

**TOWARDS AN ECOSYSTEMIC UNDERSTANDING OF
CHRONIC FATIGUE SYNDROME (CFS)**

by

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Summary

This study investigates Chronic Fatigue Syndrome and shows that its conceptualisation thus far reflects the underlying assumptions of the medical model. A shift towards an ecosystemic approach to the problem is suggested.

Positivistic thinking is discussed as well as the developments that led to ecosystemic thinking based on second-order cybernetics and constructivism. Diagnosis, research and treatment of Chronic Fatigue Syndrome are discussed based on the underlying assumptions of both the medical model and the ecosystemic approach. Limitations of the traditional approach as well as the usefulness of the ecosystemic view as an alternative perspective on the situation is highlighted and discussed.

To conclude, the conceptualisation of CFS based on the assumptions of ecosystemic thinking is highlighted as well as its implications for treatment. Suggestions for further research are made.

CHAPTER 1

INTRODUCTION

Chronic Fatigue Syndrome (CFS), currently in the spotlight of medical research, may be described as a controversial illness. The existence of the syndrome is questioned by many professionals, some acknowledging that it exists, while others remain sceptical (Dawson & Sabin, 1993). Although diagnostic criteria have been proposed, clinicians remain frustrated by the lack of clear diagnostic or therapeutic guidelines (Shorter, 1993). Contributing to the CFS confusion is not only the uncertainties regarding aetiology and epidemiology, but also the fact that researchers have not yet reached consensus on the correct term to describe the condition (Dawsett, 1992).

Despite the morbidity of CFS, patients experience physical problems that are complicated by a society that has yet to acknowledge the existence of the condition. The result is unhelpful physicians as well as insurance carriers designating the syndrome "psychiatric" in order to reduce coverage. Furthermore, there is a breakdown in the family support systems resulting in patients often ending up isolated, financially drained and still not well (Goodnick & Klimas, 1993). Berne (1992) argues that the syndrome is usually accompanied by changes in functionality in the workplace, deterioration in familial and social relationships, as well as changes in the patient's general lifestyle and self-concept.

Even though so many spheres of the patient's life are affected by the syndrome, the positivistic conceptualisation of the illness, with its reductionistic research methods and treatment approaches, primarily focuses on the biological explanations of the illness. According to the medical model, illnesses are regarded as biological, behavioural, or psychological dysfunctions within the ill person (Denton, 1990). Physical, cognitive and emotional symptoms experienced by the patient are

diagnosed and treated separately, and the goal of treatment, as in the case of CFS, is to heal the sick individual in a linear, reductionistic way (Bell, 1991). Regardless of what may be happening in the patient's family, or other social contexts, the impairment and debilitating factors he or she is experiencing is assumed to be due to a dysfunction, or an effect thereof, that lies within him or her as an individual.

The controversies surrounding the phenomenon of CFS, whether it being aetiology, epidemiology, terminology, research or treatment may be linked to the linear positivistic approach. The primary aim of this study is therefore to propose a shift towards an ecosystemic approach to CFS. For reasons that will be elaborated on later, the researcher believes that the ecosystemic approach offers wider possibilities to work with people suffering from CFS in research as well as in therapy. At this point it is important to note that although it would have been beneficial, for practical reasons the use of a case study will not fall within the scope of this study.

Based on the idea that changes in thinking occur as a result of reactions to previous ways of thinking (Fourie, 1998), a secondary aim of the study is to provide a detailed discussion in which the main events leading to the transition from positivism to systems thinking and finally ecosystemic thinking will be highlighted. Because our current understanding of CFS is based on the positivistic assumptions underlying the medical model, positivistic thinking will be discussed in detail.

In this study an attempt will be made to provide suggestions for an alternative conceptualisation of CFS. The implications for an alternative understanding and approach to diagnosis, research and treatment will be highlighted. Ecosystemic thinking will be discussed in more detail later on. At this point it will suffice to say that ecosystemic thinking emphasizes both ecology and systems theory (Fourie, 1998) and the term is often used synonymously with constructivism and second-order cybernetics.

At the beginning of the 20th century, Einstein's relativity theory and quantum theory highlighted the limitations of traditional science in

understanding complex phenomena (Capra, 1997). This led to a revision of our concepts of reality. The failings of Newtonian physics led to the development of a new physics which surpassed but encompassed Newtonian thinking (Capra, 1983). Positivistic assumptions were criticised from different fields within the natural sciences and the social sciences (Keeney 1979,). A change set in when the belief in an absolute and objective reality, that is "out there", was questioned. Despite this, contemporary sciences, particularly the social sciences, continue to adhere to the underlying assumptions of positivism.

Despite the development of new trends in the field of the natural sciences, the basic assumptions that dominate the current practice of medicine and psychiatry remain rooted in the heritage of classical mechanics, which physicists themselves were forced to abandon over half a century ago (Capra, 1983). These assumptions include precise linear causal relationships, "truth" as the final criterion for judging beliefs, and controlled experimentation as the only valid way of gathering data. Accordingly, it is assumed that for any phenomenon there is one true explanation.

In the literature most research pertaining to CFS, its understanding and conceptualisation, as well as approaches to treatment, are based on Newtonian notions underlying the medical model. These include linear causality, reductionism and objectivity of observation (Colapinto, 1985) and will be discussed in more detail later. In the light of the controversies, disagreements and frustrations surrounding CFS, the usefulness of such an approach is questioned.

Conceptualising CFS on the basis of positivistic notions leads to a reification process. Clinical diagnosis has been tied to the process of ascribing a label to an individual in order to signify the particular pathology and class of symptoms exhibited (Keeney, 1979). The mere diagnosis of 'Chronic Fatigue Syndrome' implies a process of reification and thus the descriptive concept (CFS) is treated as a concrete entity. In such a process, the names given to problems (in this case 'CFS'), are used as if they were conditions with an objective, context-independent existence (Dell, 1980).

According to Beahrs (1986) disagreement and divergent explanations (as will be seen in the case of Chronic Fatigue Syndrome) are taken to be the result of inadequate knowledge correctable with more scientific research data. This way of operating holds that, what is labelled as a problem, is the outcome of a clash among competing and conflicting ideas, backed by particular interest groups (Marks, 1996). The ultimate effect is very significant. It precludes alternative definitions or conceptualisations of any given issue, thus limiting possible interventions. Secondly, it creates extremely powerful feedback loops that influence opinion, policy, and intervention. The medical model, for example, often attempts to determine if a distressing symptom's "primary cause" is biological or psychosocial and so being persistent with the mind-body dualism of Descartes. Furthermore, if symptoms are seen as effects of primary causes, then only if the real cause is modified, the symptoms can be cured. Interventions that are not directed toward the root cause are considered palliative. When they do however work, the impressive therapeutic change is discounted as not real change. The refusal to embrace data that cannot be studied in the laboratory and is therefore considered unscientific has led the medical model to reject potentially valuable input from spiritual, holistic, and ecological sources (Beahrs, 1986).

In human systems the exchange of meanings in time leads to the co-construction of a particular shared reality for that system (Fourie 1996a). CFS from this perspective can therefore not be seen as an objective reality, but rather as a definition given to a particular shared 'reality' by everybody involved in that reality. According to Keeney (1983a), if a problem is seen as an objective, diagnostic entity and efforts are made to overcome the so-called problem, these efforts may actually make matters worse. As an alternative, Anderson and Goolishian (1988) argue that in terms of recursivity, the symptomatic behaviour (linear description) can be reconceptualised as part of a recursive sequence of behaviour and experience between members of the system which are communicating about the 'problem'.

Traditional diagnoses of the problem are not relevant from this perspective. Firstly, as a result of its attempts to discover an objective truth and secondly, because of the notion of the concept of the 'problem determined system' that there is a problem that exists in a linguistic domain and not in an outside reality or in an individual, as traditionally viewed (Kenny, 1989a).

The proposed reconceptualisation of CFS implies that the emphasis is on the patterns of interaction of behaviour, as well as on the ideas that have evolved from the construction of the reality that CFS is a problem. According to Dell (1982a) constructed realities display an evolving coherence. Keeney (1983a) argues that as the system continues to exist, there will be a development towards a more appropriate match with the characteristics that define the system. This implies the possibility that the family members of a CFS patient, as well as the patient him or herself, may increasingly exhibit behaviour that fits with the problem of definition of CFS. This may occur at the expense of other behavioural possibilities, as the problem definition becomes more appropriate.

An ecosystemic approach to CFS involves seeing patterns of relationships in which parts are embedded within a whole rather than dividing the world into dualisms of mutually excluding opposites. This implies that seeing CFS in a broader context implies that the condition and its associated symptoms and behaviour may only be understood in relation to the whole network of interactions in which the person finds him or herself.

This approach proposes that the primary focus is on the organisation of the total system of the CFS patient, and that it occurs in a context consisting of recursive patterns of interaction. From this perspective, CFS as a problem is a constructed reality emanating from a particular context. This context includes what Bateson (1972) calls 'an ecology of ideas' held about the phenomenon by all those involved. This reality is constructed in language (Maturana, 1978). This perspective points to the observer's inclusion in that which is observed, and so emphasises the self-referential nature of any and all descriptions. Therapists or researchers are seen as part of the therapeutic or research system and not as outside observers.

The suggested ecosystemic approach to CFS is not proposed as an ultimate truth. From a constructivist position, objectivity is impossible. Von Glasersfeld (1984) significantly emphasises that radical constructivism itself must not be understood as a description of an absolute reality, but rather “as a possible model of knowing and the acquisition of knowledge in cognitive organisms that are capable of constructing for themselves, on the basis of their experience, a more or less reliable world” (p.39).

What is known about CFS and its treatment and was found in the literature survey is based on old paradigm research methods and assumptions. As positivism and the underlying assumptions of the medical model form the basis of the understanding and beliefs held by most professionals and CFS patients, positivism will be discussed in some detail. In this way, not only is the history leading to the way we think highlighted, but an attempt is also made to place the phenomenon of CFS and our thoughts about it into perspective against the background of Western thinking.

Chapter 2 provides a summary of positivistic thinking as well as its implications for our understanding of certain phenomena in our world. The developments that led to the shift from positivism to systems thinking are also addressed.

Chapter 3 describes the journey taken from systems theory and first-order cybernetics in psychology to second-order approaches. The chapter presents a discussion of the core principles underlying constructivism and the ecosystemic approach.

Chapter 4 starts off the discussion of CFS. It is based on the positivistic stance of the medical model. The discussion focuses on the case definition and provides a historical overview of the condition. The controversies and problems associated with this approach to the problem are highlighted and a shift towards an alternative epistemology for diagnosis is suggested.

Chapter 5 continues the discussion of CFS from a positivistic perspective. Positivistic research in the field is discussed and an alternative approach to

research, that is consistent with ecosystemic epistemology, is discussed. The principles and ideas are based on those discussed in Chapter 3.

In Chapter 6 the traditional approaches to treatment of CFS are highlighted. These are once again based on positivistic thinking. The controversies around this will be highlighted and a shift towards a constructivistic approach will be introduced.

Chapter 7 provides the conclusion in which the implications of an ecosystemic approach to the diagnosis, research and treatment of CFS is discussed. Suggestions and recommendations for further research and treatment will be made.

CHAPTER 2

THE WORLD OF POSITIVISM

Is science the measure of knowledge, or is there a knowledge in which the ground and limit of science and thus its genuine effectiveness is determined? Is this genuine knowledge necessary for a historical people, or is it dispensable or replaceable by something else? (Heidegger, 1967, p.xxi)

During the course of this study, the dominance of the linear epistemology underlying the medical model, in particular in the field of CFS, will be clearly demonstrated. Not only is it fascinating to understand the history leading to the way we think about our world, but it also places phenomena such as CFS and our thoughts about it into perspective against the background of Western assumptions and conceptualisations. Although some criticism against the reductionistic and dualistic scientific epistemology of Western thinking will be submitted, a history of its origins and the road since travelled, enables one to grasp the difficulty in shifting a strongly held way of thinking to a different worldview.

This chapter provides an overview of the origins of Newtonian thinking as well as the shifts that occurred. In this chapter the implications of this scientific worldview for our reality and our understanding and approach to certain phenomena and fields of study are discussed. Particular reference will be made to the medical model as it forms the basis of our current understanding of CFS.

As a point of departure, the terms “epistemology” and “paradigm” will be discussed.

PARADIGM AND EPISTEMOLOGY

Auerswald (1985, p.1) defines epistemology as a “set of immanent rules used in thought by large groups of people to define reality.” In simpler terms, he describes it as “thinking about thinking”. Traditional thinking (positivistic epistemology), for example, contends that there is an objective reality and that scientific reasoning based on Newtonian thought is able to reveal the boundaries and nature of physical reality (Capra, 1983).

Gregory Bateson (Dell, 1985) was the first person who brought the idea of epistemology to the field of family therapy. He applied it to a wide variety of fields, such as biology, ecology, psychotherapy, cybernetics, psychopathology, systems theory, and so on.

Bateson (Dell, 1985) uses “epistemology” in five different ways.

As a theory of knowledge “epistemology” implies a study of the origins, structure, methods, and validity of knowledge.

Epistemology as paradigm specifies how the objects and events of the world should be punctuated e.g. ecosystemic epistemology, positivistic epistemology, dualistic epistemology, etc.

Epistemology as biological cosmology is seen as the pattern that connects all living things.

Epistemology as science refers to the “study of how particular organisms or aggregates of organisms know, think, and decide” (Bateson, 1979, p.228).

Epistemology as character structure concerns the problem of “how we know what sort of a world it is and what sort of creatures we are that can know something (or perhaps nothing) of this matter” (Bateson, 1979, p.3).

Schwartzman (1984) proposes that the term “paradigm” be used to refer to a body of theories, methods, and findings about a particular phenomenon. The term “epistemology”, on the other hand, can be used in a much broader sense, referring to a way of thinking about all phenomena and about all of nature.

Kuhn (1970) explains that if problems arise that cannot be explained according to the rules of the prevailing paradigm, an anomaly is said to exist and the search for new explanations begins. Ultimately a new belief system replaces the old belief system. The process by which a scientific community shifts from being dominated by one particular paradigm to accepting another is called a scientific revolution. A specific paradigm does, however, not easily make way for another and there is much resistance on the way to change.

The next section briefly addresses the positivistic eras, and highlights the changes that led to systems thinking.

ERAS OF POSITIVISM

PREPOSITIVIST ERA

The era before 1500 is known as the *prepositivist era* (Wolf, 1981). During this time, the dominant worldview in Europe and most other civilisations was organic. People lived in small, cohesive communities and experienced nature in terms of organic relationships that were characterised by the interdependence of spiritual and material phenomena. The scientific framework of this worldview rested on Aristotle and the Church. In the 13th century Aristotle’s system of nature was combined with Christian theology and ethics by Thomas Aquinas and a conceptual framework that remained unquestioned throughout the Middle Ages was established (Capra, 1983).

Medieval science, other than contemporary science, was based on both reason and faith and its main goal was to understand the meaning and significance of things, rather than to predict and control them. Medieval

scientists considered questions relating to God, the human soul, and ethics to be of the highest significance in their search for the purposes that underlie natural phenomena (Capra, 1983).

From a modern perspective, Wolf (1981) describes this time as the longest and most “boring” era. Due to the stance of “passive observer” taken by prepositivists, “science” did not make as much progress during this time as would have been expected. Medieval scientists argued that phenomena took place “naturally” and that attempts by humans to learn about nature were interventionist and unnatural, and so distorted what was learned.

POSITIVIST ERA

A paradigm shift occurred when scientists became active observers and the *positivist era* commenced. During the following two centuries, the medieval outlook changed radically and the notion of an organic, living, and spiritual universe was replaced by that of the world as a machine, which became the dominant metaphor of the modern era (Lincoln & Guba, 1985).

The worldview and value systems that form the basis of the Western civilisation as we know it today were formulated in their essential outlines during this era in the 16th and 17th centuries (Capra, 1983). The science of the 17th century was based on a new method of inquiry involving the mathematical description of nature and the analytical method of reasoning of Descartes.

Reese (1980, p. 450) defines positivism as “a family of philosophies characterised by an extremely positive evaluation of science and scientific method”. Positivism had its major impact on the scientific method. Positivistic concepts provided a new rationale for the practising of science that amounted to a scientific revolution taking place at such a slow pace that its revolutionary character was never really appreciated. The scientific revolution was brought about by the revolutionary changes in physics and astronomy, culminating in the achievements of Copernicus, Galileo, Bacon, Descartes and Newton. Their work formed the basis of scientific thought during this era and has major implications for our strongly held assumptions

today. These contributions will be discussed very briefly, based on the work of Capra (1983).

The scientific revolution began with Copernicus who overthrew the geocentric view of Ptolemy and the Bible. The world or earth was no longer regarded as the centre of the universe.

Galileo Galilei combined scientific experimentation with the use of mathematical language to formulate the laws of nature he discovered. His empirical approach and use of mathematical descriptions of nature became dominant features of science in the 17th century and have remained important criteria for scientific theories up to now.

As a result of the work of Francis Bacon and Rene Descartes two currents of epistemology came into being during the 16th and 17th centuries, namely, *Empiricism* and *Rationalism* (Capra, 1997).

Empiricism is an approach to the philosophy of science that, as a point of departure, assumes that the only source of true knowledge is observation through sensory perception. It grew out of Francis Bacon's new method for acquiring knowledge. Bacon propagated the scientific method of empirical research. He believed that the truth of the world could be discovered if a method of experimentation was used in which events were broken down into discrete units in order to control all variables. He believed that in this way the effect of one element on another could be observed. These findings could then be generalised to the world at large (Capra, 1983). He argued that knowledge was valid only when all pre-established *a priori* assumptions had been eliminated. Accordingly scientists began to study the nature of human beings and their environments by means of carefully controlled observations. Generalisations could then be made based on these observations, which would preferably be quantified (Meyer, Moore & Viljoen, 1997).

