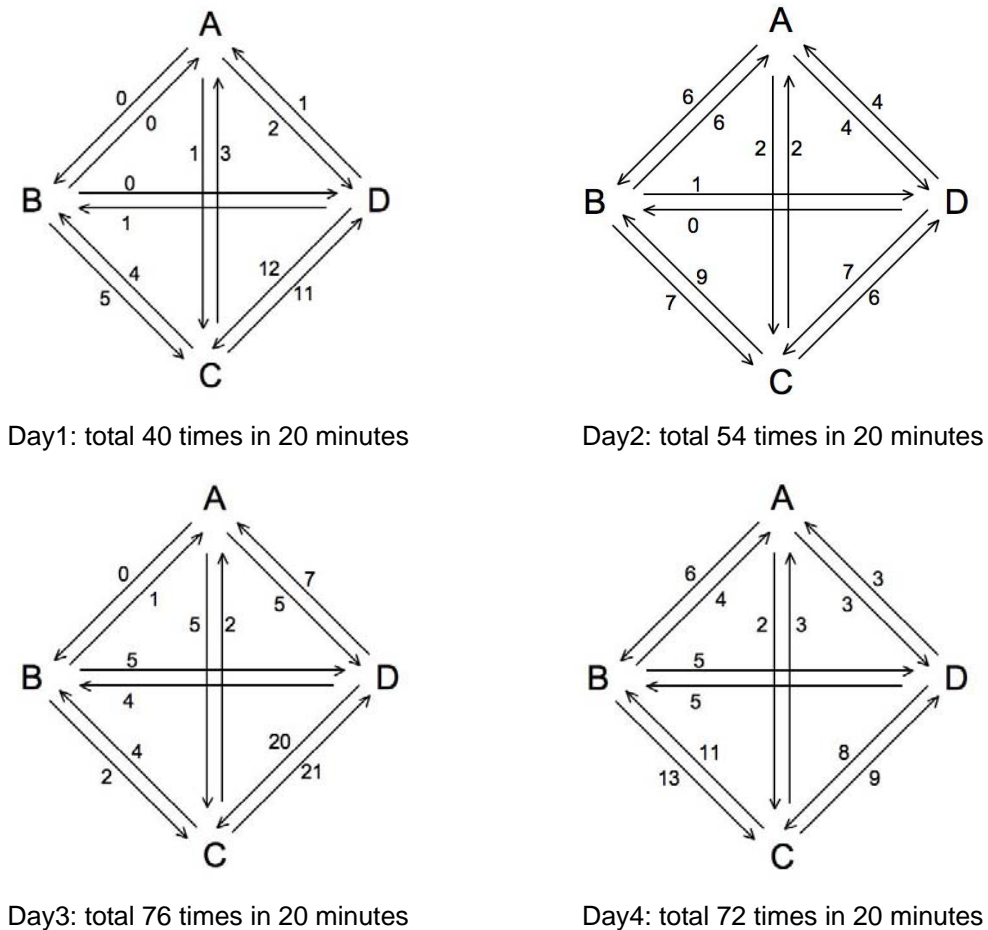


Figure 5-1. interaction charting 1: Interaction charting among four participants in four days.

The following three cases of other groups of people also show similar results. (Figure 5-2.) In Case 1 and Case 2, participants actually met and talked for the first time. The result shows that half of the total interaction was taken place between two participants (F and H, J and K) and the whole interaction was not well dispersed. Case 3 is distinctive from the other two cases, because the three participants knew each

other and there were many interactions before this survey. The time of interaction frequency is higher than Case 2 and the directions of interaction are well dispersed.

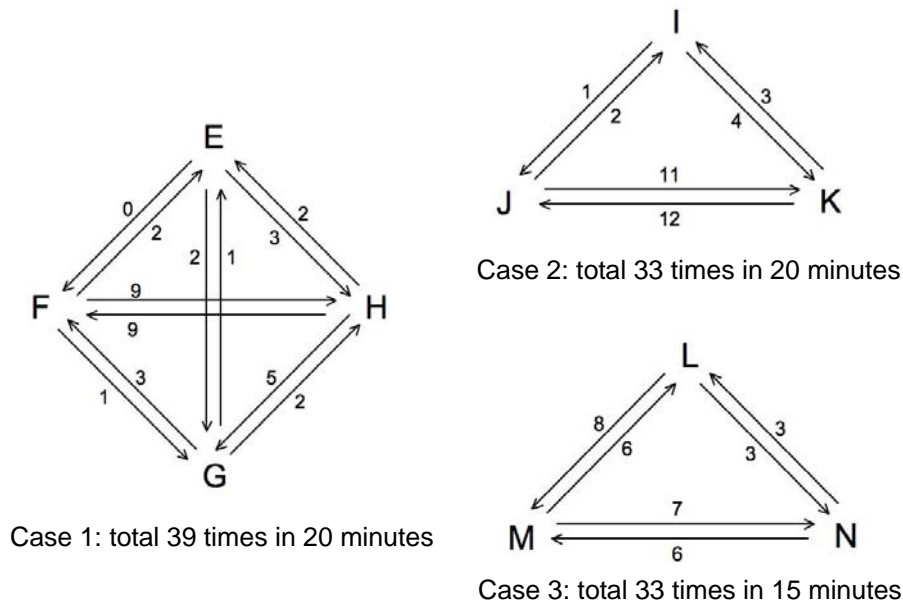


Figure 5-2. interaction charting 2: Three different cases of interaction charting.

These outcomes give an indication of how participants interact richer with the passage of the time. It seems from the frequency of interaction that knowing each other and making relationships is necessary for developing interactive processes.

Summary

In general, the interaction among participants, teachers and the College is very rich, due to the diversity of participants' background, the course structure and the group size. Schumacher College provides various interactive opportunities, amongst others: during classes, community works, fieldtrips and soiree. These are unique to the learning processes of the College and result in dynamic interaction characterised by complex but not linear ways of communication. This is at the very basis of self-organising learning.

Facilitators are invaluable for the rich interaction. They are the pivots for the communication among participants, teachers and the College. Also they are the people who can see the whole group's learning dynamics. Reflecting on my learning experience with a good facilitator, he/she held the whole group together and he/she played the role of a bridge between participants, teachers and the college, a mood maker, and a counselor. Without him/her, my learning experience would have been different.

It is clear that the role facilitators play is different from course to course due to the skill and intention of each facilitator. Thus, my suggestion to the College is to make their roles and responsibilities clearer. They could also pay attention to group dynamics, in the sense that one participant points out:

"I think the lack of understanding and attention to the psychology of groups is what is distinctive to Schumacher compared to my usual learning experiences." (SQ)

2. iteration

As Reason and Goodwin (1999: 304) discuss (see Chapter 2), coherent order emerges through the **feedback process of action and reflection** and through cycles of interaction in which **a pattern of activity** is repeated.

Reflection

Schumacher College recognises the value of reflection for participants' learning processes. The director Anne Philips said:

"Reflection is very important part of the learning process because if you do not do it you are not digesting. If you actually slow down the process, deliberately in corporate some stuff about reflection, then you will find that people are able to make better use of less input." (SI)

The College builds reflection in various stages of the learning process; e.g. meditation, reflective reading in the morning meeting, and a few minutes silence before sessions. Furthermore, one staff said housework is also reflective time:

"When people are doing house work activities we usually try to make it clear to them that they are not required to hurry, they are not required to rush through these tasks. It is much more important that they should do it in a relaxed way so they can reflect on the context within which they are doing that kind of work; how it fits into life here as a whole?" (SI)

Likewise, the periods of reflection encourage participants to actually stop and take a moment to ask what is working?, what am I getting out of this?, how do I need to change?, or how can we help each other?

Generally, participants appreciate the time for reflection organised by the College:

"Simple silence was a wonderful experience. The last reflective meeting for me was really important, as this was an excellent way to end the course and to hear about my own and other people's experiences and reflection about the college and the course." (SQ)

"The whole experience was well facilitated and thought out. A certain level of trust is needed so people can be fully engaged and feel heard. Small group reflection helped with this. The morning check in was valuable so we all knew what was expected of us that day, and to start the day as a group. The opening and closing group activities helped us get to know each other, and then share our experience." (SQ)

However, some participants comment on their frustration concerning reflection organised by the College:

“I do not feel the need for organised ‘reflection’ or for group silences. I feel uncomfortable with it, actually. However, I recognise that other people find it important, and for that reason would not suggest doing away with it. I had the choice of staying away, which I exercised often.” (SQ)

Generally, the reflective time provided by the College is acknowledged as one of the greatest features which enhances self-referential learning. Open space in the daily schedule also contributes this:

“The free time enabled me to absorb and reflect upon the lectures given and the activities done during the week.” (SQ)

Feedback between Action and Reflection

While the College acknowledges the significance of reflection and many participants value this time, a number of participants were frustrated by the absence of feedback from reflection to action. One participant comments that the feedback for the teaching-learning style was not taken into consideration:

“... Having spoken to [a teacher] the first evening of the second week, my hopes [more experiential learning] were raised... which [he/she] talked about being in our opening circle, given feedback from the group. But after that, there was no space or structure that I observed for that feedback to happen, and we repeated the pattern – only something experiential on the last day.” (SQ)

Another participant also says:

“I didn’t see clear the actions, after a reflection was made, to change a particular situation. Maybe more participative approach after a reflection could be made to solve this.” (SQ)

The lack of feedback from reflection to action is also observed by a facilitator.

“Another area where I see the need for more clarity is feedback and the procedures regarding relaying feedback and the follow-up on it during the course.” (FQ)

Facilitators are the essential channel between participants, teachers and staff, so that basically feedbacks come and go through facilitators. However, as the facilitator says, it is observed that the path of feedback is not clear. In addition, the facilitator comments on the meeting with the College staff as follows:

“Frankly, I was struck by the absence of openly shown understanding, support and solidarity at that meeting. As time went on, I gradually learnt how little transparency and democracy is present in Schumacher College’s management practices. This I found rather surprising at a place that honours community principles.” (FQ)

It could be said that this contributes to the frustration of participants as I mentioned above.

Course Structure

Complexity theory explains how unique and complex form emerges through cycles of iteration in which a pattern of activity is repeated giving rise to coherent order. "Each group evolves a rich originality while conforming in principle to the same pattern." (Reason and Goodwin 1999: 304)

The structure of short courses has a rhythmic pattern. This is obvious especially on a daily basis. The weekday starts with meditation at 7:15 followed by breakfast, morning meeting, house works and morning sessions with teachers from 10:00 to 13:00. The morning schedule is fixed into this rhythmic pattern. Participants repeat this pattern every morning. And this is the very basis of making connections and building relationships as I discussed in the section "Rich Interaction".

Summary

Participants appreciate the time for reflection provided by the College. Open space allows participants to reflect on their experience by themselves. I have been impressed by the quality of sacred reflective time and space co-created by the College and participants. I have been able to reflect more in this environment than I experienced in learning institutions before. This leads me to a deeper understanding from my learning experience.