Rationalisation on the other hand, was developed from the work of Rene Descartes and proposes that human reason is the only source of true knowledge. He believed that knowledge is achieved through intuition and

deduction. His method was analytical and consisted of breaking up thoughts and problems into pieces and arranging them into logical order. The belief in the certainty of scientific knowledge lies at the basis of Cartesian philosophy and has become typical of Western society, which to a large degree is convinced that scientific method is the only valid way of understanding. Descartes asserted that mind and matter were separate and fundamentally different. This is based on Descartes's understanding of human nature and how knowledge is acquired. According to Capra (1983), two levels of existence that have important implications for modern psychology were distinguished. Descartes spoke of the *physical world*, which consists of observable matter and can be explained and investigated in terms of mechanistic laws, which led to the development of the natural sciences. Secondly, Descartes spoke of the *mental world*, which is made up of non-material, non-observable processes of consciousness that are characterised in particular by human reasoning and which led to the development of the human sciences. According to Descartes the study of body processes belongs to the field of physiological processes, while the study of mental processes belongs to the field of psychology. He was the first modern thinker to demarcate and describe the object of psychology as the study of human mental processes. The Cartesian division between *mind and body contributed to today's dualistic approach to illness, among other things. Descartes gave scientific thought its general framework, that is, the view of nature as a perfect machine, governed by exact mathematical laws.*

Newton used mathematical methods to formulate the exact laws of motion for all bodies under the influence of gravity. The significance of these laws lay in their universal application. They were found to be valid throughout the solar system and so seemed to confirm the Cartesian view of nature. Newton saw the universe as a huge mechanical system, operating according to exact mathematical laws.

MODERN POSITIVISM/MODERNISM

The basic epistemological and methodological assumptions that underlie the Western world's thinking about reality are rooted in the scientific tradition of Modernism. It defines the way in which reality should be understood and investigated and has enormous implications for the way in which we understand and approach phenomena in our world. How we understand and treat Chronic Fatigue Syndrome is, therefore, also a result of our underlying worldview, whether or not it is useful.

Becvar and Becvar (1996) argue that, from a positivist point of view, we should ask the question "Why?" in order to understand the phenomena around us. This implies that any problem is solvable if linear cause/effect thinking is applied. The assumption proposes that everything is caused by something in a linear fashion. Thus event A causes event B to happen or put differently, A did something to B and then C happened. Positivism also understands the world as consisting of subjects and objects. Thus A's operating on B's. This point of view implies that reality is considered to be external from us. Meaning therefore comes from external experience and we are the recipients and recognise order rather than create it.

There is also the belief that, if we are able to reduce sequences of reality, which are seen as "out there", into their smallest possible components, it will be possible for us to uncover the laws according to which the world operates. As the world is understood as deterministic and as operating according to lawful principles, it is possible to reveal absolute truths about reality (Beahrs, 1996).

According to this tradition, the appropriate scientific methodology is empirical and quantitative. Furthermore, knowledge must be pursued by means of observation and experimentation, the results of which must be measurable and objective. The observer (subject) is not only separate from the observed (object), but reality and the theories about reality are seen as either/or, black or white, right or wrong explanations.

Lincoln and Guba (1985) summarise positivistic paradigms regarding the assumptions underlying the following themes, as follows:

The nature of reality: There is a single tangible reality apart from and external to us that is fragmentable into independent variables and processes. Any of these can be studied independently of others. Inquiry can converge onto that reality until it can finally be predicted and controlled.

Epistemology (the relationship of knower to known): The inquirer and the object of inquiry are independent and therefore the knower and the known constitutes a discrete dualism.

The possibility of generalisation: The aim of the inquiry is to develop a homothetic body of knowledge in the form of generalisations that are truth statements free from both time and context. This implies that generalisations will hold anywhere and at any time.

The possibility of causal linkages: Every action can be explained as the result or effect of a real cause that precedes the effect temporally or is at least simultaneous with it.

The role of values in inquiry (axiology): Inquiry can be guaranteed to be value free by virtue of the objective methodology employed.

Capra (1982) argues that the language of Western society became reductionistic, analytical, linear, separating mind and body and the person from context and environment. The individual was elevated and it was believed that a person adhering faithfully to the scientific method could eventually discover the truth and control all events.

The three fundamental notions of Newtonian thinking include:

1. Linear causality

This notion concerns the connections between the components to which objects or processes are reduced (Fourie 1996b). These components are viewed as being connected to one another through cause and effect. Every effect can be seen as having one clear cause (Hoffman, 1981). Components are viewed as influencing each other in a direct, unidirectional linear way.

2. Reductionism

This notion refers to the traditional view that objects and processes need to be reduced to their basic components in order to study and understand them. These components can be measured and more easily understood than the complex whole. When the simple components have been analysed and understood they can be recombined and an understanding of the whole will automatically follow.

3. Objectivity of observation.

According to this notion, phenomena are believed to exist separately from the observer. The goal of scientific research and observation is to arrive at the objective truth by excluding the effects of the observer and the methods used (Colapinto, 1985).

POST-POSITIVIST ERA: TOWARDS A NEW PARADIGM

Change set in when the belief in an objective and absolute reality that is “out there” was questioned. At the beginning of the 20th century it was believed that science had reached such heights that the picture of the universe was virtually complete. Newtonian physics as well as Darwin’s Theory of Evolution facilitated acceptance of a reality which depicted daily events as fairly stable and predictable (Capra 1983).

In the early 20th century, Einstein's relativity theory and quantum theory highlighted the limitations of Newtonian science in understanding complex phenomena (Capra, 1982). The observation that light may appear as electromagnetic waves or as particles, depending on how it is observed, made uncertain the classical assumptions of objectivity and of the reality of matter (Capra, 1983). Quantum physics led to a dramatic revision of our concepts of reality, rocking the foundations of traditional thought (Capra, 1997).

Von Bertalanffy (1968) argues that knowledge cannot be viewed as an approximation of truth; neither is perception a reflection of "real things". Rather, it is "an interaction between knower and known, is dependent on a multiplicity of factors of a biological, psychological, linguistic, etc. nature. Physics itself tells that there are no ultimate entities like corpuscles or waves, existing independent of the observer" (p. xxii). According to Zukav (1984) the new physicists discovered that Newtonian mechanics no longer applied when dealing with microscopic phenomena. They found that subatomic phenomena did not follow the laws of forces, and thus scientists could no longer predict with certainty, and that the observer's expectations could not be separated from the objects measured.

The inadequacies of an epistemology of realism became increasingly clear as more fields of inquiry encountered problems of increasing complexity (Capra, 1982). The epistemology of positivism was deemed inadequate for problems and modes of thought occurring in biological, behavioural, and social sciences. Simple reduction to the elementary particles and conventional laws of physics no longer seemed feasible (Von Bertalanffy, 1968). According to Checkland (1982), in the world of biology, the mechanistic view of forces acting on inert objects seemed far from appropriate for explaining the complex organisation of living systems.

All this led to the development of a new epistemology of science which surpasses the old set of rules governing thought. Among other things, uncertainty rather than predictability was emphasised. It was also suggested that finding absolute truths and a final definition of reality would

prove to be unattainable (Capra, 1983). This spread to other fields as well. In biology, engineering, and later in the social sciences, there was a movement away from atomistic focusing on one aspect of the whole. A radically different worldview seemed to have emerged which, while not necessarily negating Newtonian thinking, nevertheless captured the essential interdependence of all phenomena and can be described through words like “organic, holistic, and ecological” (Capra, 1983, p.66).

THE SHIFT TO SYSTEMS THINKING

Criticism of Newtonian epistemology has been levelled from a diverse range of fields within the natural sciences as well as the social sciences (Bateson, 1972).

As the transformation occurred, scientists became increasingly aware that their basic concepts, their language, and their whole way of thinking were inadequate to describe atomic phenomena. In turn, this led to deep insights into the nature of matter and its relation to the human mind (Capra, 1997). Today the paradigm shift in physics is recognised as an integral part of a much larger transformation. The paradigm shift is not only occurring in the field of science but also in the larger social arena. The ecosystemic epistemology developed as an alternative to the traditional linear or Newtonian epistemology that dominated psychology (Bateson, 1979).

Peele (1990) argues that within the traditional way of thinking there is no acknowledgement of the dynamic, recursive and mutual interaction between and within systems. The new paradigm may be called a holistic view, seeing the world as an integrated whole rather than as a dissociated collection of parts. According to Capra (1997) it may also be called an ecological view in which ecological awareness recognises the fundamental interdependence of all phenomena and the fact that, as individuals and societies we are all embedded in, and ultimately dependent on the cyclical process of nature.

Von Bertalanffy (1968) emphasises the fact that systems theory is a broad view that far transcends technological problems and demands. It is a reorientation that has become necessary, in science in general as well as in other disciplines; ranging from physics and biology to the behavioural and social sciences and philosophy. Capra (1983) contends that the change from the mechanistic to the ecological paradigm has proceeded in different forms and at different speeds in the various scientific fields.

Systems theory led to further developments based in a new way of thinking, understanding and approaching of various phenomena, which will be discussed in Chapter 3. Before proceeding to Chapter 3, psychology as well as the medical model based on positivistic assumptions will be discussed. It will be discussed as despite the call for a new way of thinking, their assumptions are still based in Newtonian thinking (Capra, 1997) and have implications for today's approaches to Chronic Fatigue Syndrome.

POSITIVISM AND PSYCHOLOGY

Although Newtonian thinking has been criticised in a wide range of fields within the natural sciences as well as the social sciences, Newtonian epistemology can still not be discounted. The social sciences still adhere to the principles of modernism.

During the very early years psychology was not ready for scientific study and therefore unable to develop into an independent discipline (Meyer et al., 1997). Regarding the status of psychology as a natural science, William James expressed himself as follows in 1892:

“ A string of raw facts; a little gossip and wrangle about opinions, a little classification and generalisation on the mere descriptive level; a strong prejudice that we have states of mind, and that our brain conditions them: but not a single law in the sense in which physics shows us laws, not a single proposition from which any consequence can casually be deduced.

We do not even know the terms between which the elementary laws would obtain if we had them. This is no science, it is only a hope of a science" (Kintz, 1971, p. 468).

In their efforts to gain credibility in the scientific community, psychologists readily adopted the natural scientific approach and principles.

This tradition has been carried forward in modern psychology through those theories proclaiming the subjective/qualitative approach that emphasises purely human processes as psychology's terrain. All this led to the notion of theories in which human behaviour is described as determined either by internal or external environmental sequences to which we may react. Behavioural scientists embrace the notion of body/mind dualism inherently in the belief that mind and reality exists independently of one another. In addition, an investigator (subject/mind) can observe someone (object/reality) from a distance without imposing his/her values or beliefs on the person being observed. This leads to the belief that both objective measurement and a value free science are possible and that the subjective dimension is *non-scientific and should be distrusted* (Becvar & Becvar, 1996).

Empiricism and rationalism were of profound importance in the development of psychological thinking. It not only influenced the final formulation of psychology as a science, but Cartesian dualism and the founding of the empirical method also contributed to the development of the "divided nature" of modern psychology. This dividedness can be observed in the fact that psychology is practised as both a natural science and a human science. It is also expressed in the different theoretical approaches, for example, objective / subjective; quantitative / qualitative; materialistic / mentalistic; mechanistic / dynamic, that underlie the different theories (Meyer et al, 1997). Psychology accepted the importance of objectivity and the value of measurable, quantifiable data.

According to Becvar and Becvar (1996) the focus was on root causes and attention was directed to previous events that led to current problems. It

was believed that the focus should be either on the individual and the individual's specific behaviours or on the internal events of the human mind in order to reduce behaviour to the lowest common denominator. In this way human behaviour could be understood and psychologists could find solutions to such problems. In the first half of the 20th century theories were based either on Freudian notions or on reactions to them. The result of this is that today there are varieties of individual psychologies, intrapsychic theories, learning theories, and therapies that combine elements of these psychologies and theories. Though they appear to be different on the surface, they share the same basic worldview. Although some of these may be more humanistic than mechanistic or scientific, they all focus on the individual and share similar fundamental beliefs. In different fields they primarily aim to answer the question as to "why?" something happens or occurs. They aim are each based on the foundation that includes most of the following assumptions about reality and its appropriate description: Linear cause / effect; subject / object dualism; either / or dichotomies; value-free science; deterministic / reactive; laws and law-like external reality; historical focus; individualistic; reductionistic and absolutistic.

The paradigm shift that occurred in physics has only relatively recently started to include other areas such as psychology. There is growing acceptance that human phenomena are far too complex and too contextually specific to be reducible without losing their original meaning (Lincoln & Guba, 1985). Although psychotherapeutic approaches to problems, as will be demonstrated in the treatment of Chronic Fatigue Syndrome in Chapter 3, are to a large degree based in Newtonian thinking, a shift has occurred and continues to occur. The ecosystemic epistemology developed as an alternative to the traditional, linear epistemology that dominated psychology (Bateson, 1979). This approach will be discussed in detail in Chapter 3.

THE BIOLOGICAL/MEDICAL MODEL

Western thinking, as mentioned, is primarily dominated by a Cartesian/Newtonian epistemology (Dell, 1980). Thus, what is real is what can be weighed and measured. The classical mechanics of Newtonian thinking reflects a deterministic, cause-effect world in which the outcome of any set of events can be analysed and predicted if one is able to know the quantified characteristics of the objects involved beforehand.

Despite the development of new trends in the field of the natural sciences, the basic assumptions that dominate the current practice of medicine and psychiatry remain rooted in the heritage of classical mechanics, which physicists themselves were forced to abandon over half a century ago (Capra, 1983). These assumptions include precise linear causal relationships, "truth" as the final criterion for judging beliefs, and controlled experiment as the only valid way of gathering data. It is assumed that for any phenomenon there is *one true* explanation.

These assumptions underlie the biological or medical model, which currently forms the cornerstone not only of the practitioner's or researcher's understanding of Chronic Fatigue Syndrome, but also of that of the sufferer. It will therefore be discussed in some detail.

Throughout the history of Western science the development of biology has gone hand in hand with that of medicine. Therefore the mechanistic view of life that was firmly established in biology, has also dominated the attitude of doctors toward health and illness (Capra, 1983). The medical model is influenced by the Cartesian paradigm and constitutes the conceptual foundation of modern scientific medicine.

At a biological level, humans are viewed as living organisms composed of extended matter-energy in which the genetic heritage of anatomic structure, biochemical and physiological processes are identified and respected and viewed in terms of how they can go wrong - as well as made right - by effective interventions (Beahrs, 1986). The human body is viewed as a

machine that can be analysed in terms of its constituent parts. Disease is regarded as the malfunctioning of biological mechanisms. The role of the practitioner is to intervene, either physically or chemically, to correct the malfunctioning of a specific mechanism.

The medical model is a linear, reductionistic model that accounts for a disease as being caused by a physiological or anatomical deviation from the norm (Bearhs, 1986). Therefore, Chronic Fatigue Syndrome would be viewed as located in a part of the body, e.g. an organ, the nervous system etc. and seen as being caused by a physiological abnormality inherent in the patient.

Biological mechanisms are studied from the point of view of cellular and molecular biology, leaving out all influences of non-biological circumstances on biological processes (Capra, 1983). This implies that the contexts in which phenomena occur are left out of the equation.

Advances in biology were accompanied by the rise of medical technology. As new diagnostic tools and instruments were invented and surgical technology became more sophisticated, the attention of physicians gradually shifted from patient to disease. Pathologies were located, diagnosed, and labelled according to a definite system of classification.

The emphasis on definition and location of pathologies was also applied to the medical study of mental disorders, which came to be known as *psychiatry*. Dell (1980) states that according to modern psychiatric thinking people are considered to have quantities of various properties (i.e. personality) that determine their behaviour. The personalities of children and those of their parents are understood to be related to one another in a Newtonian fashion. This implies that parents have fixed characteristics that act as forces upon their children with more or less predictable causal effects.

Instead of trying to understand the dimensions of mental illness, psychiatrists were primarily concerned with finding organic causes, such as infections, nutritional deficiencies, brain damage, chemical imbalances etc.,

for all mental disturbances. It has become the norm in the field of general psychiatry, as in the field of other illnesses, to begin with the problem, make a diagnosis, and then describe methods and techniques for solving such problems (Herwigg-Lemp, 1996).

According to McHugh and Vallis (1986), the medical model does not differentiate between the dimensions of a person's life and thus has a tendency to 'medicalise' non-medical problems. This is a reductionistic perspective and linear process, during which any number of assumptions could be drawn on to make subject and manifestation fit. Problems are being conceptualised as 'claims-making activities' rather than as responses to contextual conditions (Epstein & Krankenhau, 1996; Herwigg-Lemp, 1996). Joubert (1987) cites the Rosenheim studies that showed how psychiatric personnel could identify psychiatric disturbances in completely healthy people. Given the right context, their presuppositions compelled them to find pathology. After a diagnosis was made, all behaviours were explained in terms of the diagnosis.

The practice of labelling individual behaviour as problematic and/or pathological, forms the foundation of current treatment modalities. In its reductionist spirit of analysing problems by proceeding to smaller and smaller fragments - from organs and tissues to cells, then to cellular fragments, and finally to single molecules, the medical model often loses focus of the original phenomena on the way. Capra (1983) argues that this is the case even though the history of scientific medicine has proved repeatedly that the reduction of life to molecular phenomena is not sufficient for understanding the human condition in health and illness.