However, there did appear to be a lack of reciprocal feedbacks between actions and reflection. The facilitator could fill this gap by having clear insight into the way such feedback could operate. One facilitator suggests some improvable points regarding his/her role:

"- clarity in terms of who I report to; who provides me with all the necessary information... and how; and who I can approach in case of unexpected difficulties - a meeting with a respective staff member before the course where we could touch base, go through the course programme together (with attention paid to the already planned events and related arrangements), clarify who is in charge of what..., discuss each other's needs concerning our cooperation, and talk about our concerns and expectations" (FQ)

3. emergence

The order of self-organising systems cannot be predicted from the characteristics of the components nor from designed blueprints, but it emerges through iterative processes given rich interactions and iterations. Emergence is a contextual phenomenon:

“... within the naturalistic paradigm, designs must be emergent rather than preordained: because meaning is determined by context to such a great extent; because the existence of multiple realities constrains the development of a design based on only one (the investigator’s) construction; because what will be learned at a site is always dependent on the interaction between investigator and context, and the interaction is not fully predictable; and because the nature of mutual shapings cannot be known until they are witnessed. All these factors underscore the indeterminacy under which the naturalistic inquirer functions. The design must therefore ... unfold, cascade, roll, emerge.” (Lincoln and Guba 1985:208-209 in cite Goodwin and Reason 1999: 307)

Self-Organised Activities

It is not possible to ‘set up’ self-organised activities and expect it to work in a particular way. They just emerge in response to the participants who are involved. They are generated through the participants’ interests, concerns and needs. Self-organisations are contextual phenomena. One participant reflects on his/her self-organised activities:

“Self organized activities were excellent because the participants of the course were really proactive and they all came from different backgrounds and they had a lot to share within the group. Some of the participants gave some excellent presentations and activities, which a number of them were very valuable experiences for me.” (SQ)

Take an example. Some participants wished to have tutorials twice a week rather than only once. However, it is difficult to have tutorials twice in a week because of the limitation of time availability of teachers. Then an idea came up from a participant to self-organise tutorials for themselves:

“Another idea is to organize tutorials among the students themselves – sort of peer-group tutorials (without the instructor) to have small group, focused discussions on the morning session.” (SQ)

This is a quite normal response; participants set the time for discussion on the contents of lectures or presenting their own materials alongside lectures. The open space is the place where these things can emerge. In the words of Anne Philips:

“For example, on Thursday afternoon, it is programmed as free. What suddenly happens is that people say shall we walk together? or I would like to talk about particular aspects which I am not quite getting or do not think the course is addressing.... There are opportunities for something to emerge.” (SI)

Emergent Meaning

Participants come to Schumacher College with particular purpose and interests: to learn a specific subject, to expand their knowledge, and to meet famous teachers, etc. A number of people come to Schumacher for their intellectual purpose. However, actual gain, meaningful experience for them, arises as unpredictable emergent phenomena through their whole experience at the College. For instance;

“initially wasn’t sure how I would be about this [community work/living] but actually it wasn’t a problem. In fact I found it beneficial from the perspective of meeting and working with others and getting to know them better, generating a feel of community and I quickly felt integrated in the community” (SQ)

One staff adds his/her observation about the emergent property in which a certain meaning is realised by the participants themselves.

“Every group is different in character but the learning process always has similarities. The most important thing from my point of view, is that there is always the moment during any three week course when you suddenly realise that some extra quality must be added to the experience of that course. Maybe it is simply a moment when suddenly everybody feels at home. Or maybe it is the point at which they become a community or something like that. It is an emergent property.... It does require variety of ingredients including intellectual input, meaningful essential work which could be gardening, housework, anything practical, and going out from the College seeing the larger physical environment in which we are situated.” (SI)

Summary

The College’s multidimensional learning environment provides opportunities for self-organising activities. I have attended four short courses and I found that each and every course is different mainly because of the self-organising activities emerging from particular interests and qualities of participants and the whole group. In fact, I have felt that actual learning is taking place to a huge extent in the non-formal activities rather than the taught lectures. Emergent activities are vital for our learning.

A number of participants also experience unexpected learning moments where a particular meaning emerges. “Meaning is what motivates people. Nothing motivates

us humans more than meaning.” (Wheatley 2005: 128) This emerged meaning will be further explored in Section 3: Encountering Ecological Self.

“Emergent properties are hugely important in education, yet are hardly recognized.... Fundamentally, it describes the qualitative properties that which arise from the interaction of parts or individuals in a complex, and which are not reducible to, or predictable from, these parts.... In the context of organizations, including educational institutions, emergence describes the ‘living qualities’ that arise and change from dynamic interaction. These are critical to educational organizations and process at all levels of experience.... But under mechanistic educational regimes where emergence is not recognized, the emergent qualities that nevertheless arise can often be negative. With emergence in mind, the idea of quality in education takes on a whole different meaning and relates to the total experience.” (Sterling 2001: 81)

4. holism

One of the most striking features of the College is the integrated nature of study and communal living. A number of participants acknowledge this holistic way of learning:

“The most meaningful experience is all the context of the learning everything is well balanced and all added: working, studying, reading, attending Satish conferences, meeting different people, cooking and also drinking cup of tea in the middle of the day... is more than the sum of the parts. Also the place has a powerful energy and the subjects are very deep.” (SQ)

“Each element added something a bit different and helped to make a fuller and more rounded experience. Refreshing thinking and writing were all stimulated by the teaching and the other action.” (SQ)

“[The distinctive aspect of the College is] The integration of service (work teams) and spirituality (meditation, walks outside, spirit of reflection) with rigorous learning. I had this in my undergraduate college experience in the US, but have since come to realize how rare it is. Schumacher does this very well.” (SQ)

‘Holistic’ Learning

I asked participants to write down five of their own keywords which represent their learning experiences at the College. Table 5-2. is the summary of the keywords. The most common keywords include connection, integrity, holistic, sharing and community, showing the importance of holistic learning at the College.

Table 5-2. summary of the keywords representing participants' learning experiences

Numbers	Key Words
11	Connected, Connectedness, Connecting, Connection, Interconnectedness, Integrated, Integrity, Relating
10	Holistic, Wholeness
8	Challenging
7	Caring, Cooperative, Supportive, Sharing, Shared, Sharing Forum
6	Community, Community-oriented, Family, Home, Social
6	Inspirational, Inspired, Inspiring
6	Intellectual, Thought, Thoughtful, Thought-Provoking
5	Colleagues, Friendship, Friendships, Humanity, People
5	Stimulating
4	Experience, Experienced, Experiential
4	Irritation, Frustrating, Frustration, Rejection
4	Soulful, Drawing with Soul, Spirit, Spiritual
3	Boundless, Expansion, Life Expanding
3	Convivial, Enjoyable, Fun,
3	Deep, Depth, Profound
3	Deeply Reflective, Reflecting, Reflective
3	Energizing, Encouraging, Galvanizing
3	Engaging, Participation, Participatory,
3	Gaia, Nature
3	Hopeful, Optimism, Positive
3	Identity, Me, Self
3	Inquiry, Questioning, Questions
3	Insight, Insightful
3	Love, One Love
3	Meditation, Silence
3	Nurturing

These are some comments from participants about the integrated holistic learning process:

"I was very impressed by the communal living experience I found it to be very nurturing to the soul. The people at Schumacher seem to be living their truths and I was very inspired by the journey toward wholeness" (SQ)

"I enjoyed and valued the overall structure of the days and the week. It felt balanced and constructive. I felt that 'head' was not felt on its own. But head, heart, body, spirit and interchange were all involved." (SQ)

"I feel that for the amount of time receiving lectures and actually being directly engaged in learning Schumacher College has a much more effective approach to facilitating understanding, comprehension, learning and sharing."

"The holistic learning environment is second to none. An humanistic learning experience as opposed to mechanical. Sense of community and 'home'." (SQ)

One visiting teacher also said:

"I think a community has a deeper sense of shared experience than a group. A group could be a loose collection of people. Whereas a community is a group of people plus these people now have a common shared interest, shared intention and shared focus. There is a greater cohesion and unity to a community" (TI)

On the other hand, some participants point to the gap between theory and practice, intellectual and experiential learning. Also, the absence of care for psychology of group and group dynamics is commented on:

“Each teacher had their own way to make the material engaging... Yet most of this was verbal or visual... so in terms of real communication actually very limited.... Also, they rarely used the attributes of the group – i.e. the group was very informed and experienced, yet they didn’t give them much chance to talk with each other and explore what was being presented (though clearly, you could say that was what we could do all the informal time!) And there was this HUGE irony of BOTH of them talking about how the ‘real thing’ was direct experience yet hardly facilitating this. A lack of ‘walking the talk’ was what I felt.” (SQ)

However, he/she then points out:

“In a way, the structure provided allowed for other approaches to come in. So the participants offered what they had...., providing the experiential that wasn’t there in the formal part. For me, these were some of the more valuable learning experiences of the two weeks, but it would have been nice if such approaches were considered valuable in their own right and integrated into the course.” (SQ)

As I wrote in the section “Rich Interaction,” many participants wished for more participatory formal sessions with the teachers. Furthermore, Table 5-2. shows the emphasis on their intellectual, theoretical learning experience rather than the experiential. Yet, as he/she says, practical and experiential learning often takes place outside of the formal study.

Contradiction of Learning in Community

In exploring ideas of holism, the gap between theory and practice is evident. One participant points to contradictory issues between holistic learning and food, energy, travel distances.

“I find it hypocritical of the school to demand that students serve its needs of cleaning and cooking in the name of sustainable living when it cannot make the smallest effort in making energy efficient improvements in the infrastructure or farming more of its costly food.... The disconnection between theory and practice in the school’s supposed premise makes me question what the school believes students fly all over the world to come there for.” (SQ)

The programme director Satish Kumar recognises these issues. He said that the College tries to shift to a more holistic way of living and learning. He talked about four visions for the College in the next five to 10 years: Firstly, the College will be involved in the sustainable land use and gardening so that most of their food comes from Dartington Hall Estate itself. Food will be local. The second vision is about the energy. At the moment, the College uses fossil fuels. The College will strive to using only natural energy such as solar, wind, wood and water energy. Third vision is that there

is more Schumacher type of colleges in other countries, so that people do not have to fly to come to England for their studies. Kumar says:

“I would like to see more students coming by train and coming from within Europe and very little flying and that other countries have Schumacher College type of colleges so they can serve holistic education in their countries.” (SI)

Lastly, the forth vision is about the practical dimension at the College. Kumar points out that we have intellectual and spiritual dimensions for learning but very little practical:

“When we have our own land use and other things then Schumacher can also give practical education rather than just intellectual and spiritual skills.” (SI)

Kumar says the College will develop some practical skills such as crafts, small-scale technology, growing food and energy systems.

Summary

The College’s integrated learning environment offers a holistic learning experience. With the large number of participants who comment on this, I am in deep agreement. However, it would be great if the College could communicate more this holistic learning to visiting teachers in advance and could introduce more holistic, experiential approaches in the formal teaching parts. Generally, I sensed many visiting teachers acknowledge the ethos of the College and the integrated nature of Schumacher learning, but this is not always the case. This is also the observation of some participants as is discussed in the section “Rich Interaction.” Past researchers of the College also suggest:

“we feel there is a case for making holistic methodology more explicit to all tutors, staff and participants, and taking steps to supporting this approach in the formal teaching aspects. We note that staff skills and experience are short in this area, and it may be in the longer term..., that appointing staff with more education/learning backgrounds and experience should be considered.” (Sterling and Baines 2002: 24)

5. fluctuations

The order of self-organisation emerges from iterative, nonlinear processes through rich interaction. However, the self-organising system evolves through fluctuations; iterative processes are rarely regular. Fluctuations are necessary for more adaptive and cohesive order.

Sources of Emergent Order

The learning process may fluctuate between order and chaos, and the fluctuations may increase resulting in the emergence of new order. In terms of participants' learning processes, one of the causes of fluctuations is in the course structure. While the structure in the morning is fixed into a schedule, afternoon and evening are flexible. Participants self-organise their activities based on their needs and interests.

“The course was well structured. The specified 5 main elements were well balanced. The mornings were well structured and during the afternoons and evenings, there was enough time to choose to do available activities or to take time to do your own personal study or simply relax. This was really important as the teachings were at times really intensive.” (SQ)

We can take the open space in the schedule as an example of the value of fluctuations, where self-organising activities can emerge.

“[Distinctive of the College is] Space and freedom to ‘think’ rather than fit a frame of educational expectations, dogma and rules.” (SQ)

Sources of Disorder

Some participants felt that disorder was brought by particular participants:

“the MSc students were quite separate and tend not to mix. Also some had an attitude that their knowledge was superior. This was not conducive to good discussion in some small groups. It also tended to reduce the overall group cohesiveness” (SQ)

“[(Self) organised activities are] OK - but pretty variable. Some people needed to be heard, almost as reinforcement of their own ideas. I also thought that some people tended to rather dominate these events and squeezed (albeit inadvertently) out” (SQ)

Another possible disorder is the lack of cohesion in the group. One participant

comments that:

“If the self organized discussions overlap into afternoon slots as well as evening my mind can become exhausted. However [staff] always says it’s alright to say no....difficult sometimes as you are part of a group....” (SQ)

Table 5-3., 5-4. and 5-5. show the result of head-counting in each session. (The letters in red represent self-organised activities by participants themselves including the contents of the activities. The letters in blue show organised activities by participants’ request or suggestions and conducted by the College staff or volunteers.) Almost all participants attend the morning meeting, the house works and the morning sessions, whereas in the afternoon, activities vary as well as the number of participants engaged. In the evening, many participants again gather and engage in various events such as presentations, open evening⁷ and soiree.

One participant points out:

“It is up to the participants to find their own balance. They tend to try to pack too much into the time too quickly. They need to pace themselves. In other words they fill the free space too quickly with their own talks. These are valuable but need to be spaced out and not too early in the course..... Self-organizing needs care!” (SQ)

⁷ The open evening is the opportunity to communicate the ideas and activities of the College with the local community. The local residents are invited to the lecture of the visiting teachers. Each time, around 100 people visit the College and discuss various issues.

Table 5-3. head counting 1: The number of participants' attendance for each session on the short course "New Science at Work" 12-17 June 2006. 30 participants in total.

	Monday	Tuesday	Wednesday	Thursday	Friday
7:150-7:45 Meditation	8	6	6	7	4
8:30-8:45 Morning Meeting	28	27	28	28	30
8:45-9:30 House Works	29	30	30	30	30
10:00-11:15 1st Morning Session	29	30	30	30	10:00-11:15 29
11:45-13:00 2nd Morning Session	29	30	30	30	11:30-12:15 28
14:00-18:30 Afternoon Session	14:15-16:00 EstateWalk 17 16:00-16:30 Meditation 8 17:00-18:00 Tutorial 6 16:30-18:30 Cooking 5	16:00-16:30 Meditation 4 17:00-18:00 Tutorial 12 16:30-18:30 Cooking 5	14:15- Name Game 0 16:00-16:30 Meditation 5 16:30-18:30 Cooking 5	14:30-16:00 Session on Gaia 17 16:00-16:30 Meditation 5 17:00-18:00 Tutorial 12 16:30-18:30 Cooking 5	12:15-12:45 Course Review 28
20:00- Evening Session	20:00-20:20 Scheduling 28 20:20-21:20 Session with Teacher 30 21:00-23:00 Bar	20:00-21:00 Presentation 20 21:00-23:00 Bar	18:00-17:00 Talk Session at Dartington Hall 29 21:00-23:00 Bar	21:00-midnight Soiree, Bar 27	

Table 5-4. head counting 2: The number of participants' attendance for each session in the first week on the short course "Nature and Consciousness" 19-23 June 2006. 24 participants in total.

	Monday	Tuesday	Wednesday	Thursday	Friday
7:00-8:00 Kanfu		2	5	6	3
7:150-7:45 Meditation	12	11	10	6	8
8:30-8:45 Morning Meeting	23	21	23	21	22
8:45-9:30 House Work	24	24	24	24	24
10:00-11:15 1st Morning Session	24	23	24	23	24
11:45-13:00 2nd Morning Session	24	23	23	23	24
14:00-18:30 Afternoon Session	14:15-16:30 EstateWalk 14 16:30-18:30 Cooking 5	14:30-16:00 Session on Gaia 14 17:00-18:00 Tutorial 7 16:30-18:30 Cooking 5	14:15-16:30 Garden Walk 9 17:00-18:30 Tutorial 5 16:30-18:30 Cooking 5	14:30-15:30 Particioant's Film 9 17:00-18:00 Tutorial 6 16:30-18:30 Cooking 5	14:15-15:00 Course Review 20 17:00-18:30 Tutorial 6 16:30-18:30 Cooking 4
20:00- Evening Session	20:00-20:30 Name Game 21 20:30-21:00 Scheduling 21 21:00-23:00 Bar	20:00-21:00 Presentation 17 21:00-23:00 Bar	20:00-21:30 Open Evening 20	20:00-21:00 Presentation 14 21:30-23:00 Teacher's Film 19	21:00-midnight Soiree, Bar 22

Table 5-5. head counting 3: The number of participants' attendance for each session in the second week on the short course "Nature and Consciousness" 19-23 June 2006. 24 participants in total.

	Monday	Tuesday	Wednesday	Thursday	Friday
7:00-8:00 Kanfu	0	4	3	3	0
7:150-7:45 Meditation	7	6	3	6	1
8:30-8:45 Morning Meeting	23	21	21	23	23
8:45-9:30 House Work	24	24	24	24	24
10:00-11:15 1st Morning Session	24	24	24	24	24
11:45-13:00 2nd Morning Session	24	24	22	24	
14:00-18:30 Afternoon Session	17:00-18:30 Tutorial 10 14:30-18:30 Cooking 5	14:00-18:30 Field Trip 17	14:15-15:30 Forest Garden Tour 10 17:00-18:30 Tutorial 9 17:30-18:30 Book Binding 2 14:30-18:30 Cooking 5	14:30-16:00 Session on Gaia 8 17:00-18:00 Tutorial 4 14:30-18:30 Cooking 5	12:00-12:45 Course Review 22
20:00- Evening Session	20:00-20:30 Presentation 17 21:00-23:00 Bar	20:00-21:00 Presentation 21 21:00-23:00 Bar	20:00-21:30 Open Evening 23	21:00-midnight Soiree, Bar 24	

Summary

Fluctuations are the sources of both emergent order and complete disorder. It depends on the participants and the group how they respond to changing circumstances to enable self-organising learning. When we let ourselves move with changes, the maximum freedom of the individual participants and the maximum coherence of the whole group (Ho 1998) will be achieved.

If I reflect on my experience on short courses, fluctuations are mostly the sources for self-organised learning: various activities such as discussions and presentations that arose out of our own needs and interests, were supported by facilitators, teachers, and the College. As one participant said above, self-organising learning needs to be cared for and supported by the College.

6. edge of chaos

Complexity theory suggests that self-organising systems are most adaptive at the edge of chaos, at which there is both order and chaos. Emergent order arises under conditions in which large fluctuations occur.

Self-Organised Activities

Reason and Goodwin (1999: 312) suggest that there are four zones of organisation around the edge of chaos which describe different qualities of order. One is a frozen zone in which everything is highly ordered with little or no spontaneous action. This is the place of iterative interaction and rigidly structured activities. The second zone is on the ordered side of the edge of chaos, in which we can see rich and bounded interaction. This includes informal everyday conversations and discussions, and relationships formed unpredictably within a certain framework or topic. Then, the third zone is highly disordered in which all structured patterns are lost resulting in confusion. However, there is an active seeking for new order spontaneously. Lastly, there is a zone into complete chaos. Every order is lost and the organisation explodes or implodes.

Self-organising learning requires entering the third zone of considerable disorder out of which creativity can emerge. Reason and Goodwin (1999: 311) say that if we wish to be creative, we need to learn to tolerate fluctuations and to be open to periods of chaos, disorder and confusion, approaching this with playfulness but not with fear or anxiety.

Generally, participants enjoy the process of self-organisation. These are some comments about self-organised activities such as informal discussion, presentation and soiree.

“These [(self-)organised activities] were all excellent! I was surprised and delighted with the power and strength of these events and the ability of the participants to engage in committed, high quality work.” (SQ)

“really enjoyed these [(self-)organised activities] too – stopped any element of feeling too dependent and reliant upon the experts to “train me!” (SQ)

In addition, a participant writes about his/her experience about a self-organised morning house work. He/she reflects on how the work was conducted without supervision.

“the experience was in acting out a daily routine at the college, but without the usual guidance. Several of us went through the breakfast clear up thoroughly and with attention to detail, but did so without a staff member or helper telling any of us what to do. [Staff] at some point came through and made a comment to the effect of, wow what a thorough job you are doing, who is supervising? I replied, 'no one, we are all supervising each other.' In reality, we weren't even doing that. the need for supervision simply wasn't there. We were all acting as parts of a whole experience in whatever capacities we could and in doing whatever needed to be done. The experience was possible because, on the one hand, [person A] and i both knew what needed to be done, as did [person B] to a great extent. Also, not having supervision can at times lead people to do an even better job. As the momentum of the experience builds equally in each member of the group, all participants efforts are enhanced.” (SQ)

On the other hand, a participant comments on his/her frustration about a sense of disorder as a group.

“I still straddle between having wanted more clarity about the programmes intentions and outcomes and realizing that we were talking about living systems. We didn't really become a self organizing system ourselves because of the structure, in particular all going our own way in the afternoons (well mostly). So it felt that we would just get going, and then there would be a break for the day.” (SQ)

Summary

Self-organising activities are the highlights of my learning experience at the College. These allow me to explore personal interests and to get involved in the learning process. I believe real understanding can be only got through actual engagement, as Confucius said:

Tell me and I will forget.
Show me and I may remember.
Involve me and I will understand.

It is impossible to 'set up' self-organising learning with a specified goal or purpose. Self-organisation emerges from inside out. However, Reason and Goodwin (1999: 307) say it is possible to 'facilitate' its emergence. This means nurturing rich interaction, establishing an iterative process and developing a deep experiential engagement. Facilitators, teachers and the College could contribute to this role.

section 2

MSc programme

Introduction

In this section, I report and interpret the data from the research of the MSc programme from three perspectives: 1) MSc Programme at the Edge of Chaos, 2) Support for Self-Organising Learning, and 3) Living in Community.

For the first point, I discuss the MSc programme as being staged to occur at the edge of chaos. I have the feeling that we are encouraged to self-organise ourselves, our studies and our MSc group in the balance between chaos and order. I will discuss this point from three perspectives: the balance between theory and practice, intuitive ways of knowing, and the self-organised MSc meeting. Next, for the second point, I focus on support for self-organising learning. This will be explored from the close contact to teachers and other students, the dissertation project, journals and self-narratives, and the balance between chaos and order. Lastly, for the third point, community living as experienced by MSc student will be discussed.