According to the medical model, the physician is the expert and only the doctor knows what is important for the individual's health, and only he or she can do anything about it. This stems from the belief that all knowledge about health is the result of rational, scientific knowledge, based on objective observation and clinical data. Therefore, the laboratory tests and measurement of physical parameters are considered more relevant to the diagnosis than the assessment of the patient's emotional state, family

history, or social situation. Avoidance of the philosophical and existential issues that arise in connection with illness is a characteristic of contemporary medicine (Capra, 1983).

Capra (1983) argues that, although the medical model distinguishes between symptoms and diseases, each disease itself, in a wider sense, can be seen as merely a symptom of an underlying illness whose origins are rarely investigated. Doing so would require seeing ill health within the broad context of the human condition, recognising that all illness or behavioural disorder of a particular individual can be understood only in relation to the whole network of interactions in which that person is embedded.

Reification is an important product of Newtonian epistemology. Traditionally clinical diagnoses have been tied to the process of ascribing a label to an individual in order to signify the particular pathology and class of symptoms exhibited. According to Keeney (1979) this is inseparable from the underlying assumption that an individual is the receptor of linear causal effects and thus the site of pathology. This is also the case with Chronic Fatigue Syndrome. The diagnosis of Chronic Fatigue Syndrome implies a reification process. That is, a descriptive concept is treated as a concrete entity. Foley (1988) describes the process as follows: "We make splits in an effort to comprehend the world (e.g., mind/body; good/bad; nature/nurture). Then from those splits we draw boundaries and fool ourselves into believing that what we have just constructed actually exists. I call it the old error...of reification..."(p.58). This is a reductionist process and complex phenomena are explained in terms of their simpler constituent parts. From a realist perspective, according to Dumont (1987), how problems are traditionally named, for us, imply that they are in reality such entities. The names "depression", "anorexia", "anxiety disorder", "personality disorder", and thus "Chronic Fatigue Syndrome" refer to problems as if they were conditions with an objective, context-independent existence.

It is important to note that criticism levelled at the medical model does not mean that there is no place for it, or merit in certain of the views put forward by this perspective. It can, however, be very limited in usefulness. Beahrs

(1986) warns us against logical errors made by the medical model. Firstly, the human tendency to see one's own belief system as reality and those of others as false. He calls this "systems idolatry". Secondly, the either-or syndrome that results in a tendency to pit one model of understanding against another, where they would have been more effective working together. Thirdly, he mentions the assumption that intervention can only occur at the level of "primary cause" to be considered "real" change, as has been discussed. Beahrs (1986) considers these to be outgrowths of the linear, causal thinking of classical mechanics that have unfortunate consequences for the treatment of illness.

SUMMARY

In this chapter the concepts of paradigm and epistemology were discussed. The eras of positivism and the shift to systems thinking was highlighted. The impact of positivism on psychology and the medical model was emphasised and discussed. It is important to note that although criticisms have been made against Newtonian thinking, the medical model and various approaches to psychotherapy continue to adhere to these principles. This will be clearly demonstrated in the positivistic approaches to diagnosis, research, and treatment of CFS in later chapters.

CHAPTER 3

SYSTEMS THEORY / CYBERNETICS TO SECOND-ORDER CYBERNETICS

Thus far, in this study the dominance of linear epistemology in the ways in which we understand and approach phenomena has been clearly demonstrated.

New ways of thinking led to an epistemological revolution, which touched all the sciences and challenged many traditional concepts, from the belief in linear causality to theories of individual motivation.

Hoffman (1985) states that although Family Therapy is not a behavioural science per se, it is one of the few areas of behavioural research and practice to be influenced by this epistemological shift. She describes it as more than just a novel therapeutic technique; but rather something that is based on new assumptions about human behaviour and human interaction and that have far reaching implications.

This chapter serves to introduce ecosystemic thinking which will form the basis for an alternative approach to CFS.

According to Meyer, et al. (1997), the ecosystemic perspective represents a “quantum leap” from an anti-contextual and reductionistic epistemology concerned with objectivity and truth, to a worldview which encompasses complexity, contextual patterns of relationship and multiple realities. The ecosystemic approach did, however, not simply come into existence, but was a result of a shift in thinking that commenced in physics. Systems thinking and cybernetic principles had an important role to play in the development of this approach. Initially family therapy was based on systems thinking and cybernetics. However, more changes still had to take place before ecosystemic thinking (sometimes used synonymously with second-

order cybernetics or constructivism) as it is known today, could come into being. Therefore, before discussing second-order cybernetics; Systems Theory, and cybernetics, as well as their application to human systems will be discussed.

FIRST ORDER THINKING

SYSTEMS AND GENERAL SYSTEMS THEORY

According to Checkland (1982) the main ideas in systems theory came from biology, in particular from the thinking of Ludwig von Bertalanffy and from electrical, communication and control engineers. Capra (1997) adds that it was further enriched by Gestalt psychology and the new science of ecology and had its most dramatic effects in quantum physics.

There are various definitions of what the term *system* implies. Capra (1983, p. 66) defines a system as “an integrated whole whose properties cannot be reduced to those of its parts”. In De Green (1982, p.85), Hall and Fagen give the following definition: “A system is a set of objects together with relationships between their attributes”.

According to definitions such as these, everything in nature is linked in a complex but orderly fashion (Bailey, 1982). Keeney (1983b) emphasises that systems are always interconnected and interdependent, always in constant interaction with one another and that any action or inaction will have effects on all the interrelated parts. Despite the interrelatedness of systems, each contains particular characteristics and functions, which can be used to distinguish the one from the other.

Systems Theory examines the interrelatedness and interdependence of all phenomena. Therefore, the focus is on the whole which is more than the sum of its parts. Systems can be both parts and wholes. This implies that whole systems can be divided into subsystems which can also be identified as whole systems in themselves, and which form part of a larger whole.

Circular reasoning therefore, where all aspects of a relationship are considered, replaces linear reasoning (Hoffman, 1981).

As mentioned before, an interrelatedness exists between all the components of a system, and therefore a change in one part of a system will have an influence on the system as a whole. As opposed to traditional thinking, this non-linear view of connectiveness of phenomena explains why attempts to isolate single units in terms of cause and effect are problematic. Discrete units cannot be explained fully in isolation because of the fact that they are parts of the organised pattern of relationships of a whole system, and as a result of this, conform to this organisation. A cause-and-effect relationship is thus a punctuation made in a total pattern (Capra 1997).

Von Bertalanffy (1968) proposed that systems concepts could be applied to human systems and as such be useful tools in the social sciences and therefore in the field of psychology. A systemic way of thinking in psychology implies that the individual constitutes a subsystem of the larger family system, and the family is part of a larger suprasystem of the community (Becvar & Becvar, 1996). Systems can therefore be seen as forming a hierarchy of related systems, and human functioning is studied in terms of the interactional patterns within and between systems.

Balle (1994) suggests the following guidelines for systems thinking in practice: *Firstly focus on the relationships rather than the parts.* A system is a set of interconnected parts. In the reductionist view of things the emphasis is on the parts and to understand things they are taken apart and the pieces are studied. On the contrary, systems thinking places emphasis on the interrelationships of the parts. *Secondly, see patterns, not events.* Rather than accepting event-type explanations, this perspective tries to identify the ongoing patterns, in order to perceive the forces underlying these events. *Thirdly, use circular causality.* Causality in systems thinking is seldom seen one way. Cause becomes effect, which then becomes cause and so on. In systems thinking causal chains revert on themselves to create "feedback".

In conclusion, systems thinking challenges the logical assumptions of Newtonian thinking, such as linear causality, and focuses on the whole rather than the parts. Furthermore, systems thinking proposes a circular logic which focuses on relationships rather than on the elements themselves and sees patterns rather than events. Originating from cybernetics and biology, systems thinking is highly analytical, holistic and pragmatic.

Although Systems Theory and cybernetics (often referred to as simple cybernetics or first-order cybernetics) are often used synonymously, as will be the case in this dissertation, a distinction is made by certain authors (Balle, 1994; Capra, 1997). For the sake of clarity, a brief discussion of the concept of cybernetics will follow.

CYBERNETICS/SIMPLE CYBERNETICS

According to Capra (1997) cybernetics developed independently of organismic biology and general systems theory. The patterns of organisation became the explicit focus of cybernetics, which was implicit in organismic biology and Gestalt psychology. It is a term coined by a mathematician in 1940, and refers to the "science of control and information feedback in systems" (Loos & Epstein, 1989, p.153).

According to Beer (1974), for some people cybernetics and General Systems Theory are co-extensive, while others regard each as a branch of the other. Both are, however, built on the same fundamental assumptions and therefore the two terms are often used synonymously. According to Balle (1994) the cybernetic feedback and information concepts were taken far beyond the field of technology, and were generalised in the biological and social realms. The systems framework had consistently been used in all those fields, albeit in a static way. While cybernetics had a predominant role to play in the development of technology, the systemic approach has been widely used in psychology and sociology.

According to Meyer et al. (1997) the term refers to the principles that regulate the dissemination of information or messages. Cybernetics

stresses relations and connections, and highlights the study of interactional, recursive patterns within and between systems.

Keeney (1983a) stresses that one has to enter a radically different world of descriptions in order to adopt a cybernetic view. In his view "cybernetics belongs to the science of pattern and organisation which is distinct from any material, things, force, and energy associated with classical science" (p.61).

According to Capra (1997) the goal of the first cyberneticists was to discover the neural mechanisms underlying mental phenomena and to express them in explicit mathematical language. Therefore, while the organismic biologists were concerned with the material side of the Cartesian split, the early cyberneticists focused on the mental side with the aim of creating an exact science of mind. Even though their approach was mechanistic, it involved a number of ideas which had an enormous influence on subsequent systemic conceptions of mental phenomena. According to (Capra, 1997), Gregory Bateson pioneered the application of systems thinking to family therapy, developed a cybernetic model of alcoholism, and co-authored the double-bind theory of schizophrenia. His most important contribution to science and philosophy may be the concept of mind, based on cybernetic principles. The outcome of this work was the understanding of the nature of mind as a systems phenomenon and it became the first successful attempt in science to overcome the Cartesian division of mind and body.

As will become clear in the following section, therapists working from a systems or cybernetic frame of reference perceive themselves to be acting upon an individual or family. A boundary is seen as existing between the observer and the observed, be it an individual or a family. Patterns of interrelationship within families are the focus of attention. Furthermore notions of family homeostasis are consistent with a first-order cybernetic perspective (Ingamells, 1993). Systems theory based on cybernetics was used to conceptualise the family therapy approach. It deals with interacting elements reacting to one another in a self-correcting way, which seemed to be the way in which family members behaved (Haley, 1963).

CYBERNETICS/SYSTEMS THINKING IN HUMAN SYSTEMS

According to Bogdan (1984) the appearance of the systems approach to psychology is characterised by the rejection of linear causal models which form the basis of conceptualisations such as intrapsychic and stimulus-response processes. It also rejects the medical model, which has traditionally viewed bad or mad behaviour as some kind of mental illness. Instead it proposes that such 'different or deviant' behaviour be viewed as a multidimensional phenomenon involving interdependent physical, psychological, and social aspects.

De Green (1982) proposes that systems concepts can be usefully applied to human systems. Bateson, Jackson, Haley, and Weakland (1956) did some work on applying the systemic approach to therapy. They characterised human problems as arising from confused communication patterns rather than from intrapsychic conflicts or inappropriately learned stimulus-response behaviours. From that time on, a wide range of therapeutic punctuations of the emerging systemic approach has been developed.

Minuchin, Rosman, and Baker (1978) explain accurately that when working within the systems paradigm, every part of a system is seen as organising and being organised by other parts. An individual's behaviour is simultaneously caused and causative. From this perspective, an attempt is made to understand the system in terms of observing what goes into the system and what comes out of it. In systems thinking or cybernetics the observer is placed outside of that which is being observed in the system.

A further concern of systems theory is the tendency of the system to move either toward or away from order. According to Keeney and Ross (1985) all the questions from this perspective are asked against the framework that understands reality as operating according to the principles of recursiveness and feedback/self-correction, which are the two basic elements of a cybernetic system.

For the sake of clarity, some of the important concepts of systems thinking will be discussed briefly.

Recursion: According to the assumption of recursiveness or reciprocal causality, events are seen in the context of mutual interaction and mutual influence. Therefore, instead of examining elements or individuals in isolation, their interaction becomes important as well as how each interacts with and influences the other (Becvar & Becvar, 1996). From a systems perspective an isolated cause/effect event is only a partial arc of a larger pattern of circularity.

Feedback: According to Capra (1997) the term 'feedback' "has come to mean the conveying of information about the outcome of any process or activity to its source" (p.56). Feedback refers to the aspect of recursion involving self-correction. The term, according to Becvar and Becvar (1996, p. 64) refers to "the process whereby information about past behaviours is fed back into the system in a circular manner." A distinction is made between positive and negative feedback at the level of cybernetics. In the family situation for example, negative feedback is used to maintain family functioning within acceptable limits by countering deviation from normal or expected behaviour. Positive feedback on the other hand promotes change in the family system by introducing new information or encouraging new behaviour. Positive feedback is essential to the family's ability to adapt to new situations (Keeney, 1982).

Feedback loops: Systems thinking takes into account the fact that if A causes or affects B, then in many ways B is going to affect A. This circular causality is what is called a feedback loop. The positive and negative feedback loops operate to maintain the dynamic equilibrium or homeostasis of the system (Balle, 1994). As previously noted, feedback processes are self-corrective mechanisms. This means that they indicate variations and

fluctuations, which serve to increase the probability of survival of the system. Both change and stability are important for the survival of a system. Positive feedback is regarded as an error-activated process in that it describes a process whereby information about a deviation from a previously established norm is fed back into the system and is responded to in such a manner that the difference is accepted. Therefore, system maintenance behaviour occurs in response to change. New behaviour in a system suggests that change may be necessary for the system to remain stable in a functional way. On the other hand, negative feedback processes indicate that fluctuations or disturbances are being opposed and a particular level of stability is being maintained (Becvar & Becvar, 1996).

Morphostasis/Morphogenesis: Morphostasis describes a system's tendency toward stability or a state of dynamic equilibrium. Morphogenesis, on the other hand, refers to the system enhancing behaviour that allows for growth, creativity, and change, all of which are characteristic of a functional system. In a well functioning system, both are required. According to Keeney and Ross (1985) they represent two sides of the same coin and cannot be separated; therefore, "cybernetics proposes that change cannot be found without a roof of stability over its head. Similarly, stability will always be rooted to underlying processes of change" (p. 70).

Hoffman (1981) believed that these cybernetic concepts could be applied to human systems and therefore to family therapy, and explained it as follows: Social groups, which include families, are regarded as systems that are governed by rules of interaction. When there is a deviation from these rules it is counteracted by negative feedback in the form of verbal or non-verbal communication. Thereby the previous pattern of interaction is re-established. As a system tends to maintain a steady state or a state of homeostasis, consistent patterns of interactions are maintained. Changes in a pattern of interaction will occur when a deviation is subjected to positive

feedback. This can be seen as a communication, whether verbal or non-verbal, that escalates deviation.

A NEED FOR FURTHER CHANGE

Although the early system thinkers made a shift away from a Newtonian Cartesian conceptualisation of reality, Newtonian notions were still present in their thinking.

The first systemic thinkers introduced the concept of the interrelatedness of phenomena and circular reasoning to the study of human behaviour. Cybernetic thinking, however, still had its limitations in that it was presumed that the observer could be separated from the system being observed, and could control the system through the regulation of feedback (Keeney, 1983a). Similar to classical science where the aim was to control nature, power and control remained important elements of therapy (Hoffman, 1981; Watzlawick, Weakland & Fish, 1974).

Problem behaviour was also seen as being maintained by a particular pattern of interaction within a human system that was established over time. The focus of intervention was on changing these sequences of behaviour or interaction. This was done by either changing the way members of a family behaved towards each other (Munichin & Fishman, 1981) or by using a strategy in order to disrupt feedback loops, such as prescribing a symptom (Haley, 1963).

From this perspective for example, the symptomatic behaviour of CFS can be regarded as providing the cybernetic system with an opportunity to communicate that a particular epistemological premise is distorted, erroneous, or ineffective. CFS thus leads its 'victim' or sufferer to cybernetic self-correction. According to Keeney (1983a) the correction of this occurs through unconscious processes, unconscious ones being respect for the ecology of the symptom, and conscious ones through higher order processes that need to include the therapist as well. Furthermore Keeney (1979) explains that the cybernetic network representing a family system (not individual within a family, but rather patterns of relationship) includes

governing loops or circuits that keep the system in check. These governing loops are regarded as helping to maintain the family stability. This refers to what Hoffman (1981) calls the homeostatic cycle. According to this the therapist working with CFS would attempt to disrupt the homeostatic cycle which serves to prevent a necessary change, and hence the family can be seen as experiencing a problem.

Accordingly, from a cybernetic perspective, CFS can be viewed as communications about the system. Behaviour associated with the condition is viewed as a striving towards a higher order or self correction. The goal of therapy is to investigate the communicative function of symptoms within an ecological relationship system (for more details refer to p. 106).

According to Dell (1982b) critics of early systems thinking felt that the concept of homeostasis was inadequate to explain the dynamic, ever-changing nature of human systems. The cause of the problem had merely shifted from the individual to the system, and the system had become reified. Therefore, evidence of linear reasoning was still to be found (Hoffman, 1985).

Dell (1982b, 1985) criticised the concept of homeostasis in human systems. In systems thinking homeostasis is incorrectly viewed as an aspect or part of the organisation of the system. It is incorrect because, per definition, all the components are interconnected and it is an epistemological error to speak of one aspect of the system as separate from, and causally acting upon other parts of the system. Therefore to claim that homeostasis regulates that system is to fall into the error of dualistic, causal thinking. Furthermore, homeostasis can be seen as a metaphor for describing the functioning of a system and therefore not something concrete, but rather a concept about a way of behaving.