At the beginning of writing this section, I would like to introduce the idea of the programme director Satish Kummar. He says that in mainstream universities, generally speaking, all structure is in bureaucracy and rule dominated external organisation; which is imposed by superior power from top to bottom and from outside in, whereas self-organising grows from bottom to top and from inside out. In his words:

“We in Schumacher College will say you have already your own interest and you develop your interest and we will help you. That is a Schumacher model. We do not think our students ignorant. ‘Educare’ means to lead from inside out.” (SI)

1. MSc programme at the edge of chaos

In the Core Modules, all MSc students study the principles of complexity and emergent order at the level of individual, community and global. (see Chapter 3) This includes applying complexity theory to human organisations. We studied “how community level behaviour emerges from individual interactions and how appropriate group descriptions can be identified that connect individual and community properties.” (05/06 Student Handbook 2005)

Since I learned about the complexity theory for human organisations, I have felt that the programme intentionally placed us between chaos and order, and encouraged us to self-organise our learning process. Many of the MScs acknowledged this ‘anarchic’ overall structure of the programme:

“It is very open and free, allowing the student to pursue his own interests and find his own path.” (MQ)

“I think the overall structure of the program is excellent, it allows (as May Wan Ho would say) “maximum freedom to the individual, maximum coherence to the whole.””(MQ)

“The space created for each individual’s expression and direction of study is also something unique to the Schumacher style of academia.” (MQ)

Having mentioned our appreciation of the openness of the programme, the following three case examples illustrate self-organised learning experiences, how frustrations and difficulties are engaged with by MSc students: Case 1: Theory and Practice, Intellectual and Experiential Case 2: Intuitive Ways of Knowing and Case 3: The Self-Organised MSc Meeting.

CASE 1: Theory and Practice, Intellectual and Experiential

We are often frustrated by feeling the emphasis on theoretical and intellectual ways of learning and less practical experience on the programme:

“There was hardly any practical component to the MSc. I had to find this outside the Schumacher College setting, by myself.” (MQ)

“I liked all of the teachers on the program, but I think the program needs more experiential learning. Most of it was lecture style. They need to learn more about good educational models and see how they might fit in with holistic education.” (MQ)

We MSc students have several practical learning experiences such as working in the Community and actually learning about the natural world in the ways that allows us to participate; e.g. meditation, field trip, Goethean Science⁸ and imaginative work on Gaia. However, many MSc students felt the lack of practical, experiential learning. One student reflected on his/her frustration as follows:

“Early on in the course I spoke to the teachers because I was unhappy with the amount time being spent in the classroom. I was told it was going to be like that for the four months intensive study and this couldn’t change.... I feel I came here for holism but got a very one dimensional approach.” (MQ)

One pointed out that practical knowing is necessary for communication of the idea of holistic science in the ‘real world’:

“We create some sort of terminology about what we are doing here that nobody else understands, but people need a holistic view on the world. You do not need funny terms to express that. If you do not communicate you are achieving nothing.” (MD)

“What do the ideas of holistic science mean in reality? It is not just abstract but actually doing with my hands, my body and my present into situation. I think it needs to be happening as a part of a learning process.” (MD)

The teachers also recognise the importance of practical learning and its absence in the programme. They say:

“The programme is not going well as well as it should. I think it is because we have not got enough of the practical engaged activity in our programme.” (TI)

“I think we need to make it more practically based. One way might be to involve real sort of connection with the land and more things like permaculture, forest gardening, ecological building.” (TI)

We eight MSc students discussed the balance of theoretical, intellectual learning and practical, experiential on this programme: How should it be balanced? How can we introduce more practical, experiential learning into our learning process?

⁸ Goethean Science pursues qualitative observation through an intuitive understanding of the physical laws underlying the phenomena.

Initially, we said that practical and experiential learning might come from something like participating in a permaculture garden or spending more time on Goethean methodologies. However, someone pointed out that it is hard to say that any one of those practical approaches would have been wholly applicable for everything everybody is doing. Indeed, we have various interests and we study various things. (The diversity of our dissertation projects will be discussed later). It is hard to pick up which one can be the most relevant in terms of the programme settings.

"We have such diverse background and what methodology might suit me does not suit anybody else. So it is very difficult to suggest for me practical things." (MD)

One teacher also comments on the balance between theoretical and practical learning as follows.

"It's for the individual to decide what the appropriate balance is ... each person who is acquiring knowledge who comes here should decide what is the balance that they need in a particular question that they are asking." (TI)

In this year, some MSc students organised practical works, such as constellations⁹ and forest gardening, alongside his/her/their interests, and many MScs students engaged in them. One teacher acknowledges these self-organised practical and experiential works as follows:

"This year there was strong emphasis on that. It became very powerful when [person A] was here that you would like to engage more in that sought of activity. This has given rise to our exploration of the possibility of doing that next year. In other words, having more of that part of our programme but also engaging more with the land,.... That stimulus has come through particularly this year." (TI)

Summary

The gap between theory and practice is always the issue. However, we are challenged to fill the gap ourselves outside the taught modules. I have felt that the formal teaching lecture part is necessary to build a basis of understanding for holistic science, and the programme structure remains open to exploring and developing more practical, experiential learning through assignments and dissertation projects. Assignments can be done through drawings, poems, crafts alongside a piece of writing: students have the opportunities to seek many ways of representing their understanding and discoveries in the lectures. Dissertation projects also enable each person to explore their own interest and purpose. I highly value the freedom of each individual: "Liberty is the mother, not the daughter of order." (Proudhon cited in Ward

⁹ Constellations are a method for exploring burning issues and entrenched patterns in families, groups, organisations and communities. The constellating process draws on the embedded intelligence of a situation to reveal hidden dynamics in key areas such as leadership, conflict resolution, relationships between people and cultural change. (Family and Organisational Constellations. no date)

1982: 39)

CASE 2: Intuitive Ways of Knowing

The programme offers us four ways of knowing as an approach to holistic science: thinking, feeling, sensing and intuition. These are four main psychological functions presented by C. G. Jung. (Figure 5-3.). According to Kheper (2004), thinking and feeling are both rational, but thinking emphasises reason and logic, while feeling does personal value and emotion. On the other hand, sensation and intuition are both irrational, but sensation refers to conscious perception through sensory organs, while intuition is through gut-feeling. The four categories are totally interrelated as one whole.

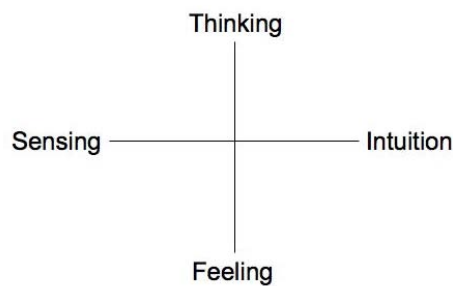


Figure 5-3. the Jungian compass

The programme points out that mainstream science is based principally on thinking and feeling and intuition are left out. Holistic science emphasises the importance of intuitive ways of knowing. This is the description of Student Handbook in the Holistic Science in 2005/2006:

“The objective of providing students with a sound and thorough training in the methodologies of holistic science is based on two complementary ways of knowing, the intuitive and the analytical. Students are encouraged to develop the intuitive insight involved in recognising integrated wholes and their qualities. The appropriate descriptive variables for emergent phenomena can then be identified and related to the properties of component parts which condition, but do not determine, the behaviour of the whole.

The importance of emphasising the intuitive way of knowing arises from a recognition of the disaffection with current science due to its *an-aesthetic* quality, the tendency to deny the importance of feeling, aesthetic appreciation, and intuition in scientific enquiry. Although acknowledged as sources of creative insight, such qualities are considered to be unreliable and often misleading. By including them as essential components of doing science, the whole person becomes explicitly involved in the learning process.”

(05/06 Student Handbook 2005: 7)

In addition, teachers say when intuition is linked with feeling, it gives us a way of

discriminating what is the appropriate action that should be taken. It gives us ethical perspective to our knowledge. Stephan Harding (2005: 37) points out:

“Holistic science is thus about reuniting fact and value in ways that enable our culture to explore new possibilities of living harmoniously with the Earth.”

All MSc students deeply valued the intuitive ways of knowing such as Goethean Science offered by the programme.

“Intuition was always very important to me and I have benefited from seeing it made explicit in the method of Goethe. Holistic Science allows one to join the rational, the intuitive, the feeling, the spiritual. It searches for the center.” (MQ)

“The Goethean way approach was the most useful aspect of this course for me, I really wished we had gone much deeper into it. This approach has complement by own ways of intuitive knowing with a more specific methodology which I can apply in my job and in my life.” (MQ)

Although we all acknowledge the importance of intuitive ways of knowing, one pointed out the absence of them in our learning.

“It just seems that a very huge proportion of focus was just on the thinking and it should be considered how more effort could be put into the other aspects: sensing, feeling and intuition. I do not have any ideas how to do that.” (MD)

However, some MSc students recognise that especially intuitive ways of knowing should be cultivated by our own learning but not in classes. One pointed out the teaching is relatively minimum and there is space in which we are actually learning when we engage in our assignment at the end of each module and the dissertation projects. In other words, some students said:

“It should not be all in the designed of the teaching programme. It is supposed to be learning in your own. Once you have got a fundamental principles and then you are supposed to learn.” (MD)

“This is expected to happen outside teaching space.” (MD)

Summary

For holistic experiential learning, it would be necessary to learn more through intuition and feeling rather than depending on thinking. In modern times, especially in science, thinking dominates our world. The rational, reductionist thinking is, however, a quite limited way of experiencing the world, because rational thinking often blinds us to interconnectedness with self, society and the natural world. However, intuition and feeling can give us the sense of relationships with other beings:

“It is mainly our feelings what makes us aware of such identification through the experience of “intense empathy”....Our self expands by connecting with

others, by "suffering and-or feeling" with them, after acknowledging them."
(Notario no date)

Intuition and feeling are as important as thinking. The balance works as a bound to reconnect with oneself, society and the natural world. Arthur Zajonc (1999: 9) suggests that higher education such as universities should hold the expansive view of learning and knowing, which embraces an expansive view of oneself and the world as well.

CASE 3: Self-Organised MSc Meeting

After studying the theory of cooperative inquiry¹⁰, we decided to have an MSc meeting by ourselves. The aim of this was to hold the tie among us and to support our learning process especially in terms of dissertation project because we do not have any formal classes in the dissertation term for six months. When we decided to hold the meeting, we had the consensus to change its structure and the time frequency of the meeting according to our needs and interests. Initially, we decided to have the meeting once a week, and each time one or two of us led the meeting setting the topics for discussion.

“The MSc meeting was good in resolving difficult issues in bringing up common concerns about the over-emphasis on the intellectual that we all shared, meeting about particular projects people were engaged with.” (MQ)

However, gradually, our meeting style changed. Nobody came up with any topic and there was no leader. We just gathered and talked about ‘something’. This change happened naturally and not intentionally: there was no discussion about this change. Then, some of us began not to appear at the meeting:

“I thought that the first meeting is good because we had a topic and I felt that the last one I went to did not have any topic, and so I decided to stop going.” (MD)

“I like it when there is a topic for discussion. I don’t like it when there is nothing to discuss. It is meaningful in that I can relate to other MSc’s and understand their process from my perspective.” (MQ)

“I thought it was going to be a practice in cooperative inquiry, which as I understand it, it is not.” (MQ)

These voices became heard during my research for this dissertation project. There was no discussion among us about these frustrations before.