Therefore, to speak of a homeostatic mechanism is dualistic and is a reification of a conceptual metaphor. To speak of a family member's behaviour as being part of the homeostatic cycle or part of the homeostatic mechanism is to treat a meta-level description as real or concrete. In the

same vein Bogdan (1984) mentions that reification of human systems keeps showing up in terms such as 'structure' and 'rules', used by family therapists as if they did not refer to patterns of relationship, but rather to entities with causal attributes.

Dell (1982b) furthermore argues that the concept of purpose has been very problematic for accounts of human behaviour in psychology. Attempts to retain purpose within a systemic perspective, while at the same time avoiding systemic animism, always leads to causal dualisms (e.g., she is behaving badly in order to save her parents from marital conflict in order to protect the family). Thus a component is described as determining or regulating the functioning of the system. By claiming that systems behaviour emerges from mutual causal processes, the proposed interpretations of the functioning become impossible.

Dell (1982a) opposes the idea that the environment could cause a system to change. This is the error that underlies almost all Western thinking about causality. He explains this as follows: The environment can never cause a system to do something it can't already do and every system can only behave in accordance with its own organisation. Therefore a system neither resists nor is controlled by such stimuli, but rather just goes on being itself.

Furthermore, the systemic thinkers acted as though they could discover the truth about systems and control and change them. According to the second wave of systemic thinking (the assumptions of which will be discussed in more detail later on) such objectivity is not possible, as the observer cannot be separated from that which he/she is observing. Von Foerster (1973a) called this view, where the observer was regarded as objective, first-order cybernetics or the cybernetics of observed systems.

According to Keeney and Ross (1985) the principle of feedback, during which output influences input in such a way as to change future output, was the primary interest of theorists and scientists during the 1970s. He calls this the "black box" view of systems and argues that it failed to address the

influence of the observer and assumed a dichotomy between the observer and the observed.

A further criticism was based on the new idea that systems cannot be controlled, as the patterns of interactions of systems are determined by the system's structure and organisation and therefore not by outside influences (Colapinto, 1985). This will be discussed in the following section.

In sum, even though family therapy moved away from, and rejected Newtonian thinking, it was difficult to move away from some of the underlying principles of Western thinking. Among others these include the tendency to be able to observe a system as separate from oneself, being able to act upon and change the individual or family, and also to speak of abstract concepts as though they were concrete entities such as boundaries, rules, family structure etc. All this implies a reification process in family therapy.

During the late 1970's and 80's, there was a change in the focus of systems thinking (Hoffman, 1985). A switch to a new systems thinking brought with it a more comprehensive understanding of phenomena. This new way of thinking and its related concepts will be the topic of the following section.

SECOND-ORDER CYBERNETICS

According to Keeney (1983a) the second wave of systemic thinking has been termed *second-order cybernetics*. According to Hoffman (1990a), a number of people in the field of family therapy became interested in constructivism during the 1980's. During that time, reports of the work of biologist Humberto Maturana, cognitive scientist Francisco Varela, cybernetician Heinz von Foerster, and linguist Ernst von Glasersfeld began to interest family therapists. Their work formed the foundation of second-order or ecosystemic thinking, as we know it today. Family therapists such as the Milan group had a growing interest in what was called "second-order cybernetics" (Keeney 1982). These ideas have been expanded in the continuing exploration of the cybernetic revolution. In applying these ideas

in understanding and treating families, Boscolo and Cecchin (Hoffman, 1985) made a clear distinction between the earlier models of family therapy based on early systems thinking and what can now be called a second-order cybernetic systems approach.

The major epistemological significance of second-order cybernetics is its move away from the notion of objectivity. The observer is now seen as part of that which is being observed (Watzlawick, 1984). Von Foerster (1973b) also referred to this second-order of cybernetic thinking as the cybernetics of observing systems because the observer was no longer excluded from the observed system. A second-order cybernetic therapy implies that the therapist views himself or herself not as standing apart from and acting upon a system but rather as positioned in potentially useful ways within the system (Real, 1990).

Hoffman (1985) points out that the observations that are made of a system are not objective, but are coloured by the observer's behaviour and how he or she observes. From her point of view, this implies a higher order of observation, which is the observation of the observation. Cybernetics provided us with notions such as homeostasis and adaptation, while second-order cybernetics or cybernetics of cybernetics includes concepts such as self-reference, autonomy, and more complex units of mind (Keeney, 1983b).

Second-order cybernetics places the observer in that which is being observed, therefore all description must be self-referential. Description is assumed very often to reveal more about the observer than about the system being observed (Govan, 1987).

According to Keeney (1983a) the implication is that 'objectivity' can be seen as erroneous since it assumes a separation between the observer and the observed. It becomes essential and ethical to recognise the necessary connection between the observer and the observed, which leads to examining how the observer participates in the observed instead of asking whether one is 'objective' or 'subjective'.

Von Foerster (Keeney, 1983a) points out that having resolved that every description of the universe implies a describer, the challenge has become to describe the “describer”; to develop a theory of the observer. Therefore the statement of Boscolo, Cecchin, Hoffman, and Penn (1987), that according to this perspective, the treatment unit is regarded as comprising both observer and observed packaged together in an inseparable bundle, has significance for therapy. According to Fourie (1996a) the recursive connections between systems include the connection between the observer and the observed system.

Fourie (1996a) states that the observer as part of the observed is a fundamental characteristic of second-order cybernetics, but definitely not the only feature. In second-order cybernetics a shift is made away from a focus on interaction within and between systems, towards a consideration of systems as linguistically defined autonomous wholes.

According to Fourie (1996b) the change from first- to second-order cybernetics has changed the whole view of systems functioning as a result of the culmination of a number of influences. These influences include the work of Maturana and Varela; Bateson’s concept of “an ecology of ideas”; and the development of constructivism. Hoffman (1985) also identifies important ideas for the development of a second-order approach to therapy. These include von Foerster’s (1973b) idea of the “observing system”; concepts such as autopoiesis, informational closure, and conversational domains based on Maturana and Varela’s work; and the idea of “fit” from the constructivist position of von Glasersfeld (1984). She emphasises that Bateson’s focus on circular organisation, which he has equated with mental process, is related to all the concepts she mentions above. These influences and various concepts of second-order cybernetics will be discussed.

In the discussions that follow an attempt will be made to address the above-mentioned areas and their related concepts. However, the themes to be discussed in the following sections overlap one another and are interwoven with each other. Even though everything is presented as a sequence, the

succession of the various themes should not be understood as a logically necessary order but rather as necessitated by the nature of language. The discussion will commence with the influence of Maturana and Varela, which includes the ideas of structure determinedness, informational closure, autopoiesis, and structural coupling.

STRUCTURE DETERMINEDNESS AND RELATED CONCEPTS

Structure determinedness

The concept of Structure Determinedness developed as a result of the work of Maturana and Varela (1980). According to them the organisation and structure of a system determines how a system will respond. This idea developed from research undertaken by Maturana into the vision of frogs. According to Simon (1985) it was discovered that a visual image recorded in a frog's neurological structures differed from that of the object itself. The implication of this was the idea that the system and not the observed object is responsible for determining vision. This and other experiments led to the conclusion that perception was not determined by the external environment but rather by the arrangement of the subject's own nervous system (Keeney, 1983b).

These discoveries resulted in Maturana rejecting the input/output model of perception. Simon (1985, p. 34) states that *"instead of perception being understood on the model of a photographic camera conveying information to a receptor, the shift was made to see the organism as an informationally closed system which never "takes in" information from the outside in a direct way. Rather, what it perceives is always determined by the nature of its own structure"*.

Accordingly, it is the structure of the system, and not the environment, that determines what the system can and cannot do. This concept rejects the assumption of instructive interaction, because the environment is a perturbing agent which only provides the context for what the system does (Becvar & Becvar, 1996). In this regard, Efran and Lukens (1985, p.25) relevantly state that "people do what they do because of how they are put together, and they do it in connection with (but not on direct instruction from)

the medium in which they exist, which includes other people.” Based on these findings, Maturana (1978, p. 34) came to the conclusion that living systems were “structure determined” and therefore autonomous.

A system is autonomous if the relations that characterise it as a unity involve only the system itself, and not other systems. “Autonomy” refers to the identity of a system, which is always being conserved so as to maintain the system’s viability (Keeney, 1982). According to Maturana (1981), autonomy can be viewed as a central characteristic of living systems. He emphasises that as autonomy is not necessarily only a feature exclusive to living systems, any attempt to explain the organisation of living systems must show how they are autonomous and how all the phenomena proper to them arise as a result of their autonomy. This concept relates to informational closure.

Informational closure

Dell (1985) emphasises that living systems are informationally and organisationally closed. This means that a system’s reaction to outside influences is determined by its own structure and not exclusively by the outside influence. Living systems therefore recursively feed back upon themselves and since they can only be described through reference to themselves, they are considered to be informationally and organisationally closed.

An autonomous, recursively organised or closed system is not influenced from outside. When one interacts with an autonomous system, one affects the whole organisation of the system and not only one part of it. Therefore, a person’s interaction with a system represents “perturbations” rather than “inputs” and therefore one’s behaviour cannot be instructive. The whole system may or may not compensate in response to the perturbation. If a system compensates, it will change its structure but its organisation or identity (e.g. as a family) will remain invariant, otherwise it will cease to function as a system (Keeney, 1982). Second-order cybernetic

epistemology emphasises recursion and self-reference while issues of power and control have no place (Anderson & Goolishian, 1988).

According to the second-order perspective, behaviour is the product of the interactions among the components of the system, which is the function of the system's internal structure, serving to conserve the organisation of the system (Griffith, Griffith & Slovik, 1990). A system's highest order of recursion or feedback control regulates and maintains its autonomy (Keeney, 1982). In speaking about autonomy therefore, first-order terms such as "homeostasis", "feedback", and "change" are replaced with notions such as feedback of feedback, homeostasis of homeostasis, and change of change.

According to Capra (1997), Maturana drew two important conclusions based on his investigations of colour perception in which he discovered that the nervous system operates as a closed network of interactions. Every change in the interactive relations between certain components always results in a change of the interactive relations of the same or other components.

In the first instance he hypothesised that the 'circular organisation' of the nervous system is the basic organisation of all living systems. Capra (1997, p. 96) provides the following quote: "Living systems . . . [are] organised in a closed causal circular process that allows for evolutionary change in the way that circularity is maintained, but not for the loss of the circularity itself". As all changes in a system take place within this basic circularity, the components that specify the circular organisation must also be maintained by it. Based on this, the conclusion was made that this network pattern, in which the function of each component was to help and transform other components while maintaining the overall circularity of the network, is the basic 'organisation of the living'.

Secondly, Maturana (Capra, 1997) concluded that the nervous system is not only self-organising, but also continually self-referring. This implies that perception cannot be viewed as the representation of external reality, but

must rather be understood as the continual creation of new relationships within the neural networks. This means that perception and cognition do not represent an external reality but rather specify one through the nervous system's process of circular organisation.

Consequently it was postulated that the process of circular organisation itself is identical to the process of cognition: "Living systems are cognitive systems, and living as a process is a process of cognition" (Capra, 1997, p. 97).

On realising that the recursive organisation of a system characterised its autonomy, Maturana (1978) termed the organisation that defines these systems as unities in the space of their components, the autopoietic organisation. This brings us to autopoiesis.

Autopoiesis

According to Andrew (1979, p. 359), autopoiesis can be defined as: "the capacity that living systems have to develop and maintain their own organisation, the organisation which is developed and maintained being identical with that which performs development and maintenance". For Hoffman (1985), autopoiesis describes "a biological unit not as a material entity exchanging matter and energy with its environment (which it also is) but as an information system which is operationally closed and folds back upon itself" (p.385).

Capra (1997) explains that "auto" means 'self' and refers to the autonomy of self-organising systems. The term "poiesis" shares the same Greek root as the word 'poetry' and means 'making'. Therefore the word "autopoiesis" means 'self-making.'

In an attempt to understand the organisation of the living, Maturana and Varela (Hoffman, 1985) came to the conclusion that living systems are like homeostats where the organisation of the entity is itself the critical variable that has to remain constant. The components may change over and over

again, but the identity of the unit (its organisation) remains the same. They termed this process autopoiesis.

Autopoiesis refers to the way in which the parts of a system relate, rather than the nature of the parts, that generates a unity with particular properties by which it is defined as a unity (Becvar & Becvar, 1996).

Capra (1997) explains that the organisation of a living system is the set of relations between its components that characterises the system as belonging to a particular class (e.g. a sunflower, a human brain, a cat etc.). Accordingly, the description of that organisation is an abstract description of relationships and does not identify the components. Autopoiesis is regarded as a general pattern of organisation, common to all living systems. On the other hand, the structure of a system includes the actual components, with all their properties, together with the actual relations that concretely realise a system as a particular member of the class of composite unities to which it belongs by its organisation.

Maturana (1981) argues that, something has to remain the same, while some aspect of the system changes, so that the system does not disappear. If the relations between the components of a system, which define it as a unity (its organisation) change, the system becomes something else and ceases to exist. In contrast, while the organisation of the system remains invariant, the structure of the system changes continually. Because the structure of the system does not determine the system's identity but its type, all changes that take place must occur through the system's structure. Structural changes occur in order to maintain the organisation of the system, and thus the identity of the system, in an ever-changing environment. The structures are limited to those changes that can take place without changing the organisation.

According to Becvar and Becvar (1996) the product of a system is always itself. Therefore the being and doing of an autopoietic unity are inseparable and this is its specific mode of organisation. They provide the example of a boundary being necessary to distinguish a family from the larger context. At

the same time the relationships and dynamics of interactions between members, which specify the unity called family, are necessary in order to distinguish the boundary. The family doesn't cause the boundary as the boundary does not cause the family. Instead, " each requires the other and both are part of the unitary process called autopoiesis" (p.78)..

Kenny (1989a) argues that, from a second-order cybernetic perspective, there is no such thing as positive feedback, as it looks at deviation or change in isolation rather than in the context of the larger autonomous system. This is the case because in that larger context the system operates to maintain itself according to the concept of autopoiesis. To talk about negative feedback on the other hand makes more sense as it refers to system maintenance behaviour. Keeney (Becvar & Becvar, 1996) states that that a therapist can only talk about positive and negative feedback as long as they are recognised as complementary concepts. If not, a positive feedback punctuation is a "partial arc or sequence of a more encompassing negative feedback process" (p. 72). Therefore a therapist that acknowledges personal membership in the context in which a family exists and problems are defined, he or she is aware that what may look like instability at one level is part of stability at a higher order of recursion and are thus aware of the later ecological balance. (See the discussion of Double Descriptions and Cybernetic Complementarities further on in this chapter) A therapist working with CFS from this perspective will then not see him or herself as separate from the context in which the problem occurs and treat it as residing in the minds of the individuals and therefore treat the patients. In doing so he or she would be attempting to stop the behaviours associated with CFS from happening and in that way will restrain the system from evolving in an idiosyncratic way that is true to the nature of autopoietic systems.

According to Kenny (1989a), only two types of structural change are possible. Those in which the organisation of the system is maintained (changes in state) and those in which the organisation of the system is destroyed. According to Kenny (1989a) changes occur in the system when

differences are perceived in the environment that no longer fit an existing meaning system. These differences will trigger an adjustment to the system, allowing the system to adapt to the environment. Structural coupling is necessary in order for change to occur in a system.

Structural coupling

From a second-order view, two systems are considered unable to influence one another directly, but in the process of interacting with each other they are considered to couple structurally, forming a larger self-regulating system in the process (Fourie 1996a).

This is required for the survival of a system. According to Becvar and Becvar (1996) the degree to which systems are able to co-exist is defined by the concept of structural coupling. This implies that organisms survive by fitting with one another and with other aspects of their context, and will die if their fit is insufficient. As a system is structure determined, it is always correct because it does only what its structure allows and does what it has to do to survive.

According to Dell (1985, p. 13) "structural coupling is the building block of all human and animal interactional systems . . . as long as it survives, a structurally plastic system will automatically and rapidly become richly coupled to its environment. This coupling is a necessary consequence of their interactions and is greater the more interactions take place". To clarify, the structural plasticity of a system refers to the capacity of the systems to change their structures when perturbed by one another (Maturana & Varela, 1980).

Becvar and Becvar (1996) remind us that even if systems couple structurally, they remain organisationally closed from one another and therefore their interactions continue to be determined by their individual structures. Because of this Fourie (1996c) argues that systems may be perturbed by outside influences but their reactions to those perturbations are determined by their own structures and not solely by the nature of the

perturbation. This implies that as the system is autonomous and recursively organised, one system cannot instruct another or influence it directly.

In the same vein, Maturana (1978) explains that the system is closed to information. The values of a second system remain outside the first and people outside the given system cannot change the system in a predetermined way. By means of the process of structural coupling the environment in which a system exists can interact with the wholeness of the system and one system can indirectly bring about change in another system (Dell, 1985).

Fourie (1996c) explains that in human systems structural coupling can only take place through the exchange of ideas. He explains that the words, gestures, etc. produced by the one system are given meaning by the other system. This meaning is generated internally by the second system. This implies that what the perceiving system thinks it perceived may not be what the first system was trying to communicate. Thus in structural coupling, living systems autonomously attribute certain meanings to each other's actions. These meanings, however, do not come from outside but are determined by the structure of the perceiving system. It is therefore important to remember that there is no causative relationship between systems and that changes in either system is dependent on the structure of the particular system itself.

According to Varela and Johnson (Becvar & Becvar, 1996), change is a process of structural transformation in the context of organisational invariance. We interact with systems in different ways, which can be seen as a perturbation of the stability of the system. The system will either compensate for this perturbation or will not, in which case the system will disintegrate. If it does compensate, we sense a stability in the system, for that interaction. The life of a system is therefore a process of non-purposeful drift within a medium. Even though there may be continual perturbation/compensation interactions, both internally and externally, and therefore constant change, such interactions are not predetermined and will continue until the disintegration of the system.