We kept having the meeting in this style; sometimes there is a topic and sometimes there is not. Some of us continue to value the meeting for sharing our concerns or keeping the tie among us.

“I like having the meetings, although sometimes they are scattered and seem without a purpose or any results. I think it is very important that we all keep in touch, have a space and time to come together and catch up with others or bring up any problems and have support of the group.” (MQ)

“I have always enjoyed having our weekly meetings. I think they are important forums for supporting each other.” (MQ)

“I do like the meeting. Some have been more meaningful than others in the context of my work. These include those in which particular themes were pursued, questions asked, and the meeting was more than a check-in time to have tea together. Though, those were quite meaningful for me too. I recall the intention for the weekly meeting included the desire to continue to explore the MSc class as a learning group.”

¹⁰ Co-operative inquiry is a way of working with other people who have similar concerns and interests to oneself, in order to: (1) understand one’s life and world; and (2) learn how to act change things one may want to change. (Reason and Bradbury 2001: 179)

I would say this has been successful to some degree, as each week does offer a chance to engage each other with questions, comments, insights arising from work or play, as well as the chance to share space together.” (MQ)

One teacher also highly acknowledge this self-organised meeting:

“None of the MSc group has done that self-assistance as yours. It comes and goes but you have actually managed to maintain the structure throughout the year. You have actually implemented that independently. That is the way it should be. I think that it should not be us forcing this upon you but offering this opportunity.... Sometimes people say you should have a psychoanalyst here for the students because some of the students are getting into personal difficulties. I think myself it will be better if we could have the type of community where people trust each other to share these issues, so that they can actually get through these problems through mutual support getting in community rather than having a professional come in and do something.” (TI)

Shared Meaning on the MSc Meeting

Some MSc students see the overall structure is as lacking continuity and wholeness. One felt that holistic science is a science still in the process of becoming. The content was not made into a whole nor gave a complete vision of holistic science.

“The content of the course was often excellent, but the ingredients could have been mixed better into the whole. The bad aspects were the difficulty in patching things together to make a coherent picture.” (MQ)

“what can improve is the coherence of the lectures by not switching from one module to the next and then back again.” (MQ)

On the discussion, we reflected on the event in the self-organised MSc meeting. After finishing core modules, we (with no teachers) had a group discussion about what we learned in the modules. Then, initially, we were very confused about the lack of cohesion in the contents.

“We got a real surprise because it could be like we learned nothing. We could not put it together.” (MD)

However, after having a talk dividing us into small groups consisting of three students, all of us came up with similar lessons from the modules. We came up with consensus. We reflected on the talk as follows:

“It has been really important that we created our own consensus about what we are doing as a group. This has not been taught; we created that among ourselves.” (MD)

“In traditional academia, you have no contact with another person at all. I really value we are in this together. We have made decisions trying to understand what are we doing here together. That is for me very valuable.” (MD)

Then, someone pointed out:

"It is like a Bohm's idea of dialogue, building meaning together with the idea that dialogue is not just people talking back and forth but they are listening to each other and taking and right growing. It is kind of motion but it is not just people putting things in and extracting what they need but working together." (MD)

Indeed, it can be said that the most important notion of self-organisation is to hold and to share a common meaning of the group among participants. The meaning then becomes the bond of holding participants together. Otherwise, the group would become totally random with no order. David Bohm (1996: 3) says:

"if people are to cooperate (i.e., literally to "work together") they have to be able to create something in common....rather than something that is conveyed from one person who acts as an authority to the others, who act as passive instruments of this authority."

How can we share our thought and how can we create a common meaning? As one student pointed out above, Bohm (1996: 6) says the answer is in dialogue: "dialogue" comes from the Greek word *dialogos*. *Dia* means through, and *logos* means the meaning of the word: that is, dialogue could be interpreted as a shared meaning among people —it does not mean just between two people but any number of people, and even between one person and him/herself.

In dialogue, people do not attempt to make common certain ideas which are already known to one of them, but rather, people are making something *new* in common for all of them. There should be no place in the dialogue for the principle of authority and hierarchy; the significance of dialogue is not to analyse things, or to win an argument. Unlike argument *against* each other, dialogue is common participation *with* each other. (Bohm 1996: 2-7)

Bohm (1996: 26) emphasises the necessity of shared meaning in dialogue: Dialogue is:

"to suspend your opinions and to look at the opinions —to listen to everybody's opinions, to suspend them, and to see what all that means. If we can see what all of our opinions mean, then we are sharing a common content, even if we don't agree entirely....And if we can see them all, we may then move more creatively in a different direction. We can just simply share the appreciation of the meanings; and out of this whole thing, truth emerges unannounced —not that we have chosen it."

Bohm (1996: 27) adds:

"It would mean that in this participation a common mind would arise, which nonetheless would not exclude the individual. The individual might hold a separate opinion, but that opinion would then be absorbed into the group, too."

The shared meaning is the glue which holds the group together. Everybody becomes sensitive to what is not only in his/her own mind but also in all the participants. We are

participating and creating a common meaning.

The College may have the quality which allow us to have dialogue, as one student says:

“My most meaningful experiences are probably those little conversations in the spaces of the comings and goings that somehow meander into something unexpectedly profound. Something about the shared values which Schumacher attracts, allows one to get to a place of deep meaning without having to argue to a place of mutual understanding. One’s just already there.” (MQ)

Summary

Margaret Wheatley says that self-organisation emerges as a result of self-referential feedback concerning its shared interest and shared meaning. In Table 5-6., Wheatley shows characteristics of ‘feedback’ systems that differentiate them from ‘measurement’ systems. The critical role played by feedback in self-organising systems enhances the vitality and adaptability of the group.

Table 5-6. distinctions between feedback and measurement (Wheatley 2005: 159)

Feedback	Measurement
Context-dependent	One size fits all
Self-determined. The system choose what to notice	Imposed. Criteria are established externally
Information is accepted from anywhere	Information is put in fixed categories
The system creates own meaning	Meaning is predetermined
Newness, surprise are essential	Prediction, routine are valued
The focus is on adaptability and growth	The focus is on stability and control
Meaning evolves	Meaning remains static
The system co-adapts with its environment	The system adapts to the measures

1. Feedback is self-generated. An individual or system notices whatever they determine is important for them. They ignore everything else.
2. Feedback depends on context. The critical information is being generated right now. Failing to notice the "now," or staying stuck in past assumptions, is very dangerous.
3. Feedback changes. What an individual or system chooses to notice will change depending on the past, the present, and the future. Looking for information only within rigid categories leads to blindness, which is also dangerous.
4. New and surprising information can get in. The boundaries are permeable.
5. Feedback is life sustaining. It provides essential information about how to maintain one's existence. It also indicates when adaptation and growth are necessary.
6. Feedback develops fitness. Through the constant exchange of information, the individual and its environment coevolve towards mutual sustainability.

Many MSc's and a teacher acknowledge the importance of the self-organised MSc meeting. It was very meaningful for me, especially in the dissertation term for six months where we are all tackling different topics and working on them as individual projects. The meeting gave me regular contact with other MScs. However, as was evident in the frustration commented on by some students, we really did not check the structure and topics for the meeting regularly, which resulted in the absence of the attendance of some students. I feel the *feedback* between action and reflection was lacking and more sensitivity to each other was needed. Yet, I still highly valued that we managed to maintain the meeting throughout the year with shared meaning and without supervision.

The experience of shared meaning in the MSc meeting became a precious lesson for me. When I practiced cooperative inquiry in MSc lectures, I realised how difficult it was to just listen to what the other person was saying. I found my tendency was to try to discuss my opinion with others and try to find out right answers for me, although the important point is not the answers, but is in the dialogue as a *process* of sharing our meanings.

2. support for self-organising learning

Close Contact to Teachers and Students

In this academic year, 10 students went through the programme. We highly appreciate this small group size and close, intimate contact to the teachers who are active in the front line.

“The content of the course is very high with very high caliber teachers teaching to small groups.” (MQ)

“The tutors, MSc staff, and other participants have all been terrific in lending themselves as resources, colleagues, and friends.” (MQ)

“there is always support in one way or another, be in the form of informal discussions or formal tutorials. Individual exploration and experimentation at all levels is highly encouraged here.” (MQ)

Dissertation Project

Dissertation topics vary immensely. In this academic year, there are students who study forest gardening, deep ecology and church groups, Bach flower remedies, money system, holistic education, holistic field guide, science and spirit, the role of fire, forest-dependent community, and I am studying the self-organising learning process at Schumacher College! This diversity can be articulated by this comment from one student:

“In this experience you don’t learn to do a specific skill but rather, it applies to anything that one choose to do.” (MQ)

Alongside these dissertation topics, we choose one supervisor from the University of Plymouth. It is sometimes quite hard to find an appropriate supervisor for our study. One of the reasons is that holistic science does not fit with mainstream scientific institutions like the University.

“As for my dissertation topic, I have had to look for some advisory help elsewhere since it was too specialized to find the appropriate advisor at Plymouth. I had to provide a lot of my own literature.” (MQ)

“the process for linking with dissertation advisors could be improved or modified significantly. A limitation on the support capacity from within the program depends highly on the needs of each student. Quite naturally then, there are times when particular academic needs or direction lies outside the expertise of those at the

college.” (MQ)

A teacher also recognises this difficulty as follows:

“Main academic supervision [of dissertation project] is meant to come from Plymouth.... Sometimes they do that well and sometimes they do not. It varies. Sometimes we cannot do very much of in the area of expertise someone who is familiar with it. I think this is the weakness of the programme.” (TI)

Journals and Self-Narratives

The programme encourages us to keep journals and to enfold self-narratives in assignment papers as well as dissertation thesis. This provides opportunities for self-reflection and participatory learning in holistic science. Many students use self-narratives for writings and reflect on their learning experience by keeping journals or taking reflective time regularly:

“On the whole my journal details the development of my understanding of the world, my basic philosophy for a sane life. It speaks of holism which to me means a balance of action and reflection.” (MQ)

“Active reflection is something I do in all academic activities and I think it is a really important part of my learning. I look back through my journal on occasion and it is at these times that I become aware of what it is I have truly learned in this program.” (MQ)

“I keep a journal, but am very irregular at doing it. I did keep a regular journal during the time with [person A], and that was very helpful. I mostly do my reflecting when I go on long walks” (MQ)

Balance of Chaos and Order

One MSc student said:

“It seems to me that they intentionally put us in this anarchy situation, which I guess is a good learning experience but I was just thinking is it healthy to have chaos and order. This course does not seem to be very balanced in that way. Maybe too much openness.” (MD)

In addition, it is pointed out that there is a lack of understanding and attention to the psychology of groups. These are some comments about the group learning dynamics:

“the MSc does not seem to encourage group cohesion and collaboration between MSc students.” (MQ)

“I would have been really happy if some more attention was put to group dynamics and to some work with that” (MD)

Someone pointed out that this is partly linked to the teaching style.

“Within an environment like this, there are obviously different people doing different things and they have different ways of learning. I think good teachers can actually recognise that as a part of the learning process and bring those things out into awareness. So the individual starts to learn through the learning about his/herself. What his preferences, strength and weakness are in terms of physiological relationship to a group. You bring the awareness of that. That helps different dynamics to work become more effectively.” (MD)

One student pointed out from a teaching point of view that a day seems to be organised around one session, coffee break and another session, and there is not great taking into account of the learning process: what the individual goes through; how does individual take on new things, concepts and information:

“In educational circles there is a kind of rhythm to the learning. If you learn without natural rhythm that makes your process feel harder.... ” (MD)

One experienced that some teachers seem to know how to hold a learning space allowing self-organising learning. He/she said:

“that was more holistic, dynamic, interactive and more inspiring.” (MD)

Alternatively, one suggested project based learning:

“We could work in small project teams set a challenge to explore the nature of learning through addressing a real life problem. Working together with small groups to design the solutions to address the problem using what we have learned and extra research might be carried out. That would be more contextualized learning. (MD)

Yet, then again, some students say:

“I was lacking some more structure, that makes things easier for me – but then again, maybe that’s something I need to learn, how to live through chaos and get the most out of it.” (MQ)

“That is the whole idea that self-organising vacuum from out of a black hole.” (MD)

Summary

Although the MSc programme consists of such a small numbers of students, we have sufficient interaction with visiting teachers and short course participants. In addition, we have close contact with residential teachers due to the regular interaction entailed in the common living at the College. I believe these are a huge support for our learning process.

However, as is discussed above, the support from the University of Plymouth could be improved. Some students have no contact with supervisors for the whole dissertation term. One suggestion could be having more regular check-in time with students and

the programme committee¹¹. The regular check-in would also be helpful to achieve the balance of chaos and order.

¹¹ The programme committee consists of the director of the College, residential teachers of the College, faculties of the University and a MSc student representative. The committee was held two times (October 2005 and January 2006) in 2005/2006 academic year.

3. living in community

All Mscs take notice of the value of community experience, living, working together and having the sense of common values.

"I think that participating in the community is integral to a "holistic" outlook. These mundane things are a part of our life, and by making our "mundane" practices communal they become a form of spiritual practice in which you integrate the merit of service." (MQ)

"I love living in community, trust, acceptance of myself and acceptance of others. It is great to feel one's private values reflected in the larger whole in which one is living. Schumacher is quite unique as a community, in that it has no dogma but survives in the vitality of its programme to attract people to visit. There is space for people to grow here if one looks." (MQ)

One teacher also acknowledges the value of having community experience as a part of the programme:

"If we did not have community, I think the course would fail in its objectives because you cannot talk about communal organisation. You cannot talk in a manner that gives people a deep understanding living in community. The only way you can get it is through the practice of community living. It is absolutely essential. The experience of the community, living in the community and practice of that, is probably one of the most important things we can be offered." (TI)

However, some feel that we need to focus more on developing a good learning community. Also, we need to deal with social, human issues - treating personal issues together and doing some practical things together.

"Community is very important to me, and I have experienced a strong sense of community in other places where we have has a common purpose (in studying or working). I did not get that here. Everything runs very smoothly for so many people coming through, but the place just feels like a common living arrangement for a bunch of individualistic (sometimes strange and withdrawn) people. I get an overall negative sense of the place, like there's lots of bad energy flowing around. Also, they never did anything intentional about setting up a good learning community. I've been very disappointed in the lack of community and the feeling that I haven't connected well with anyone. The non-community aspect of Schumacher is one of the most negative experiences for me." (MQ)

"This [community living] was very important for me although I have always had the sense that we were a temporary community and therefore not everyone was engaging as much as possible. Again I think this has partly to do with the fact that there was little in the way of a uniting purpose. I feel we could have become much closer if we had to achieve things together." (MQ)

Summary

The learning process is facilitated by the communal experience at the College, where sharing, integration, and meaning making are taken place. This communal environment embodies the experiential learning of holistic science.

To achieve a more holistic, integrated learning community, it seems necessary to hold clearer shared meaning among residents. As some students comment, negative aspects of the community are observed. I believe strengthening the shared interest and shared meaning would enhanced the bond which holds people and community together.

section 3: encountering ecological self

Introduction

In this section, I explore personal transformation toward an ecological self as experienced by short course participants and MSc students. The idea of ecological self presented by Arne Naess emphasises the aspect of 'self-realisation'. (see Box 3-1) In other words, the ecological self can only be understood through experience but not in a single theory. I found that the integrated learning environment provided by the College enhances the self-realisation of an ecological self for both short course participants and MSc students.

Mutuality and Interdependence

Self-organisation is balanced by mutuality and interdependence. One cannot self-organise without a sense of belonging and sense of relationship. The programme director Satish Kumar often says that:

“a seed grows into a tree only when it is dependent and in relationship with the soil, water and sunshine.... A seed grows from inside out into a tree, but in relationship. In the same way, an individual takes its spirit, its heart, its intelligence, its mind, its faculties, its senses, all they use to organise but in the context of relationship with other human beings and also in relationship with the natural world. So self-organising and interdependence are two sides of the same coin. You cannot separate them.” (SI)

We sometimes misunderstand self-organisation as meaning doing everything individually with no relationship. Individual organises self but that is in the relationship with the family, community, culture, environment and the whole earth. We cannot organise ourselves without these relationships. Therefore, self-organisation does not mean isolation, separation or individualism.

Kumar then talks about two states of our soul: separational soul and relational soul. Separational soul is rooted in Cartesian dualism. Newton and Descartes saw the universe as a machine, which can be controlled and regulated by humans. Darwin saw evolution as competition among species, which means strong species dominate the weak and only the strongest survive. Similarly, psychologist Freud discussed that the self can be accessed through analysis, and that by strengthening the ego the individual can gain power. All these ideas are self-centred and based on dualistic perspectives. (Kumar 2002: 176)

Separational soul is rooted in the various problems of our time. The dualistic world-view gives the illusion that one exists independently and creates ‘the other’. The separation causes individuals to oppose each other, resulting in loss of a sense of relationships and belonging to a place. (Kumar 2002: 176-178)

In contrast, relational soul sees the whole beyond parts. Species are not in competition but in cooperation. Earth is an animate living organism. Mutuality and reciprocity are the intrinsic values of the universe. Thus, relational soul is beyond dualism;

“Non-dualism is not a denial of individuality, it is to see individuality in the context of universality.” (Kumar 2002: 176-178)

Each and every existence is a part *of* the whole; relationship is the very basis of all beings.

Reciprocity and mutuality are the essential parts of self-organisation. Therefore, I would say the sense of belonging as a part of the Schumacher Community is the

essential part of self-organising learning toward an ecological self. The integrated holistic learning emphasises shared endeavor and growing together. Many participants comments on that as follows:

“The most meaningful experience was feeling part of a community of kindred spirits.”
(SQ)

“The people at Schumacher, the lecturers and the students all gave me a sense of belonging. It was very rewarding to come together with people like that in the space that Schumacher provides and plant seeds of ideas and thoughts that will hopefully cross-pollinate and grow together” (SQ)

“It is to do with the complex ‘way of living’ and the willingness to everyone to help the learning and questioning process... I found this very supportive and enriching.” (SQ)

“The communal experience has taught me a lot about people and how to work together - self organisation does work and this community proves it for me” (MQ)

Transformation toward an Ecological Self

Stuart Hill et al. (2004) say that for personal transformation toward an ecological self, two aspects are mainly concerned: ethical and philosophical outcomes of the holistic approaches to learning, and how his/her previous life experiences and personalities result in each individual having a unique learning ecology:

“Learning ecology is first a new paradigm that places learning within a holistic meta-framework that is both ecological and cosmological... Second, learning ecology provides a means for understanding and working with the complex and diverse ways in which individuals (teachers and students) learn, become more conscious, develop worldviews, change, and act on their values.” (Hill et al. 2004: 49)

Transformation toward an ecological self takes place in both the frameworks which the College uses to design learning programs, and also the content of the learning materials. In the holistic learning environment of the College;

“the structures, norms and processes embody transformative ecological values — (those of) participation, partnership, mutual respect, and responsibility, reflection, communication and collaborative inquiry, creativity and ... a sense of the whole” (Taylor, 2002: 05 cited in Laiken 2004: 87)

The ethos and aim of the College (see Chapter 3) are communicated in short courses and MSc programme through the design reflecting the values of the College. Edmund O’Sullivan and Marilyn Taylor (2004: 99) say that transformative learning potentially takes place in our most valued spaces and moments:

“Learning emerges from our experience as our environments “speak to us” and we to each other, where we live and work.”

Satish Kumar says participants encounter both information and transformation at the College, whereas the other universities and colleges have much more emphasis on information. He says transformation is the more 'spiritual' quality:

“Schumacher College says that environmental crisis should be matched with spiritual response. We want to protect the earth not because we are afraid of the end but because we love the earth. Love is a greater force than fear. If our fear induces environmentalism or fear drives environmentalism then you will come up with wrong solutions, say let's have a lot of nuclear power in order to create energy or let's build millions of windmills and cover the earth with windmills. That is also fear driven. Whereas if you love the earth, you will respond through love and compassion. Then you protect or you take care of the trees and rivers, mountains, land and animals because they have intrinsic value. That is a spiritual quality. So we say that Schumacher College has two aspects: environmental and spiritual. These go together.” (SI)

If we lose spiritual quality, then environmental activity will become pragmatic and utilitarian. Kumar says:

“utilitarian ecology is more common while spiritual ecology or reverential ecology is less common.” (SI)

The College is thus promoting reverential ecology, giving equal emphasis to information and transformation, intellectual and spiritual.

A teacher of the MSc programme also comments on that:

“Holistic Science, as far as I understood, is a kind of alchemy. As you connect the phenomena of the world more closely, they transform you. People's worldviews change. They feel more connect with the world” (TI)

“I would say in conventional education, you are engaging and doing science with rational mind almost entirely, whereas here you engage with the other ways of knowing: intuition, ethics, and sensing. We use Jung's four ways of knowing which is not done consciously in normal science degree in normal universities.” (TI)

Although some of the participants say the Schumacher experience does not change the way he/she perceives him/herself, the world around him/her and his/her relationships with the natural world;

“Not particularly – most of this was very familiar to me.” (SQ)

so many participants exhibit transformation toward an ecological self:

“[Distinctive of the College] is a full immersion learning experience. is not based just on the intellectual achievement, but also on the personal change. is a kind of experience that could change internally your life purpose or your life path as is. A mixture among the various beings: to do, to be, to have, to love, to talk...” (SQ)

“Far more transformative than anything I've done before” (SQ)

“It is a genuinely life-changing experience. I have become more open to intuition and existential insight, which I have carried forward into my daily life, the work I do, and to the longer-term goals I set myself.” (SQ)

"It gave me structures within which to frame my feelings of interconnectedness. I now have a greater 'language' & have more pictures which I can use to access a state which I can now call a 'Gaia' state." (SQ)

"Schumacher is not just about intellectual development, but also about personal development, social development and how one perceives and relates to the rest of the natural world. From my personal experience, and that of fellow course members I have retained contact with, the end of every course seems to leave members in a state of uncertainty as to exactly how to channel this new experience and insight into our lives. I think one can sum it up by saying we acquire a heightened sense of awareness and responsibility in whatever we do. From my experience over 10 years after first attending Schumacher, it is a lasting and transformational experience." (SQ)
"the way I perceive reality has changed in that now I focus more on connections and am now much more comfortable embodying the paradoxical ambiguity of circular thinking." (MQ)

"Definitively I have become more grounded in my own self and more aware of the relationship to the natural world and others. One is always exploring further into experience. It has let me express parts of my self that were hidden." (MQ)

The past researchers, Sterling and Baines (2002: 30) add this observation concerning the transformative learning at the College:

"If we look at learning theory, people learn when they are challenged beyond their 'comfort zone' but shut-off challenged too much beyond the familiar. At Schumacher College, the 'recipe' appears just about right to lead to transformative learning. We can say that transformative learning engages the whole person (head, hands, heart) and touches and changes deep levels of values and belief through a process of realization and re-cognition."