The outcome of structural coupling is a shared constructed reality or a shared language. Maturana and Varela (1980, p.207) call this consensual domain the “linguistic domain”. They emphasise that the dynamics of the structural couplings that give rise to a linguistic domain are purposeless and have no meaning until an observer makes a semantic description, claiming that the different constituent behaviours of the consensual linguistic domain arise as a result of the co-ontogenic behaviour of the constituent systems. Only then does meaning occur. According to Simon (1985) it represents a constructed reality, which includes the relationship of one system to another system. He explains that each autonomous system provides a medium for the other system, resulting in a co-evolution of realities. As structural coupling always occurs while still maintaining each system’s identity, it can be said that a person exercises his or her autonomy in the consensual domain.

In conclusion, Dell (1985) summarises six major implications of a structurally determined autonomous world. This has implications for an ecosystemic approach to CFS and this will be highlighted in a later chapter. For now it is sufficient briefly to mention these six implications.

Objective knowledge is impossible. Knowledge is a function of the interaction between our structure-determined selves and the world.

Causality does not exist. “Causality” is the function of the semantic descriptions of the distinctions drawn by the observer.

Control is impossible.

Autopoietic (structure determined) systems don’t make mistakes. They act in accordance with their structure.

Purposes are the construction of the observer. Structure determined systems function solely in accordance with their structure and this functioning is, in itself, purposeless.

Existence is contingent upon structural coupling. Anything which is not structurally coupled to its world cannot survive.

As can be seen from all the above, a second-order approach has major implications for our approach to, and understanding of therapy as well as of the problems that we encounter and the way in which we address them.

Another important and related idea that had a major influence on the development of second-order cybernetics, and as such, family therapy, is the idea of the observing system promoted by Heinz von Foerster.

THE OBSERVING SYSTEM

Heinz von Foerster (1976) emphasised the importance of the observer and contributed the term "observing systems". He described the new role of the participant observer as follows: "a shift from causal uni-directional to mutualistic systemic thinking, from a pre-occupation with the properties of the observed to the properties of the observer" (p.1-2).

The neurophysiological experimentation of von Foerster (1973) appears to mark the origin of the idea of the *observing system*. An examination of the functioning of neurological structures also offered further support for structure determinism.

He argues that learning is not a mapping of outside objects into some location of the brain, but rather a way that the organism computes a stable reality. His work indicated that neuronal networks did not directly encode small pictures of objects, but rather that only the outlines and forms were registered. According to his research, neural nets do not encode pictures of scenes or objects but merely register edges or sharp transitions, not only at sensorial surfaces but at any level within the brain (Hoffman, 1985).

Von Foerster (1973, p. 46) defines reality as "a consistent frame of reference for at least two observers". Regarding the idea (as will be explained in more detail later on) that the distinctions and punctuations the

observer makes are determined by the epistemology of the observer (refer to Chapter 1), he describes the inclusion of the observer in any distinction and punctuation as follows: "It is at this point where we mature from cybernetics (where the observer enters the system only by stipulating its purpose) to cybernetics of cybernetics (where the observer enters the system by stipulating his own purpose)" (p. 31).

According to Hoffman (1985) this research provides support to Bateson's definition of information as news of difference, since it implies that all the visuals of our minds are formed from these totally contentless blocks. She insists that one could argue that the brain builds up invariances which are then seen as solid objects and ascribed to an objectively experienced world out there. Therefore it can be said that the brain makes assumptions about the world out there and not direct representations. In human organisms a view of reality is seen as the product of neurological structures and memories of past experiences expressed in a shared language.

Maturana and Varela (1980) appear to have held a similar view when they stated that: "anything said is said by an observer" (p. 8). People's views of the world are not products of encountering and finding out about "real" events and objects of the environment, but a product of the cognitive processes of the mind. The notion of objectivity has therefore been rejected, and one can only speak of objectivity in parentheses.

As mentioned earlier, Maturana called his system of shared realities a consensual domain (Simon, 1985). This way of observing is known as radical constructivism. The emphasis is placed on the responsibility of the observer for distinctions he or she draws and the punctuations he or she makes. Maturana (1978, p. 377) argues, "things only exist as a bubble of human actions floating on nothing. Everything is cognitive . . . Everything is human responsibility".

All this has implications for how we know our world. A person's view of reality or what he or she knows about his or her world is determined by his or her epistemology (refer to Chapter 2). According to Keeney and Ross

(1985) the most basic act of epistemology is the creation of difference. We are only able to know our world by distinguishing one pattern from another.

Bateson (1979) and Von Foerster (1973) argue that the organism perceives an experience as different, and places a boundary between it and the background only in relation to other experiences, whether past or present. As there are an infinite number of associations that can be made, a distinction is construed from a variety of possibilities. According to Spencer-Brown (Keeney & Ross, 1985), to draw a distinction is the starting point for any action, decision, perception, thought, theory, epistemology, etc.

Furthermore, Bateson (1979) argues that knowledge is determined by difference and the punctuations made by the observer. According to Maturana and Varela (1980) a reality is generated through the making of distinctions. Bateson (1979) elaborates on this when he explains that when an event outside an organism becomes noticeable and triggers a reaction in the organism's receptors so that a sensation is felt, a distinction is made. The meanings generated from internal neurological structures and from previously constructed realities, are attached to these sensations. Making a distinction establishes a system of relationships. An existing distinction becomes the means by which other experiences distinguished in the environment, are interpreted.

Keeney and Ross (1985) reminds us that it is important to take note of who draws distinctions. He states that it is obvious that it is the observer. This, however, remains profound because an observer draws a distinction for another observer who may be him or herself. Therefore, he argues that knowing a world always implies a social context of at least two observers. He argues that the reason why an observer draws a distinction is because of the fact that it is how he or she observes. "An observer observes by drawing distinctions" (p.24). This implies that what a person perceives always follows from an act of drawing a distinction. What is observed can be described. Interestingly, descriptions are in themselves the drawing of distinctions upon what is observed. As we draw distinctions in order to observe and subsequently draw distinctions in order to describe that which

is observed, a recursion thus takes place. According to Keeney (1983a, p.24) "the recursive operation of drawing distinctions upon distinctions point toward the world of cybernetics where action and perception, prescription and description, and construction and representation are intertwined".

To conclude, there is a major shift from previous formulations of problems or phenomena where the emphasis is on discovering the truth about the problem. The only reality open to scrutiny by the observer is that which he or she has constructed and shares with other members who hold comparable ideas (Maturana, 1978).

These assumptions imply a fundamental shift from objectivity and control to the responsibility of the observer for his or her own distinctions and punctuations. This implies that people are unable to ever discover the truth. Even though their worldview may approximate or even match the reality 'out there', they will never be able to know or discover how well it does so (Simon, 1985).

These ideas are consistent with, and overlap radical constructivism, and have implications for modern constructivism.

CONSTRUCTIVISM

Fourie (1996b) identifies constructivism as the third influence in the development of second-order cybernetics. Although the work of von Glasersfeld (1984) will be emphasised, other authors, such as Maturana (1978), Varela (1979) and von Foerster (1973b) made important contributions to constructivism and second-order cybernetics. Like von Glasersfeld, these authors held the opinion that the biological and neurological structure of a system determines knowledge.

According to Watzlawick (1984), constructivism in its pure, radical sense is incompatible with traditional thinking. Even though various philosophical, scientific, social, or individual world images seem different, they still have one thing in common, namely, the basic assumption that a real reality exists "out there" and that certain theories, ideologies, or personal convictions

reflect it (match it) more correctly than others do. Von Glasersfeld (1984), a radical constructivist, explains that constructivism contends that man alone is responsible for his or her thinking, his or her knowledge, and therefore also for what he or she does.

Von Glasersfeld (1984) is of the opinion that we do not discover the world-out-there, but rather that we *invent* it. According to him knowledge reflects the coupling between two organisms and environments that ensures their viability. It becomes less important that our constructs match *with* items in the environment, than that they *fit* sufficiently to ensure survival. Radical constructivism views the relationship between knowledge and reality as an adaptation in a functional sense as opposed to the traditional view of a more or less picture-like correspondence or match.

Von Glasersfeld explains that the relationship between viable cognitive structure and the experiential world of the thinking subject *fits* because human intention has formed them to attain the ends they happen to attain, which are the explanation, prediction, or control of specific experiences. This implies that the structure of behaviour of living organisms can never serve as a basis for the conclusions concerning an "objective" world, which is a world prior to experience. Knowledge reflects an ordering and organisation of a world constituted by our experience.

In this regard, Hoffman (1990a) indicates that research done into neural nets by von Foerster and the experiments done by Maturana on the colour vision of frogs, had indicated that the brain does not process images of the world the way a camera does, but rather computes it like music on a compact disc. These authors argued that it is therefore impossible to know what the image was "really like" before it was transmuted to the brain. They concluded that we actively compute our vision of the world, which may not exist without us.

Like von Glasersfeld (1984) these authors insist that the view people have of the world is not a product of encountering and finding out about "real" events and objects in the environment, but rather a product of the cognitive

processes of the mind. Through this, the idea that objectivity is possible and that truth can be discovered, became discounted. It cannot be determined how objective such a picture is, because if knowledge is regarded as a description of reality, criteria are needed to enable us to judge whether our descriptions or images of reality are right or wrong. This is not possible because our perceptions can only be checked by means of other perceptions, but never with the object as it might be before we perceive it. As already mentioned, this implies that people can never discover the truth. Although their worldview may approximate or even match the reality "out there", they will never discover how well it does so (Simon, 1985).

For Von Glasersfeld (1984) the world that we experience is constructed by ourselves, and therefore it seems relatively stable. The world that is constructed, is an experiential world that consists of experiences and makes no claim about "truth" in the sense of correspondence with an ontological reality. This implies that experience as well as all objects of experience, are under all circumstances the result of our ways and means of experiencing and are necessarily constructed and determined by space and other categories derived from these. Thus knowledge (that which is known) is not the product of passive receiving, but originates as the product of an active subject's activity. Although experience is determined by the goals we have chosen, we always tend to ascribe obstacles we come across to a mythical reality rather than to the way in which we operate. "What we experience, cognise, and come to know is necessarily built up of our own building blocks and can be explained in no other way than in terms of our ways and means of building" (von Glasersfeld, 1984, p.37).

Other authors such as von Foerster (1973a) and Varela (1979) promote related ideas. They regard past experiences in humans as important in their view of reality when they argue that a view of reality in human organisms may be seen as the end product of neurological structures and memories of past experiences expressed in a shared language.

Also, according to Bateson (1979) as well as Maturana and Varela (1980), reality is generated through the making of distinctions. This happens when the organism notices an outside event, which triggers a reaction in the organism's receptors so that a sensation is felt. Meanings generated from previously constructed realities and from internal neurological structures are attached to these sensations. The making of a distinction establishes a system of relationships.

Von Foerster (1973a) adds that the organism can only perceive an experience as different. It is able to place it between it and the background in relation to other experiences and happenings.

The distinctions in language made by an observer bring forth a cognitive domain. Varela (1979, in Griffith, et al., 1990) said: "A distinction splits the world into two parts, 'that' and 'this,' or 'environment' and 'system,' or 'us' and 'them,' etc." (p.14). Griffith et al. (1990) explain that cognitive domains that are brought forth by such distinctions in language are usually experienced by the observer as realities that are independent of one's cognitive activity or experience of the world. One such distinction is the attribution of human behaviour to mental or physiological causes or to consider "mind" synonymous with "brain" and to speak of the brain as causing the body to behave in certain ways. Based on the belief that there can be as many "realities" as the observer can create distinctions with which to experience the world, the above can be but two of many possible ways to describe the world.

According to radical constructivism, knowing is no longer understood as the search for an iconic representation of ontological reality, but rather as a search for fitting ways of behaving and thinking. Knowledge is seen as something build up by the organism in an attempt to order the amorphous flow of experience by establishing repeatable experiences and relatively reliable relations between them. As the possibilities of constructing such an order are determined and perceptually constrained by the preceding steps in the construction, the "real" world manifests itself exclusively there where our constructions break down. As we are only able to describe and explain

these breakdowns in the very concepts used to build the failing structure, this process can never provide a picture of a world which we could hold responsible for their failure.

Hoffman (1985) believes that von Glasersfeld's constructivist model with its emphasis on the collective premises that underlie behaviours, makes it possible to abandon what she calls the expert-dummy model, as well as the idea of diagnosis. This involves a shift from the pre-occupation with finding a location and a cause in a some out-there unit that in itself contributes to the problem, to a concern with the meanings that are attached to the problem.

Keeney (1983b) warns that a pre-occupation with the observer and his or her assumptions and characteristics could also lead to linear-dualistic conceptualisation of the relationship of the observer with the observed.

Constructivism, as opposed to radical constructivism, maintains that that which is observed in living systems, is partly constructed by the observer and partly by the observed (Simon, 1985). According to Maturana (Meyer et al., 1997), we as humans construct our own reality by means of the eyes with which we see it, and which is a filtered reality. According to him, five members of the same family do not have five different views of that family, but that five different families are actually created, based on the five members' completely different sets of meanings. There does not have to be a consensus about the "realities" that develop among the members of a system. When there is consensus about an observation, Maturana maintains that this occurs because a consensual domain in language has come into being among the observers, and not because the phenomenon about which they have agreed has an intrinsic existence independent of its observation.

The construction of 'reality' or meaning is made in language by the observer to him/herself internally, and externally, in communication with others (Efran et al., 1985). Constructivism implies that all knowledge is the result of our own constructing, ordering, inventing, languaging, constituting, etc.

processes, and therefore not the result of our discovery of how the world really is (Hoffman, 1990b).

Internally the observer has to make distinctions between that which is observed and that which is known. This involves personal constructs (Fourie 1996b). The brain generates ideas about objects. These ideas are coloured by the perceiver's existing attributions of meaning and idiosyncratic ways of experiencing (Von Glasersfeld, 1984).

Fourie (1996b) mentions that constructivism limits itself in its claim that all "realities" are constructed. The problem is that in doing so, constructivists make a realist claim. He warns that constructivists should keep in mind that their epistemology is as much of a construction as they claim realism to be.

The concept of coherence is also closely related to constructivism and will now be discussed.

COHERENCE OF A SYSTEM

Keeney (1983b) makes use of the term "coherence" to describe the relationship between language, behaviour and a surviving central theme in a constructed reality.

Dell (1982a) proposes that the concept of coherence replace that of homeostasis in second-order therapy. The concept of coherence is seen as inseparable from the second-order epistemology in which it is embedded. Furthermore, this concept relates closely to constructivism as well as to the ideas of cybernetic complementarities and double description, which will be discussed in the next section.

The term implies a coherent interdependence in functioning whereby all the aspects of the system fit together. Dell (1982b) explains that every behaviour is not an independent atom of an individual's functioning but rather is embedded in his or her systemic coherence. Not only do all behaviours issue from the coherence, but they recursively affect the coherence.

In this way behaviour and language are regarded as interdependent. Action is taken in accordance with and in order to verify that reality. The behaviour in turn recursively influences this reality.

Dell (1982a) explains that if an individual repeatedly exhibits a particular behaviour, or he or she is repeatedly subjected to a particular input from the environment, his or her coherence will recursively alter so that it becomes more coherent with the behaviour or input in question. If a man, for example, continues to exhibit fatigue and associated passiveness, his physique as well as his physiology will become coherent with his behaviour. Furthermore, even his social and daily life will become coherent with his 'tiredness'. Thus "fatigued coherence" has enormous interpersonal consequences that will recursively feed back upon the individual and his coherence. Therefore there is a co-evolution of the individual and the coherence of the family network and other social systems to which he belongs. The co-evolving coherence of an individual and of the larger system is a complementarity that can neither be separated into its components nor reduced to one or the other (refer to autopoiesis and informational closure). According to Sluzki (1983), the outcome of such a consensual domain is co-ordinated action patterns where people behave in a consistent and expected manner towards each other and in accordance with their shared language.

Dell (1982b) addresses transformations of human systems in terms of what the nature of discontinuous change of coherence is, as well as what second-order, discontinuous change of coherence is. Disease states as well as the return to a state of health, may be seen as discontinuous changes for an observer, but not for the physiological coherence of the organism. A genuine discontinuous change in the physiological coherence of an organism would constitute death. In the same way personality change is not an actual transformation.

Behaviour begins at birth with the reflexes and early schemata that come to evolve into the full complexity of adulthood. These can however, never go beyond the bounds of the species' coherence. Thus, breaking this

coherence lies in death. Therefore any apparent discontinuity would only exist from the observer's point of view and would not be an actual transformation or discontinuous change of the behavioural coherence.

Transformations do, however, occur in multi-individual interactional systems. Disruption of an interactional system will cause "death" of that system, but there will be a knitting together that forms a new system with a new coherence. Maturana (1978) describes interactional systems in terms of reciprocal structural coupling in which the history of the behaviours of the members of a system-to-be culminates in a stable, organisationally closed system. This has already been discussed.

Dell (1982a, p.35) argues that the concept of structural coupling has important implications for the concept of coherence.

The behavioural coherence of each individual member is primary, whereas the higher-order coherence of the interactional system (the reciprocal structural coupling) is secondary. This implies that the coherence of the reciprocal structural coupling can be transformed, but that the behavioural coherence of individual members cannot be transformed. A complementarity and a co-evolution take place among the behavioural coherences of the individuals and between them and the higher-order coherence of the system as a whole. This higher-order coherence does not control and maintain the behavioural coherence of each of the members of the system homeostatically. Rather, the members simply fit together.