It is worth noticing that Table 5-2. also shows up the feature of transformative learning: many short course participants' answer for their learning experience at the College as "Challenging".

Summary

E. F. Schumacher (1974: 64-83) says that through education people are seeking something more than mere knowledge of facts; people are looking for ideas which would make the world and their own lives. Schumacher remarks that the priority of education should be the transmission of ideas of value, of what to do with our lives. However, current education sets the priority as the transmission of know-how. This results in environmental and social crisis:

"At present, there can be little doubt that the whole of mankind is in mortal danger, not because we are short of scientific and technological know-how, but because we tend to use it destructively, without wisdom." (Schumacher 1974: 66)

I have a feeling that participants of Schumacher College can create their own value through the whole experience at the College. Because the College's learning process is not separated from life: I would like to emphasize that learning is not only in classes but in the experiences. As Humberto Maturana and Francisco Varela (1992) say that knowing, doing and being are the same thing, in the college learning (meaning making), living (practical process) and being (who we are) come together. Many participants say that they learned a lot from classes, but they really gained from meeting all participants, volunteers, staff in a variety of the contexts such as conversation, fieldtrip, cleaning and cooking. The college is also creating the opportunity for each participant to meet with his or her own self as well as the other participants. One of the short course participants told me that "here is the self-reflective place for me". I also strongly feel that the college is a very transformative place for the connection to each other, to nature and to oneself.

Through the whole community life at Schumacher, we interact and build relationships with each other. I feel this gives us the sense of the web of relationships on the planet. The life at Schumacher can show us how relationship forms the basis of our existence. Then this wisdom derived from actual participation and experiences can become a powerful driving force for sustainable future. I have a feeling that Schumacher College is one of the model cases of learning centres for a sustainable future.

chapter 6

conclusion

significance

G. N. M. Tyrell argues the differences between two types of problems; convergent problems and divergent problems. The former can be solved by logical reasoning but the latter cannot. Physics and mathematics deal with convergent problems, which give only one answer. In contrast, the living problems such as in education, politics and economics are divergent problems, because they have no solution in the ordinary sense of the word; the solutions are arrived at through the people who are concerned with the problems. Externally imposed solutions by formulae never work for long because they lack the very quality of human life. (Schumacher 1974: 79-81) In life, there is no *one* truth, but there are truths; they are always contextualised. Truth is not a 'correct' or 'right' belief: Satish Kumar (2002: 30) says:

"it is a continuous process, a continuous search and a continuous way of being. As the mind expands, truth expands."

However, many writers point out that our society is fragmented and centralised. It is hard to see our capacities for self-organisation and meaning making in modern life:

"Things move too fast for us to reflect, demanding tasks give us no time to think, and we barely notice the lack of meaning until forced to stand still by illness, tragedy, or job loss" (Wheatley 1999)

"the heteronomous ways of production (determined by others) overshadow the autonomous (self-determined) ways of production at the level of the individual. We do not learn any longer, we are taught (in particular, by the ready-made products of the media); we do not design our own environment, it is supplied by industry; we do not live in a healthy way, we are medically taken care of by experts. And so forth. Humans, who can no longer produce autonomous values, have to be supplied with them. The activities which this requires increasingly block the social system." (Jantsch 1979: 261)

If life is organised from outside, it diminishes the innate fundamental human quality of creativity and imagination. Kumar says that creativity and imagination are the most fundamental qualities for human beings:

"When we use our innate creativity and imagination, we find a sense of fulfillment, satisfaction and joy. Creativity and imagination are essential for human happiness." (TI)

Margaret Wheatley and Kellner-Rogers (1996a: 3) write:

"People are intelligent, creative, adaptive, self-organizing, and meaning-seeking."

While the socio-economic and cultural fragmentation results in the loss of *process*, (in other words, *experience*), self-organisation takes us in the opposite direction to our own needs, because self-organisation is not a state but a process. Wheatley (1999:

111) says if we learn to work with self-organisation, our attention will shift away from the parts and focus us on the process itself:

“What is needed is an *act of understanding* in which we see the totality as an actual process that, when carried out properly, tends to bring about a harmonious and orderly overall action, in which analysis into parts has no meaning.” (David Bohm 1980: 56 cited in Wheatley 1999: 111)

Self-organisation is a ceaseless process, which is supported by complexity and interconnectedness.

In order to focus on a process, we need to keep participating in the moment:

“The changing nature of life insists that we stop hiding behind our plans or measures and give more attention to what is occurring right in front of us, right now.” (Wheatley 1999: 154)

Wheatley (1999: 155) says being present does not mean we act without visions or directions, but it means to pay attention more to *the process* by which we create our intentions and interests. We need to see these intentions and plans not as completed objects but as processes which enable us to bring about the future we envision:

“When we work with organizing-as-process rather than organization-as-object, it charges what we do.” (Wheatley 1996a: 38)

Jantch (1979: 272) writes:

“the purpose is not waiting at the end of our path into the future, but is immanent in the process itself.”

Self-organisation intimately links to a participatory worldview; it does not mean lack of organisation nor isolation from the larger context. Self-organisation implies not only a high valuation of individual autonomy and a deep sense of mutuality and interdependence; it also implies a profound sense of oneness between the individuals and the whole: The deep sense of self-organisation gives us the sense of unity within the parts, as William Blake writes:

To see a world in a grain of sand
And a heaven in a wild flower
Hold infinity in the palm of your hand
And eternity in an hour.

All the systems of organisms, organisations and society are *essentially* connected within themselves and one to another. David Bohm (1996: 88) says it is the relationship among people and things, which really makes the society come into being. Furthermore, Goodwin (2005) writes:

“this [gaining knowledge of the world that depends on participation] recognises uniqueness, difference, and diversity as the expression of creativity. The result is a sympathetic union of the knower and the known without losing their distinctness.”

Self-organisation and participation are the alternative to fragmentation and control; it

promotes multiplicity in unity rather than unity in multiplicity (Bortoft 1996), a mass of societies rather than a mass society (Gandhi: see Schumacher 1974). The cultivation of diversity and self-organisation is a nonviolent response to the violence of globalisation and monoculture of land and mind. (Shiva 1997: 119-120)

case example: Asaza Project

I would like to conclude this thesis by introducing a good case example of self-organisation in Japan. Through my life in England this year, I have realised that Japan is based on many norms, rules and regulations. I have felt strongly that Japanese society is ruled by many laws, standardised into one form, and is suppressing of its own creativity. (Valuable cultural exceptions to this are an animistic perspective toward nature and the spirituality to see *mottai*, the intrinsic value of every being.) I believe the following example of self-organisation will be the groundwork for future self-organising activities in Japan as well as all over the world.¹²

As a case example of the self-organisation, I will introduce *the community-based public work project*, named Asaza Project in Japan. This is the project aiming to revive Lake Kasumigaura ecosystem suffering from a devastating effect on the natural environment; most of the lakeside was encased in concrete in order to build the embankment, and much of the organism's habitat was destroyed. This was because the lake was developed on a large scale to provide water for industrial and drinking. (Washitani and Iijima 2003: 132-188)

The most significant feature of this programme is that there is no centre to the project, and the entire system is based on the networks among people with different views, standpoints, goals and interests. No core organisation exists to manage the project: The core is the common vision of people who engage in the project —i.e., the revival of Lake Kasumigaura.

¹² The following writing is mainly cited from my assignment paper for Community Module in Holistic Science at Schumacher College.

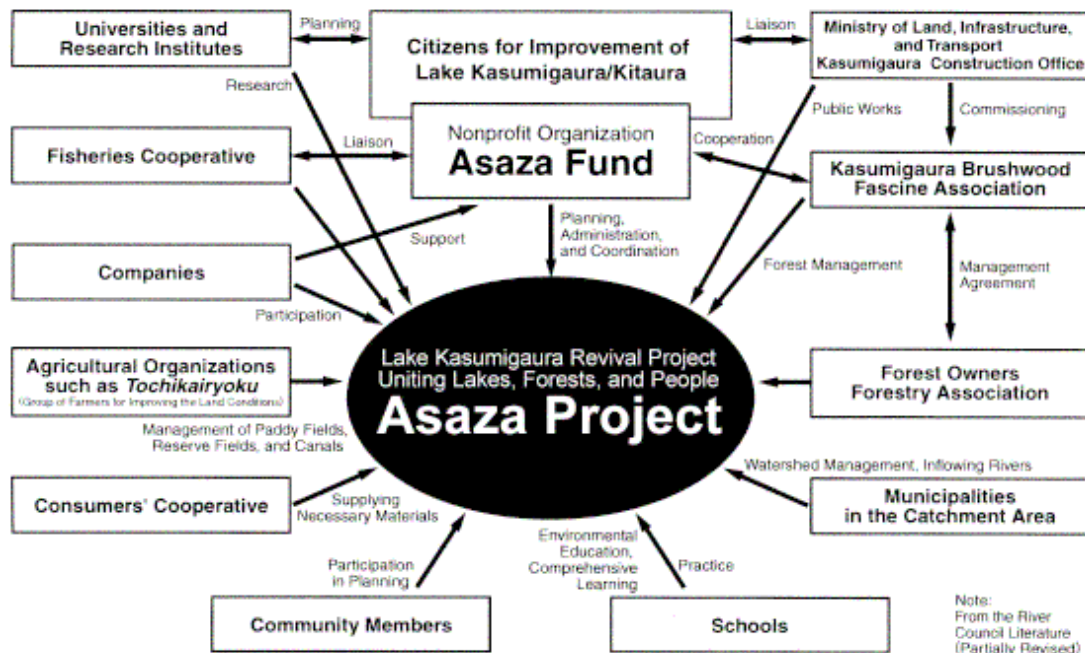


Figure 6-1. the liaison flowchart of Asaza Project: (Asaza Project no date)

As showed in Figure 6-1., in order to achieve the goal, citizens, agriculture, forestry, fisheries, schools, business organizations, research institutes and public administrations are networking. The most important role of this networking among different people is taken by the Asaza Fund; this is the NGO which serves as a forum for collaboration and participation to restore the lake. The point to note is that the Asaza Fund is not there to manage the project i.e., not the central organisation, but is there to make connection among the sectors i.e., the networking-medium. The networks of these elements connect through one other rather than to each other. The whole system works on the account of cooperation and participation among people. (Hoshino 2004)

This project is a quite unique and innovative approach to our community because our society is mainly based on hierarchy. In December 2003 I asked Hiroshi Iijima, the director of the Asaza Fund; "why is this project working so well?" He told me the secret of this success; the NGO Asaza Fund links the separate efforts and establishes a network. At first, the local government attempted to restore the lake alone, but their efforts did not improve the environment drastically. This was because the roles of government are functionalised and specialised, so that the connections between relevant factors were lost. Therefore, the government could not address this problem. On the other hand, the organisation like NGO, which has a broader view of the picture than a government, can serve as a bond among diverse groups. Iijima explained; "this project is based on 'natural linkages and networking', with a non-profit organization as the catalyst, while conventional public works projects are 'territorial and control-oriented.'" (Hoshino 2004)

Another striking feature of the Asaza Project is to revitalise the local community around Lake Kasumigaura by integrating environmental conservation functions into the local social systems, such as education and business. For instance, the local elementary schools join through raising and planting seedlings around the lake, which creates the opportunity of environmental education for the schools. In addition, a local forestry cooperative serves the thinning of plantation forests, which was left to deteriorate due to prolonged slump in wood prices and labour shortage. Thus, the Asaza Project has created new jobs and restored healthy forests. This community-based public work project creates opportunities for the citizens to participate, and at the same time, revitalises the local community. (Hoshino 2004)

As the network matured, more and more people and organisations participated in the project. Since 1995, surprisingly, a total of 86,000 people have participated in this programme. (Hoshino 2004) I have also participated in this project several times as a volunteer and part time staff. I worked investigating the ecosystem of Lake Kasumigaura. My impression was that the people who engaged in this project keep high their motivation, and are proud of their works. I thought this is because they share tasks in their favourite fields. Iijima explains;

“Participants of such broad-based networks actively engage in environmental conservation because doing so invigorates their own projects, not because it is obligatory or regulated”. (Hoshino 2004)

Asaza Project makes use of each member's unique characteristics and the participants are loosely connected underlying the common vision rather than a central organisation. This self-organising community structure has a high potential for growth by networking among various kinds of people and organisations.

“The focus of the great work is on local action that realises a collective and cooperative vision, but this action is based on universal principles of coherent behavior that we learn from observation of nature....The objective is to discover lives of meaning that are necessarily embedded within a specific natural context, based on deep local knowledge of place and history. The truth for right action is then expressed through local narrative, not through abstract principles. Since the cosmos is one, cohesion will emerge through local attention to detail and relationship in practical action.”
(Goodwin 2005)

For further information of Asaza Project: <http://www.kasumigaura.net/asaza/en/>

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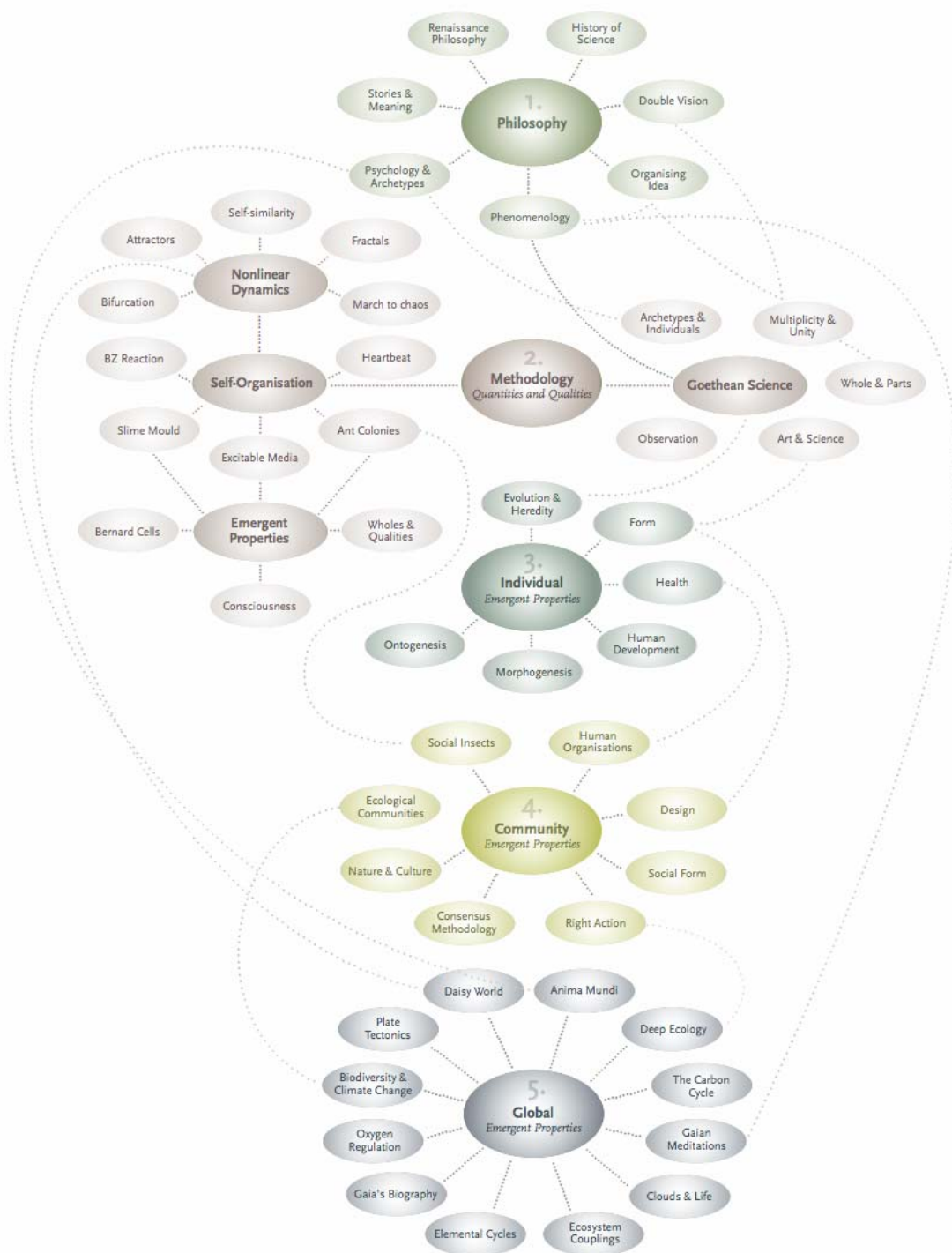
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appendices

appendix A: Holistic Science Map



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The Core Modules are: 1. Philosophy of Holistic Science, 2. Methodology for Holistic Science, 3. Individual-Emergent properties, 4. Community-Emergent Properties, and 5. Global-Emergent Properties. As shown in the map, self-organisation is a key concept of Holistic Science.

appendix B:

Questionnaire for short course participants

Questionnaire for Short Course Participants

This questionnaire is about your learning experience at Schumacher College. In order to get an idea of the short courses, I would appreciate description of your experience. Please note that the results of this questionnaire will be completely anonymous. I will be the only one to see this form and the result will be used for my dissertation project only. If you want you can withdraw your answers at any stage.

MSc in Holistic Science at Schumacher College
Keiko Hoshino

Sex: _____

Age: _____

Nationality: _____

Please indicate how many times you have attended courses at the College: _____

1) What is your background?

2) What were your initial purposes in taking the course?

Did you gain what you hoped for during the course?

3) What were your initial expectations for this course?

Did the initial expectations change during the course? If yes, please elaborate.

4) What do you think about the overall structure of the course? How do you see the balance among 5 main elements of the course structure, and how was each of them valuable for you and for your study?

1. *formal study (e.g. morning lectures, tutorials)*

2. *(self) organised activities (e.g. discussion, field trips, presentation, soiree)*

3. *community work/living (e.g. cooking, cleaning, meals)*

4. *open space (e.g. free time, weekend)*

5. *reflection (e.g. a few minutes silence, the last reflective meeting with all people of the College)*

5) How effective/ineffective was the group size for your learning? Please indicate both whole group (24 participants) and 5 small working groups (4-5 participants).¹³

6) How effective/ineffective was communication between participants, and among participants, teachers and college staff during the course?

7) How valuable/valueless was the facilitator for the course? How might the learning have been different without him/her? What were the benefits to you and the group?

8) Thinking about your Schumacher experience as a whole (including formal study, communal experience and meeting people), what is the most meaningful experience and why is it meaningful for you?

9) What do you see as distinctive of Schumacher's learning experiences compared to your past learning experiences?

10) What difference has attending the course made to you and your life, personally and professionally?

11) Did the Schumacher experience change the way you perceive yourself, the world around you and your relationships with the natural world? If yes, how are they changed and what triggered this change?

12) Please write down 5 of your own keywords which represent your learning experience at the College.

Thank you for taking the time to fill in this questionnaire.

¹³ The number of participants differs each course.

appendix C:

Questionnaire for facilitators

Questionnaire for Facilitators

This questionnaire is about your facilitation experience at Schumacher College. In order to get an idea of the short courses, I would appreciate description of your experience. Please note that the results of this questionnaire will be completely anonymous. I will be the only one to see this form and the result will be used for only my dissertation project. If you want you can withdraw your answers at any stage.

MSc in Holistic Science at Schumacher College
Keiko Hoshino

Please indicate how many times you have facilitated courses at the College: _____

1) Did you look at the 'Facilitator Kit' provided by the College before the course starts? How was it useful/helpful (or not) for your work?

2) If you reflect on your facilitation experience, what was your role as a facilitator?

3) What was your experience of the Course Review at the end of the week (usually Friday afternoon)? What was the value for participants and the group?

4) Did you have any difficulties with the facilitation during the course? If yes, please elaborate.

5) Do you have any previous facilitation experience before the course? If yes, please elaborate your past experience, and the differences/similarities between them.

6) Please feel free to write any comments about your facilitation experience at the College.

Thank you for taking the time to fill in this questionnaire.

appendix D:

Questionnaire for Msc students

Questionnaire for MSc Students

This questionnaire is about your learning experience at Schumacher College. In order to get an idea of the MSc programme, I would appreciate description of your experience. Please note that the results of this questionnaire will be completely anonymous. I will be the only one to see this form and the result will be used for only my dissertation project. If you want you can withdraw your answers at any stage.

MSc in Holistic Science at Schumacher College
Keiko Hoshino

Sex:

Age:

Nationality:

1) What is your background?

2) What was your initial purpose in taking the MSc programme?

3) What were your initial expectations for the MSc programme?

4) Did the initial expectations for the MSc programme change during these 9 months? If yes, please elaborate.

5) What is your dissertation project? Why did you choose the topic?

6) What do you think of the overall structure and contents of MSc programme? What are the good aspects and bad aspects?

7) Does the MSc programme provide adequate support for you and for your study? Please elaborate the reason why you think so.

8) The MSc programme offers intuitive ways of knowing such as Goethean Science. Is intuition important for you and for your study? If yes, please elaborate.

9) Are you keeping a journal or taking reflective time through this MSc year? If yes, what does it make to you?

10) How do you like/dislike the weekly MSc meeting? How is it meaningful or not?

11) What is the significance/insignificance of Schumacher's communal experience for you?

12) Thinking about your Schumacher experience as a whole (including formal study and communal experience), what is the most meaningful experience and how/why is it meaningful for you?

13) What are the similarities/differences of Schumacher's learning experiences to your past learning experiences?

14) Did the Schumacher experience change the way you perceive yourself, the world around you and your relationships with the natural world? If yes, how are they changed and what triggered this change?

15) Please feel free to write any comments and your stories about the MSc programme as well as the whole experience at Schumacher College.

Thank you for taking the time to fill in this questionnaire.

appendix E:

Certification of Human Ethics Committee

University of Plymouth: Faculty of Science