Even in a highly organised system with rigid circularities of interaction, the behavioural coherence of each member has the potential for behaviours that can discontinuously transform the coherence of the system as a whole.

An implication for therapy is that in order to be successful in triggering system-transforming behaviours, the therapist must use

behaviours or interventions that differ from those already being used within the system.

Fourthly, the behavioural coherence of each family member specifies those interventions that will trigger behaviours in him or her that may transform the system. Thus the individual's behavioural coherence is the lock, and the therapist's interventions are the keys. Accordingly, it is always the lock that determines which key will work. "There is no truth (i.e., One True Key) There is no causality (i.e., the key that makes the lock open). There is only fit (i.e., those keys that are complementary to the lock)" (p.35).

As a result of the recursive organisation of a constructed reality, behaviour and language become more coherent in each cycle with the central theme of the system. A system therefore does not only evolve toward increasing complexity, but also toward increasing coherence (Sluzki, 1983). This was illustrated in changing language, behaviour, and life style of the example of the man exhibiting chronic fatigue and associated behaviours.

As mentioned earlier, double description and cybernetic complementarities are ideas related to the concept of coherence.

DOUBLE DESCRIPTION

An inevitable dualism bisects nature, so that each thing is a half, and suggests another thing to make it whole... Whilst the world is thus dual, so is every one of its parts. The entire system of things gets represented in each particle... The same dualism underlies the nature of every condition of man. Every excess causes a defect; every defect and excess. Every sweet hath its sour; every evil it's good. (Emerson, 1929, p. 3)

Bateson (1972) is of the opinion that multiple descriptions as opposed to singular descriptions enable one to construct a systemic view of human relationships and interaction. As two people in interaction each have his or her own idea of his or her flow of interaction, a sense of the whole system will only emerge if an observer combines both these views. He compared this to binocular vision.

According to Bateson (1972, in Bogdan, 1984, p. 382) "It is correct (and a great improvement) to begin to think of the two parties to the interaction as two eyes, each giving a monocular view of what goes on, and together giving a binocular view. This double view *is* the relationship."

Keeney (1982) explains that although families are often described as either change oriented, stability oriented, or as a balanced combination of these, in cybernetics one can never separate stability from change, as both are complementary sides of a recursive coin.

He explains that given two drawings of a cube, each from the perspective of a monocular view, a stereoscope can fuse these representations into a higher logical type. That is, both two-dimensional drawings are combined to generate a three-dimensional view. Accordingly, by extending this notion, it can be assumed that each side of the conceptual distinction can be fused through a cognitive act (analogous to the operation of a stereoscope that produces a higher order view).

Therefore, from this perspective of double description change and stability are seen as two sides of a cybernetic complementarity. In family therapy

this implies that families cannot be described as changing without consideration of their stability and vice versa. In terms of this, Bateson (1972) proposes that, "all change can be understood as an effort to maintain some constancy and all constancy as maintained through change" (p.381).

Keeney (1982) explains that the framing of stability and change can be seen in terms of Bateson's notion of double description. As mentioned earlier, Bateson (1972) refers to this double view as the relationship, and the double view is comprised of the interaction between all parties.

According to Watzlawick, Beavin, and Jackson (1968), Bateson (1972) reported on an interactional phenomenon which he called schismogenesis. He defined it as: "a process of differentiation in the norms of individual behaviour resulting from cumulative interaction between individuals" (p.67). The usefulness of this concept has been demonstrated in the field of psychiatry and according to the authors has a heuristic value beyond the confines of any one discipline. Therefore it will briefly be discussed.

This is explained as follows: Many systems of relationship, whether being between individuals or groups of individuals, contain a tendency towards progressive change. For example, if one of the patterns of cultural behaviour, considered appropriate in individual A, is culturally labelled as an assertive pattern, while B is expected to reply in a way that is culturally accepted as submissive, then it is likely that this submission will encourage further assertion and further assertion then will demand further submission.

This implies a potentially progressive state of affairs. Unless other factors restrain the excesses of assertive and submissive behaviour, A will become increasingly assertive, while B will become increasingly submissive. This is known as *complementary* schismogenesis. In these relationships people exchange different kinds of behaviour. One gives, the other receives, one is in a superior position and one in a secondary position. The individuals or groups of individuals exchange behaviour that complements, or fits together (Haley, 1963). It is important to take note of the interlocking nature of the

relationship. Dissimilar but fitted behaviours evoke each other but no one of the partners imposes a complementary relationship on the other. Rather, each behaves in a manner which presupposes, while at the same time providing reasons for the behaviour of the other. Thus their definitions of the relationship fit.

Symmetrical schismogenesis is the term given to another pattern of relationship between individuals or groups of individuals in terms of which there is potential for progressive change. For example, if boasting is a cultural pattern of behaviour in one group, and the other group replies to this with boasting, a competitive situation may develop in which boasting leads to more boasting and so on. In a symmetrical relationship people exchange the same type of behaviour (Haley 1963).

According to Watzlawick et al. (1968), the two patterns that have been described have come to be used without reference to the schismogenetic process and simply referred to as symmetrical or complementary interaction or behaviour.

Meta-complementary behaviour is a third pattern of interaction. This occurs when one individual allows another to define the relationship (Haley, 1963). One person could force another to tell him or her what to do and thus force the other to take the superior position. Whenever one person allows, or forces the other to define a relationship in a certain way, he is at a higher level defining the relationship as complementary.

It must be remembered that no two people or groups consistently show only one of the types of behaviour or interaction in all circumstances. There are different areas in relationships that can be identified as the one or the other. This also changes over time. Bateson (1979) warns that unchecked symmetry or complementarity could become an escalating process that could lead to intolerable stress and dissolution of the relationship system. On the other hand, if symmetrical and complementary interactions were mixed, a kind of balance can be achieved.

The importance of these interaction styles is to be found in Keeney's (1983a) belief that double description is an epistemological tool that enables one to generate and discern different orders of patterns. He argues that although language constrains our knowing as a result of the limitations of its particular terms and structure, double description provides a way of using language to direct us toward higher-order description.

Seeing a relationship requires double description and if double descriptions of relationships are dissected and each part seen as something localised inside a person, a "dormitive principle" is created. This, according to Bateson (1979), occurs when the cause of a simple action is said to be in an abstract word, derived from the name of the action. For example, when aggression is explained as being caused by an aggressive instinct.

According to Keeney (1983b), Bateson (1979) argued that the relation of descriptions of simple action, categories of action, and categories of interaction could be discussed in terms of logical typing, which he refers to as orders of recursion with respect to the observer's distinctions. He explains that contexts of action (a higher order distinction) are logically distinct from descriptions of simple action (lower order distinction). This implies that "play" for example, is a higher order abstraction than "throwing a ball". Through examining contexts of action, Bateson (1979) came to the conclusion that they determine how simple actions are linked to social organisation, that is, the way in which reactions of individuals to the reactions of other individuals are organised in time.

Keeney (1983a) argues that in order to achieve a higher-order view, or binocular image of relationship, one has to jump an order of abstraction, from behaviour to context, with a concomitant jump in descriptive expression. Descriptions of action are fused to create description of interaction.

Bateson's (Penn, 1982) principle of double description merely means that in order to progress from one level of description to another, an act of double description is required. Only through viewing every side of the relationship,

a sense of the relationship as a whole can be accomplished. Penn (1982) emphasises that double descriptions are not static principles but descriptions of relationships. Accordingly, the process view of double description suggests that language may be used in a co-evolutionary way in which new orders of difference, relationship, and context may emerge.

According to Hoffman (1985) double description makes the inclusion of co-evolutionary concepts possible. The inclusion of such concepts in the family therapist's thinking encourages him or her to recognise the self-organising properties of the system, knowing that each system will choose new forms congruent with its own potential. They emphasise that although the therapist pushes the family away from its present state of stability, it is the family that figures out its next pattern of organisation. These changes of pattern may be regarded as either discontinuous, or as continuous change or transformations.

Another related concept is that of cybernetic complementarities and will hence be discussed.

CYBERNETIC COMPLEMENTARITIES

Cybernetic epistemology demands that both sides of any distinction drawn by an observer should be embraced (Keeney, 1983b). Varela (1979), rejected the either/or duality of positivism and proposed a new way of approaching distinctions via cybernetic epistemology."

Varela (1979) provides suggestions for viewing the different sides of a distinction: he uses a slash to separate the two sides. He suggests any situation (domain, process, entity, notion), which is holistic (total, complete, full, stable, self-contained) be placed on the left of the slash. He calls this "the it" (p.63). It is further suggested that the corresponding processes (constituents, generators, dynamics) be placed on the right hand side of the slash. He calls this "the process leading to it" (p.63). Put together, this leaves "the it" / "the process leading to it" (p.63). In Varela's terms, for example, "the it" could be 'the pattern of interaction', whereas "the process leading to it" could be 'the interactional process'. This can then be put as

follows: *'pattern of interaction/interactional process'*. The same applies for other examples such as territory/map, organisation/structure, closed organisation/simple feedback, etc. Keeney (1983b) reminds us that the relationships between the sides of these distinctions are self-referential in that one side is recycled out of the other.

A cybernetic framing of distinctions result if both sides are seen as different, yet related (Varela, 1979). In this way, the different sides can be seen as "an *impredication* of levels, where one term of the pair *emerges* from the other" (p.64). Thus both sides of the distinction are seen as different, yet related. This provides a more complete picture than the making distinctions based on the either/or duality, right/wrong, good/bad, useful/not useful, etc.

Varela (1979) warns that when people draw distinctions indicating a pair of opposites, they are offering an incomplete sketch. This is so because each pair belongs to the same order of process. He cites the example of "predator/prey" and states that it is often proposed as operating in terms of excluding opposites. This is, however, a dualism and he refers to it as a "Hegelian pair". Hegelian pairs should be seen as one side of a larger cybernetic complementarity. As in the case of predator/prey there is a more inclusive form that would offer a more complete sketch where the suggested opposites are actually components of the right hand side. Thus, in the case of predator/prey, there is a cybernetic complementarity, namely ecosystem/species interaction. This larger cybernetic sketch suggest that the battle about food and territory is a means of generating, maintaining, and stabilising an ecosystem, rather than the initial suggestion of a battle about food and territory between two species, which is clearly only half of the picture.

According to Bateson (1972), a more encompassing view has implications, not only in the biological world but also in the field of the social sciences. He expresses this as follows: "We social scientists do well to hold back our eagerness to control that world which we so imperfectly understand... Rather, our studies could be inspired by more ancient, but today less

honoured motive: a curiosity about the world of which we are a part. The reward of such work are not power but beauty" (p.269).

Keeney (1983b) understands cybernetics as the complementary relationship between stability and change. As mentioned earlier, he introduces the concept of double description and relates it to the concept of cybernetic complementarity. In his view cybernetic complementarities are reframings in terms of recursive processes of the distinctions people draw. Therefore the basic form of "the it"/"the process leading to it" can be used to frame the pattern "stability/change". He explains this as follows: "Fluctuations, changes, and differences of events among component parts, maintain the sameness or stability of their recursive organisation" (p.119).

This can be explained in terms of a heating system in which change in the system leads to the stability of the whole system when the system is self-corrective. The fluctuations of temperature and the bending arm of a thermostat lead to constancy in the relations among the components. In the same way, in a family, fluctuations or differences in behaviour may lead to stability of the interactional processes organising those behaviours. In this sense, the more things change, the more they remain the same.

Hoffman (1985) calls this a homeostatic cycle, which is the cycle that maintains constancy of relations among interactants through the fluctuations of their behaviour. Even though the concept of homeostasis and the functioning of a thermostat is a useful tool for the understanding of recursive organisation in terms of cybernetic complementarity, the homeostatic model has been criticised (refer to 'Systems Thinking/Cybernetics in Human Systems'). Keeney (1983b) mentions that the use of cybernetic terms such as "homeostasis" or "self-correction" is often criticised in family therapy. According to him, critics have suggested that living systems should be viewed in terms of change and evolution rather than stability and control.

Accordingly, Keeney (1982) understands change and stability as two sides of a cybernetic complementarity, and argues that families cannot be

described as changing without consideration of their stability and vice versa. In therapy, the troubled system can be regarded as communicating a message that requests stability of the system's survival or identity, while, at the same time communicating another message that requests change in the particular way it maintains itself.

The next section addresses two important and related ideas based on the work of Bateson.

BATESON'S ECOLOGY OF IDEAS AND THE IMPORTANCE OF CONTEXT

The work of Gregory Bateson had a tremendous influence on the shift from first -order cybernetics to second-order cybernetics in the field of family therapy (Fourie, 1996a).

According to Capra (1997), Bateson's idea of mind came into being at the same time that the systems theory of cognition was developed by Maturana and Varela. Accordingly, Bateson and Maturana were presenting a different formulation of the same basic idea through different methods and language. Bateson thought in terms of patterns and relationship and, like Maturana, wanted to discover the pattern of organisation common to all living creatures.

Bateson pioneered the application of systems thinking and cybernetic principles in various areas. In particular, he developed a mental approach to mental illness and a cybernetic model of alcoholism. This led him to define 'mental process' as a systems phenomenon characteristic of living organisms. In his view, mental processes are a necessary and inevitable consequence of a certain complexity that begins long before organisms develop brains and higher nervous systems. He emphasised that mind is manifest in individual organisms as well as in social systems and ecosystems (Capra, 1997).

According to Auerswald (1985) Bateson created a paradigm of evolution that included mind. In doing so he stepped into the "new science" epistemology. The Batesonian evolution emerged from the study of a

segment of the "living" universe, namely families in the context of sociocultural systems, and is ecological. If a four-dimensional holographic thought model of Batesonian evolution is constructed, any segment of any size of that model turns out to be an ecosystem. He insists that the family is such an ecosystem just as the individual is such an ecosystem, as is community and a nation.

According to Bateson Capra, (1997) the essence of the living world is relationships. He argued that biological form consists of relationship and not parts. He emphasised that this is also the way that people think. It was clear to him that the phenomena of mind were inseparably connected with the phenomenon of life. Organising activity was essentially mental and he regarded mind as the essence of being alive.

According to Keeney (1983b) Bateson's epistemology refers to knowing the communicational/mental world, which is the world of pattern and form. Therefore the question, "what is?" becomes illegitimate and at best, the pattern is viewed as the thing. Furthermore, function within a communicational world refers to the mental process of difference, triggering communicational events. He explains that the notion that mental determinism functions in terms of difference, is supported by neurological and perceptual evidence.

These areas of investigation demonstrate that we can only perceive through difference. From this point Bateson (Keeney, 1983b, p.46) defines a cybernetic circuit as "a recursive chain of transformed differences, i.e., a circular linkage of differences which are set to be triggered by information (news of difference). Each difference in the circuit receives news of difference (information) and then transforms this report into news of difference for the bordering difference." The information that flows through such a cybernetic circuit (i.e., the recursive transformation of news of difference) represents an "elementary idea". Therefore, the idea of "difference causing difference" (p.46) characterises function within the communicational or mental world. He explains that this leads to cybernetic

circuits being seen as recursive transformations of news of difference, i.e. information looping in a circuit.

A consequence of this recursiveness is that information can inform (or feed back) on itself. Information that informs itself (the redundant looping of information in a circuit) is what Bateson calls "ideas". Ideas are consequently subsystems of mind and minds interact in such a way that one can begin to speak of an "ecology of minds". Bateson (1971) held the opinion that the mental characteristics of a system are immanent in the system as a whole. He argued that meaning (mind) was not in anyone's head, but rather existed in interaction. In this way he questioned the concept of objective reality and the ordinary ways in which therapists make sense of the world.

He emphasises that when observations are made it must be kept in mind that it is far more comfortable to select that which confirms our already existing beliefs. He called this new way of thinking about ideas an "ecology of minds" or "ecology of ideas".

Bateson (Fourie, 1996a) believed that the functioning of family systems revolved around what he termed an "ecology of ideas". This view proposes that a family develops an unspoken network of interlinked ideas about themselves as a family, about each family member, about their place in the world, and about life in general. Both agreements and disagreements form part of the shared ecology of ideas. This will be elaborated on in the discussion of "Problem Determined Systems".

According to Bateson (1979) the term "ecology" refers to the family as a small ecology rather than as part of a larger ecology and argues that the concept of ecology provides us with a way of talking about complex systems that does not postulate entities over and above the patterns of interrelationship among the individuals making up such systems. In this way the problem of reification is avoided.

Bogdan (1984) emphasises that if it was not for the fact that behaviour is dependent upon the meanings of events rather than upon the events

themselves, psychotherapy would be useless. The question of how a family is organised, is essentially how the ideas and behaviour of each individual member support and sustain the ideas and behaviour of every other member, so that the system displays order, pattern, or redundancy.

Bogdan (1984, p. 376) describes the transition from individual pathologic behaviour to the concept of an ecology of ideas as follows: "The behaviour of family members shows order, pattern, organisation, or redundancy because the behaviour of each individual is in a sense cognitively consistent with the behaviour of every other individual in the system. More precise, the ideas of each family member lead him to behave in ways that confirm or support the ideas of every other family member."

According to Bateson (1972) an action always occurs in context. He describes the ecology of ideas, which together constitute the small subsystem, as the *context*. Bateson (1979) explains as follows: "The particular utterance or action is part of the ecological subsystem called context and not the product or effect of what remains of the context after the piece which we want to explain has been cut out from it" (p.338).

Bogdan (1984) emphasises that the world of communication or context is a mental construct in which determinism in the traditional or usual sense has no place. As all actions are contextually bound, they cannot be separated in a linear reductionistic way. Thus, it should not be confused with the idea that the environment acts as a kind of cause upon the behaviour of the organism.

Bateson (1972) argues that the family's effect on the individual depends upon the individual's perception of the family. This organised perception is context. Different meanings are attached to the same behaviour in different contexts and will have different meanings for the different observers. Therefore the meanings of social interactions cannot be reified.

Bogdan (1984) explains that change in families has to do with learning, which implies the acquisition or modification of an idea, which, in one or more individuals, leads to a change in other individuals so that new ideas

and interactional patterns are evolved. Also of importance, is that each party in a relationship learns a habit of looking for contexts and sequences of one sort or another. This is called each person's perspective, meta-perspective, and meta-meta-perspective. A husband, for example, may have the idea that his wife is "playing hard to get" (his perspective) and assumes that his wife has the same view as he does (his metaperspective). Furthermore he may have the notion that his wife understands what his perspective on the situation is. His wife, on the other hand, may disagree with his original definition of the situation, seeing the situation as something serious and not as a game. She may also fail to realise that he sees it as a game when she does not.

Therefore perspective, metaperspective, and meta-metaperspective are often different for each party to the relationship. However, if behaviour between people is to show order or pattern, the cognitive or "meta-communicative" habits of one person must somehow be fitted to those of the other so that the ideas of each are sustained. It is not necessary to create a new explanatory entity e.g. "the family's organisation", or "the relationship", to account for patterns of communicative behaviour between people. This is where double description becomes very important, as has already been discussed.

The importance of this section will become clear under "Problem Determined System" as well as in the section to follow, which concerns language and the construction of meaning.

LANGUAGE AND THE CONSTRUCTION OF MEANING

Meaning is constructed through distinctions we make in language and does not exist prior to language (Dell, 1985). Language enables us to make distinctions as well as to take action based on these distinctions, such as to describe or interpret our constructions (Anderson & Goolishian, 1988). Language arises from the reciprocal structural coupling of members of a system, who evolve a consensual domain through an ongoing process of mutual perturbation of one another's ideas and behaviours. In this sense,

language both modifies and is modified by experience. What all this is actually implying, is that meaning is dialogically construed and thus, intersubjective and always changing.

According to Maturana and Varela (1980) language is the spoken description or representation of a constructed reality. Therefore for human systems, reality is conceived in language, from the initial act of making a distinction to the complex ever-evolving realities that are formed. According to Simon (1985) the system that is the focus of second-order cybernetics is therefore a linguistic system which is seen as being in a constant state of evolution. He quotes Maturana and states that "we are in language, we live through language and we do language as we live" and also "language is a tool for imposing distinctions upon our world" (p.37).

According to Keeney (1983b) we use a given language system to make choices regarding the patterns we discern. Bateson (1979) noted the link between language and thought and asserted that our communication patterns reflect our worldview and that together these create our reality.

Real (1990) seems to agree with Bateson (1979) when he states that from a constructivist perspective reality is not discovered through objective means, but is agreed upon consensually through social interaction, through communication. As seen above, the central role played by language in constructing and communicating social and individual reality is acknowledged by various authors.

According to Anderson and Goolishian (1988) there is no meaning or understanding until some communicative action has been taken. Conversation is part of the hermeneutic struggle to reach understanding with those with which one comes into contact. They state that "language does not mirror nature; language creates the natures we know" (p.378). Therefore, meaning and understanding do not exist prior to the utterances of language. They emphasise that understanding does not mean that we ever fully understand another person. Rather, that we are only able to understand what the other person is saying through dialogue. Therefore,

this understanding is “always in context, never holds over time, and is at most a process ‘on the way’ that is never fully achieved” (p.379).

Gadamer (1976) summarises the important role of language as follows: “There is no societal reality, with all its concrete forces, that does not bring itself to representation in a consciousness that is linguistically articulated. Reality does not happen “behind the back” of language; it happens rather behind the backs of those who live in the subjective opinion they have understood “the world” ... that is, reality happens precisely within language” (p.35).

Language clearly has important implications for our understanding of how our realities are constructed. Language as well as some of the ideas discussed in other sections has contributed to the concept of the problem determined system.

PROBLEM DETERMINED SYSTEM

A problem determined system is a specific consensual domain specified by those who believe that someone or something is a problem, who is distressed by the problem and who insists on changing it in a specific way (Anderson & Goolishian, 1988).

The old idea of treating a problem was based on the medical notion of curing the part of the body responsible for the symptom. The “illness” was not seen as part of the person, but rather “in” some spatially defined, out-there unit. It can no longer be stated that it is “in” the unit or “in” the family. It is now seen as “in” the heads of every one who has part in specifying it. The old epistemology implies that *the system creates the problem*, whereas the new epistemology or second-order perspective implies that *the problem creates the system* (Hoffman, 1985).

The reality that evolves as a result of the problem distinction, such as CFS, is recursively organised around the central theme that a problem exists and the system can be described as being created by the problem. The attempts made to solve the problem, such as consulting clinicians, taking

medication, attending cognitive behaviour therapy etc., become feedback confirming that there is a problem (Anderson & Goolishian, 1988).

With regard to this, Maturana (1975) explains the importance of self-reference when a system describes its interactions. He states that when a system describes its interactions, it may communicate by representing these descriptions to others or to itself. Therefore, a whole communication system emerges when a complete circuit describes its own representations of its interactions. This implies that the therapist working with a patient with CFS is working with 'problem system' of which he or she is a part.

Keeney (1979) states that the communicational world is a world of self-reference. As a result of the observation, the observer is in the observed. He explains that by interacting with our interactions, whether in the form of describing our describing or relating to our relating, we create and maintain a particular experiential reality.

Furthermore, Maturana and Varela (1980) argue that every human action takes place in language, and that every act in language brings forth a world created with others. This implies that the objects of our worlds are created by us with and through language. In terms of this, Anderson and Goolishian (1988) relevantly state that the system includes not only those who agree that the behaviour is a problem, but also those who disagree and actively communicate their disagreement.

Hoffman (1985) emphasises that the problem is the meaning system created by the distress and that the treatment unit is everyone contributing to the meaning system. Anderson and Goolishian (1988) argue that disagreement about the behaviour, defined as a problem, contributes to the extension of the language system around the problem. When attempts at treating the problem are not successful, as is the case of CFS, more professionals are called in. The result is that they contribute to the increasing complexity and perpetuation of the system.

Anderson and Goolishian (1988) go even further when they specify that a problem system is always a linguistic system, and that problems do not

have an objective existence in and of themselves, but only through conversation with others. "Fixing problems" can now be seen as part of the problem. The models of family therapy based on the idea of the "normal" family alienates parents who feel blamed by it and that the technology of psychiatry, such as medication and labels, intensifies emotional illness, and, for example, the attempts to prevent drug abuse only exacerbate it.

According to Hoffman (1985) as mentioned earlier, the homeostatic model of family therapy and viewing the family as system being observed, has been heavily criticised. It does not only separate the observer from the observed, but, as mentioned, has a pejorative formulation, as families have often been blamed for the condition of its troubled child.

According to Anderson and Goolishian (1988) languaging within the domain of the problem distinguishes the system and the system does not distinguish the problem. Thus systems do not make problems; rather, languaging about problems makes the system. Such a defined system can be viewed as a problem-organising, problem-dissolving system. It is a social action system that is organised around languaging, about issues that concern those who comprise the system. These authors emphasise that, because problem-organising systems exist in language, they take no account of the boundaries punctuated by social structure and role. The problem-determined-system is an idea; it is a transient system that dissolves once its membership believes that there is no longer a problem, or that what they were once concerned about is no longer problematic for them.

Anderson and Goolishian (1988) propose that meaning and understanding are socially and intersubjectively constructed. Gergen (1985) seems to have had similar ideas when he stated that "the terms in which the world is understood are social artefacts, products of historically situated interchanges among people" (p.267). Also, that "...the process of understanding is not automatically driven by forces of nature, but is the result of an active, co-operative enterprise of persons in relationship" (Gergen, 1985, p.267).

The concept of a problem determined system is well summarised by Levin, Raser, Niles, and Reese (1996). They describe the problem as being generated when a distinction is drawn around a unit of behaviour, when it is defined as a problem, and when attempts are made to solve what has been called the problem. The focus of treatment becomes the constructed reality that evolves from the definition as well as from the attempts at a solution. The limitations of the problem determined system are all those who construe it as a problem, and not a predefined group of people such as an individual or a family. In this respect, Anderson and Goolishian (1988) emphasise that as long as therapy is divided into individual, couples, or family therapy a framework based on social units is being used. This framework can cause one to fall into a linear mind-trap in thinking of the particular unit as something that can be treated or fixed.

According to Hoffman (1990b) living systems are not seen as objects that can be programmed from the outside, but as self-creating, independent entities. Thus, from a second-order view, this would imply that the therapist includes him or herself as part of what must change as he or she does not stand outside of that which must change. This view allows for a very different picture.

SUMMARY

This chapter took a brief look at the new epistemology of systems thinking and cybernetics and at the implications for human systems. The shortcomings of the first-order approach were highlighted and the concept of second-order cybernetics was introduced. The contributions of various authors such as Maturana (1981), Varela, (1979), von Foerster (1973b), von Glasersfeld (1984) and Bateson (1971) and the influences leading to a second-order approach, as well as important and related concepts, were discussed. The implications of constructivism or ecosystemic thinking as a second-order approach to therapy was emphasised throughout the chapter and this will continue throughout the chapters to follow.

The terms “constructivism”, “ecosystemic approach” and “second-order cybernetics” are often used synonymously (Real, 1990). As second-order approaches focus on ecologies of ideas within systems, they are very often called “ecosystemic” perspectives (Auerswald, 1987). Capra (1997) argues that the term “ecology” can be regarded as the fundamental assumption that all things are related to one another in a systemic, yet complex way. According to the ecosystemic position, things are not objectively knowable. Rather, all descriptions, including descriptions of pattern, are seen as creations rather than discoveries. Furthermore, human beings do not live in a universe with one fixed reality, but rather in a “multiverse” with a variety of descriptions and describers. Reality is not discovered through objective means but is agreed upon consensually through interaction, through conversation (Bateson, 1979).

In Chapter 4 the discussion of CFS will start off and suggests a shift towards an alternative understanding and approach to diagnosis of the condition. This will be based on the ideas and principles discussed in this chapter.

CHAPTER 4

CFS: DIAGNOSIS

INTRODUCTION

As mentioned earlier, CFS is currently in the spotlight of medical research, and can be described as a controversial illness (Shorter, 1993). It is a chronic illness characterised by at least six months of debilitating fatigue and associated non-specific symptoms (Meyer, 1996). There is little unanimity about the existence of CFS or, if it exists, what the causes might be. Some professionals deny that it exists; others are sceptical, while others acknowledge its existence but are frustrated by the lack of clear diagnostic or therapeutic guidelines (Dawson & Sabin, 1993).

Although there were very early reports of debilitating fatigue accompanied by other symptoms in the time of Hippocrates, it only began to be seen as a problem in the early 1900's. In accordance with the prevailing language, the solution was seen in a linear way (Cleare & Wessely, 1997). In terms of this way of thinking, efforts were made to establish a cause, to define the condition as a syndrome, and to assess it accurately in order to make a diagnosis. These efforts have been made within the medical model, and to a lesser extent a psychosocial and multifactorial model, all of which are linear. It seems as though whatever model has been used, the research into aetiology, definition, epidemiology, assessment and treatment is associated with many problems.

Contributing to the CFS confusion are not only the uncertainties regarding aetiology and epidemiology, but also the fact that researchers have not yet reached consensus on the correct term for the condition. Dawsett (1992)

mentions that CFS can be described as “the disease of a thousand names” (p. 17).

This chapter will include a brief discussion of the case definition and the problems surrounding terminology. A brief historical overview of the illness will be provided. Furthermore the controversies regarding whether the problem is real or not will be touched upon. The literature study is primarily based on the positivistic assumptions underlying the medical model and will be emphasised throughout the chapter. Following this traditional diagnosis will briefly be discussed after which suggestions towards an ecosystemic perspective will follow. This will be done by briefly taking a look at the relationship between diagnosis and epistemology, the implications of first-order cybernetics on diagnosis, and finally discussing the second-order cybernetic and ecosystemic approach to diagnosis.

I chose to include discussion on both first and second-order cybernetics as systems thinking and cybernetics originally represented a shift away from anti-contextual and reductionistic positivistic thinking. Furthermore both could have meaning in approaches to treatment. It is also in line with principles of cybernetic complementarities and Bateson’s (1972) concept of double description (refer to Chapter 3).

CASE DEFINITION

Making the diagnosis of CFS implies a reification process: a descriptive concept is treated as a concrete entity. Furthermore the medical model has certain criteria that must be met in order that a person be labelled as having CFS. Therefore, from a positivist perspective, CFS is conceptualised as a diagnostically distinctive syndrome that consists of the sum of the distinctive symptoms. The term also implies that the problem exists in the individual separate from the context in which he/she lives or in which the symptoms are exhibited. This is coherent with the medical model and is atomistic,

reductionistic and anti-contextual. The focus is on combinations of discrete elements.

The case definition used by the Medical Association of South Africa is adapted from that of the Centres for Disease Control, Atlanta Georgia (Buchwald, Gantz, Katon, & Manu, 1991).

A case of CFS must fulfil:

- Major criteria 1 and 2
- Minor criteria (symptom and/or physical): either six or more of the 11 symptom criteria and two or more of the physical criteria or eight or more of the 11 symptom criteria

Major criteria:

1. New onset of persistent or relapsing debilitating fatigue or easy fatigability in a person with no previous history of similar symptoms. The fatigue does not resolve with bed rest and is severe enough to reduce or impair average daily activity to below 50% of the patient's premorbid activity level for a period of at least six months.
2. Clinical conditions that must be considered in the differential diagnosis and must be excluded, include: Malignant disease; autoimmune disease; infections (bacterial, fungal, parasitic, viral); neuropsychiatric disease; endocrine disease (e.g. hypothyroidism); side effects of a chronic medication or other toxic agent (e.g. chemical solvents, pesticides, heavy metals).

Minor criteria:

In addition to the unexplained fatigue, the patient must have at least eight symptoms or six symptoms plus at least two signs, which must have begun with or after the onset of fatigue and persisted or recurred for at least six months. Signs must be documented by a physician on at least two occasions at least one month apart.

Symptom criteria:

To fulfil a symptom criterion, a symptom must have begun at or after the time of onset of increased fatigability, and must have persisted or recurred over a period of at least six months (individual symptoms may or may not have occurred simultaneously).

Symptoms include:

1. Mild fever - oral temperature 37,5 -38,6C, if measured by the patient - or chills (Note: oral temperatures about 38,6C are less compatible with CFS and should prompt investigations for other causes of illness.)
2. Sore throat.
3. Painful lymph nodes of anterior or posterior cervical or auxiliary distribution.
4. Unexplained generalised muscle weakness.
5. Muscle discomfort or myalgia.
6. Prolonged (24 hours or more) generalised fatigue after levels of exercise that would have been tolerated easily in the patient's premorbid state.
7. Generalised headaches (or a type, severity or pattern different from headaches in the premorbid state).
8. Migratory arthralgia without joint swelling or redness.
9. One or more of the following neuropsychological complaints: photophobia, transient visual scotomata, and forgetfulness. Excessive irritability, confusion, difficulty in thinking, inability to concentrate, and depression.
10. Sleep disturbances: hypersomnia or insomnia.
11. Description of the main symptom complex as initially developing over a few hours to a few days (this is not a true symptom, but may be considered as equivalent to the above symptoms in meeting the requirements of the case definition).

Physical criteria:

These must be documented by a doctor on at least two occasions at least one month apart

1. Low-grade fever (oral temperature 37.5-38.6 C).
2. Nonexudative pharyngitis.
3. Palpable or tender anterior or posterior cervical or auxiliary lymph nodes.

TERMINOLOGY

As previously mentioned CFS can be described as “the disease of a thousand names” (Dawsett, 1992, p.17). According to Macintyre (1992), it was known as the “Iceland Disease” in 1948-1949 and the “Royal Free Disease” in 1955. In the United States of America it was called “Chronic Epstein Barr Virus”, “Coxsackie’s Virus” as well as “Chronic Fatigue” and “Immune Dysfunction Syndrome”.

The term “Yuppie Flu” has also been used as a result of the belief that the illness was predominantly found in successful young people. This term is deemed inappropriate as the assumption was found to be untrue. The term “Myalgic Encephalomyelitis” (ME) has been used more recently to describe people suffering from severe fatigue (Richards, 2000). This term implied an active infection of the brain or spinal cord (Macintyre, 1992). “Post Viral Fatigue”, which has also often been used, implies a viral infection. The confusion in terminology seems to be directly related to uncertainty regarding aetiology and epidemiology.

The Medical Society of South Africa suggests that in order to reach consensus the correct term for the condition should be “Chronic Fatigue Syndrome”. The term does not include or exclude the involvement of a viral infection yet the presence of fatigue are emphasised (Spracklen, 1988).

As mentioned, the name or label ‘CFS’ (or any one of the others) implies a process of reification. The confusion among authors in terms of correct

terminology is related to confusion regarding aetiology and epidemiology. This implies linear causality, which also fits with the reductionist view of the medical model.

HISTORICAL OVERVIEW

Although believed to be a growing phenomenon of a rapidly changing Western Society (Paine, 1982), the illness is not that new. Reference to it has been found in the early manuscripts of Hippocrates (Meyer, 1993).

“The fatigue pains that arise in the body are as follow: Men out of training suffer these pains after the slightest exercise, as no part of there body has been inured to any exercise; but there bodies feel fatigue pains after unusual exercises, some even after usual exercises if they be excessive. These are the various kinds of fatigue pains. Their properties are as follow. Untrained people, whose flesh is moist, after exercise undergoes a considerable melting, as the body grows warm. Now whatever of this melted substance passes out as sweat, or is purged away with the breath, causes pain only to the part of the body that has been emptied contrary to custom; but such part of it as remains behind causes pain not only to the part of the body emptied contrary to custom, but also to the part that has received the moisture as it is not congenial to the body but hostile to it” (Dawson & Sabin, 1993, p.6).

According to Dawson and Sabin (1993) Hippocrates at least recognised the muscular fatigue of deconditioning. Unlike symptoms such as jaundice that are timeless, the symptom of chronic fatigue without an evident organic cause has a history of its own. Its frequency has been manifestly more pronounced in some historical periods than others. These fluctuations may provide some insight into the basic nature of this kind of fatigue (Shorter, 1993).

Chronic fatigue as a presenting complaint, in the absence of other evident organic illness, was seldom reported historically before the second half of the 19th century (Shorter, 1993). According to Dawson and Sabin (1993) the more modern beginnings of the concept of clinically significant fatigue trace back to the 18th century with mechanistic notions regarding nervous energy. According to this notion, the nervous "machine" could be over-energised to the extent that it develops an "irritability" that was associated with mental illness. Alternatively, the available amount of energy in the machine could be run down. From this notion, the original idea of neurasthenia came into being. In 1881, George Miller Beard (Goodnick & Klimas, 1993) introduced the term to mean "a lack of nerve force" (p.13). Symptoms were said to include fatigue, headaches, loss of hearing, general weakness, heart palpitations, phobias, tremulousness, excessive sleeping and cramps, just to mention a few. It was believed to be a disease of "nervously organised vulnerable people with great potential" (p.14). Believing that American people were more exposed to stress engendered in a capitalistic society, he linked the illness to American citizens. It was a situation in which the loss of nerve strength led to physical disorder. The loss of nerve strength was speculated to result as a consequence of cell exhaustion where the cells had used up all their nutrients. In turn, this resulted from too much thinking and feeling. The prescribed treatment was the reduction in stressfulness of mental labour and increased sleep. This was required to restore the energy of the nervous system and to heal neurasthenia in these patients.

Every era since then has had its fad involving a vague diagnostic entity for sufferers of chronic fatigue. Although there were a number of isolated incidences of chronic fatigue reported, it appears that the recent epidemics of post viral fatigue have provided the most important evidence for the existence of a specific medical entity (Shorter, 1993).

FACT OR FAD

Experts have provided different answers to the question as to whether CFS exists or not (Buchwald, Gantz, Katon, & Manu, 1991). Aronowitz (1991, p.97) warns that “A market for somatic labels exists in the large pool of ‘stressed-out’ or somaticising patients who seek to disguise an emotional complaint or to ‘upgrade’ their diagnoses from a nebulous one to a legitimate disease.” According to Lipowski (1988) the essence of somatisation is that its victims take their symptoms, psychogenic in nature, to be organic disease.

Spencer (1998) argues that the problem is that two views regarding CFS have become polarised. On the one hand the illness is regarded as “not real” and on the other hand it is regarded as the most devastating medical crisis since the plague. This polarisation splits itself along the line of psychological versus physical. This is coherent with the Cartesian Split discussed in Chapter 2. This strict division between mind and body has led clinicians to concentrate on the body as a machine and to ignore the psychological, social, and environmental aspects of an illness (as well as the interplay between these aspects). In doing so and striving to find a cause central to a problem and reducing illness to the sum of a number of symptoms, physicians limit themselves to partial aspects of phenomena they study and diagnose (refer to Cybernetic Complementarities discussed in Chapter 2).

The question may then be asked as to whether this implies that CFS is only “real” if it is regarded as a physical illness, and does not exist if it is psychological in nature even though sufferers experience it as devastating? In his article “The Case for the Prosecution of Chronic Fatigue Syndrome” Ellis (1996a p.8), argues that “ CFS is the end of the road down which classification, Cartesian dualism and the Newtonian mechanistic framework has lead to modern scientific medicine.” He also states that the label CFS represents only a partial truth. He firstly argues that the label “CFS” is inappropriate for a number of reasons. A label should be useful and

practical. In the case of CFS there are so many major and minor criteria for the condition and they are so vague and ubiquitous that most general practitioners do not even remember them, but still they make the 'diagnosis' from a vague background of medically imprinted formulae. He further believes that the label CFS should be dismissed because the very name at stake has enough acronyms and synonyms to "fill a bucket" (p.8). "If there is dissension about what to call or label something then one must be careful that one is trying to catch (like the abominable snowman) what actually exists" (p.9).

Finally, he insists that there is no treatment for it because it is a theoretical construct and one cannot treat theoretical constructs. He emphasises that one can "only treat people and people (not diseases or theories) itch and scratch, get tired and ache, etc. Of course, there is 'treatment' for 'it' in that 'it' and 'treatment' are in an objective paradigm and that is part of the problem. Biomedicine is continually trying to objectify and classify human beings" (p.9). Ellis (1996a) concludes that CFS/ME is simply a product of biomedicine's search for a universal pattern in which an attempt is made to squeeze divergent phenomena of life into the same square box. The diagnosis, Chronic Fatigue Syndrome, is a kind of magic name and there is no evidence to support this label or grouping of criteria under any name. So-called symptoms could as well be representations of existential anxiety, unhappiness, or despair.

Cohn (1999) states that advances made by biomedicine in certain areas have actually promoted confusion in others. This happens by biomedicine demonstrating effective knowledge about mechanical and infectious disorders, while those that are neither mechanical nor infectious appear further stranded from any means of legitimisation. According to him the use of biomedicine as the provision for the sanctioning of legitimacy is an inevitable contradiction. As a result of biomedicine operating according to an objectified notion of illness, the experience of that illness is ignored. In his discussion of the concept "psychosomatic" and the distinction between reality and representation, he wonders whether someone who simulates an

illness and develops symptoms should be treated as ill. He argues that psychology and biomedicine disengage at this point because ambiguity raises the possibility that every illness, at least in part, can be considered a simulation, thereby undermining the conviction that therapy should only treat 'true' illness. He regards the development of the category 'psychosomatic' as a dubious solution on the edge of this illness reality principle. Cohn (1999) asks: "What can medicine do with something which floats on either side of illness, on either side of health ... in a discourse that is no longer true or false?" (p. 168).

Although, the term 'simulation' may imply that something is false, Littlewood (1995) insists that such a description or discord can only occur with reference to an objective conception of true illness. In describing some of the generalised features of CFS, Cohn (1999) suggests that the only 'reality' of CFS be in its subjective location. He argues that the imperative must be to place the experience of CFS as the starting point for its understanding.

There are two distinct positions that have been adopted that, in combination, question the value of seeking legitimisation through claims of 'reality'. Spencer (1998) insists that the majority of CFS sufferers reject suggestions that the illness may not be physiological in nature and thereby resist psychological interventions. Cohn (1999) argues that the reason for this rejection of a psychological basis (e.g. psychosomatic) in biomedical texts is not because the links between mind and body are regarded as invalid, but rather because the biomedical discourse denies the possibility for any reconciliation between the sufferer as an object of illness and as subject of experience.

The Western division between mind and body is at the heart of the process of reorganising beliefs about CFS. The fact that biomedicine primarily regards CFS as a psychological disorder while sufferers see it as a physical illness, raises the issue of validity. This seems to be a common issue with many conditions that escape the reality principle by apparently existing only in terms of subjective experience. Although the social sciences, from a post-modern position, applaud a rejection of modernist principles and the

mind-body separation, those suffering from the condition, with accompanying emotional and social problems, likely desire some certainty. Cartesian dualism seems to be functional for sufferers. It can provide a sense of order and control, freeing the self from any moral judgements that can be made on the body. The chief claim to legitimise the condition is based on a need to describe the condition as a physical disease rather than as a psychological disorder. Cohn (1999) highlights the difficulty of legitimisation of CFS, although it is a central concern for both practitioners and sufferers, when he poses the following: "...what sufferers seek is recognition for their subjective experience in a lived world, and this will always be at odds with a medical discourse based on the principle of an objective reality to disease" (p.195).

TRADITIONAL DIAGNOSIS

CFS is essentially a medical concept and has been extensively researched from a medical perspective. As discussed the medical model is based on positivistic principles. As mentioned the logical positivist principle of lineal causality has been applied in studies of CFS in an attempt to get a better understanding of the disease. The biomedical model proposes that the onset of the illness is due to known or unknown natural causes and is therefore assumed that the elimination of these causes will often result in cure or improvement in individual patients (Lewith, 1996).

According to the positivistic perspective in order to understand an object or phenomenon, it needs to be reduced into its most basic elements or building blocks, which are simpler, more easily understandable and often measurable (Harre, 1981). The idea of having certain physiological impairments that can be observed and measured, assumes a reductionistic conceptual base. Therefore the measurement of the severity of fatigue as well as other minor criteria as well as the identification of certain intrapsychic elements in sufferers are regarded as supportive of this conceptual base.

The positivistic perspective on diagnosis and treatment of CFS is one that is based on the premise that a sufficient deviation from the norm represents disease, that disease is due to known or unknown natural causes and that the elimination of these causes will result in the cure or improvement in individual patients (Lewith 1996). As mentioned earlier, the biomedical model follows a traditional linear epistemology, which is atomistic, reductionistic, anticontextual and follows an analytical logic concerned with combinations of discrete elements. It further requires that disease be dealt with as an entity independent of social behaviour or relational context. Lastly it also demands that behavioural aberrations be explained on the basis of disordered somatic (biological and neurophysiological) processes only. According to Keeney (1983b) clinical diagnosis is tied to the process of ascribing a label to an individual in order to signify that particular pathology and class of symptoms exhibited. It sees the individual as the receptor of lineal casual effects and thus the site of pathology.

As will become clear the ecosystemic therapist does not attempt in the traditional sense to diagnose the problem (Hoffman, 1985). Traditional diagnosis assumes that there is an objective problem and that one can arrive at an objective assessment of the problem (Anderson & Goolishian, 1988). The ecosystemic perspective facilitates a shift from locating the problem within the individual and thus 'blaming' the 'symptom bearer' and assigning cause to the onset of the disease. This will become clear later on. First the relationship between diagnosis and epistemology will be discussed.

DIAGNOSIS AND EPISTEMOLOGY

As an alternative paradigm for diagnosis, the ecosystemic epistemology suggests that diagnosis focus on the knowing of problematic situations. In an ecological and systemic way diagnosis is related to one's epistemology.

Keeney (1979) explains that the etymological meaning of diagnosis is literally 'to know' (p.118). Accordingly, at anytime a therapist strives to know about a specific problem, for example CFS, and associated behaviours and symptoms, that therapist can be characterised as diagnosing.

To recap, Auerswald (1985) argues that epistemology has to do with our thinking about thinking. He defines it as "how a person or group of persons process information (p.684). Furthermore he argues that a therapist's epistemology leads to a particular way of observing data, which implies diagnosing. Keeney (1979) explains that diagnosing can be viewed as a process of weaving several levels of abstraction. A person begins with the observed data, then on a more abstract level, creates different descriptions of the situation and then on the even more abstract level arranges the data in a particular way. This last level of abstraction is within the realm of epistemology.

Different therapists and clinicians have different ways of arranging data. Even though they seek the same information and behave in similar ways, the information that they have abstracted is arranged differently in accordance with the epistemological base used by the clinician.

To a great extent, clinicians working with CFS reside in the positivistic epistemology. As will be highlighted in the next chapter, positivistic observation falls within the what Keeney, (1983b) refers to as the first level of abstraction, namely, purely observable data. From an ecosystemic frame of reference this model is depicted as atomistic, reductionistic, and anti-contextual, following an analytic logic concerned with combinations of discrete elements. The ecosystemic perspective also includes a second level of abstraction, which considers pattern and interaction, as well as the third level of abstraction, which implies the inclusion of the descriptions of the observer and thus his or her epistemology.

This section will now continue with a cybernetic approach to diagnosis.

CFS: A CYBERNETIC PERSPECTIVE

From a cybernetic perspective symptoms and behaviour associated with CFS are regarded as part of the relationship system such that the site and the form of the symptom may shift. Keeney (1979) mentions the following generalisations:

- Difficulties in any part of the relationship system may give rise to symptomatic behaviour and expression in other parts of the system.
- Symptomatic relief at one part of the system may result in a transfer of symptomatic expression to another site.
- Significant change in any part of the system e.g. change in CFS related behaviours or changes in significant other persons behaviours, may result in change in other parts of the system.

Therefore, relating to the ideas of Keeney (1979), CFS can be viewed as a relationship metaphor, which suggests communications about relationship. This symptomatic behaviour could be viewed as a striving toward higher order or self-correction (Keeney 1983a). The major implication for therapy would then be to investigate the communicative function of symptoms within an ecological relationship system. For Keeney (1979) when a symptom is viewed as a communicative function, it becomes an indicator or sign for the ecology of relationships.

If CFS is viewed as a striving toward higher orders of self-correction, CFS would be seen as the beginning of the process attempting to change the distorted premises organising the problematic sequence of experience and interaction. Therefore the symptomatic behaviour of CFS can be regarded as providing the cybernetic system with an opportunity to communicate that a particular epistemological premise is distorted, or ineffective. CFS thus leads its 'victim' or sufferer to cybernetic self-correction. According to Keeney (1983a) the correction of this occurs through unconscious

processes as well as conscious processes. The unconscious ones being respect for the ecology of the symptom, and conscious ones through higher order processes that need to include the therapist as well.

Furthermore Keeney (1979) explains that the cybernetic network representing a family system (not individual within a family, but rather patterns of relationship) includes governing loops or circuits that keep the system in check. These governing loops are regarded as helping to maintain the family stability. This refers to what Hoffman (1981) calls the homeostatic cycle. According to this the therapist working with CFS would attempt to disrupt the homeostatic cycle which serves to prevent a necessary change, and hence the family can be seen as experiencing a problem.

According to this, the homeostatic cycle is seen as a cyclical sequence of behaviour that includes behaviour tagged as symptomatic e.g. fatigue. For Hoffman (1985) since the function of the cycle is to maintain homeostasis, getting one element to change would only cause the other elements to readjust so that the outcome stays the same.

When CFS is described in cybernetic terms, the description depicts the symptoms or behaviours as a message in an interconnected relationship network with feedback structure. CFS then can be described as having a homeostatic function. The implication for the therapist addressing CFS would be diagnose and treat the relationship network rather than diagnose and treat the individual as sight of pathology or illness. Keeney (1979) suggests that the therapist's first diagnostic statement should be of redefining the CFS or related symptoms in interpersonal terms. This could assist both therapist and clients to see CFS as part of a relationship system that resides then exclusively within the one tired individual. A pragmatic approach to diagnosis and therapy will be discussed in more detail in Chapter 6.

Bateson (Keeney, 1979, p144) argues that "if you want to understand some phenomena or appearance you must consider that phenomena within the

context of all completed circuits which are relevant to it". For the therapist working with CFS the relevant circuits would refer to the network of complexly intertwined human relationships in which the symptoms of CFS as a communication has a function. When that network is identified, therapeutic communications can be issued that attempt to restructure the network, which ideally results in the alleviation of symptomatic communication. Thus when thinking in terms of first-order cybernetics, when diagnosing CFS it is in knowing how the cybernetic network is interlinked or structured.

The homeostatic model and cybernetic approach have been criticised from a constructivist perspective as still showing evidence of positivistic notions. In this regard refer to Chapter 2.

When viewing CFS from a systems perspective, cybernetics provides us with notions such as homeostasis and adaptation to understand the phenomenon. As mentioned in Chapter 3, on the other hand second-order cybernetics or cybernetics of cybernetics includes concepts such as self-reference, autonomy, and more complex units of mind (Keeney, 1983b). When viewing CFS from a second-order approach, the observer is placed in that which is being observed regarding CFS and thus becomes part of what Bateson (1979) refers to as the 'ecology of ideas'. Therefore all descriptions around the condition must be self-referential. As will be further illustrated in the chapters to follow, research and treatment from a second-order or constructivistic perspective takes things further. Not only is the observer (therapist) part of that which is being observed, but also any explanation or description is seen as self-referential which has epistemological implications.

The next session discusses the shift towards an ecosystemic approach to diagnosis. The ideas are a result of, and based on some of the second-order cybernetic concepts and ideas discussed in Chapter 3. These include, for example autopoiesis, the ideas of the observing system, cybernetic complementarities, ecology of ideas, coherence of a system, double

description and so on. These concepts overlap one another and will therefore not be discussed separately but will be highlighted.

TOWARDS AN ECOSYSTEMIC APPROACH TO DIAGNOSIS

Diagnosis within a context

Traditional diagnosis of CFS is based on the principles of dualism, reductionism, linear causality, and objectivity. It implies that the observer is seen as being separate from the observed or that according to Bunge (1979) a process is separated from the context in which it occurs. The result is that from a traditional perspective, CFS as a process is separated from the relational context in which it occurs.

The ecosystemic epistemology does not focus on dividing the world into dualisms of mutually excluding opposites. Rather, it prescribes seeing events as organised by recursive feedback processes and a way of seeing and describing patterns that organise events (Keeney, 1983a).

Ecosystemic epistemology emphasises, that from an ecosystemic perspective the problems related to CFS are viewed as linked to a specific relational and contextual domain and that associated behaviours take place in the reality of understanding and meaning. From an ecosystemic perspective the therapist does not solely focus on the observable data, but also on the different descriptions of situations and thus on the second level of abstraction. The third level of abstraction, that is, the particular way in which a specific therapist arranges his or her data is also a main area of focus, as the therapist is seen as part of the diagnosis. All this takes place within a conversational domain and thus in language. From an ecosystemic perspective CFS can simply not be described as a disease having objective, quantifiable symptoms. This is coherent with the principles of cybernetic complementarities. As explained in Chapter 3, it implies that when dealing with CFS both sides of the positivistic duality e.g. mind/body;

cause/effect and so on, can be redefined as a complex and functional unit. Thus CFS as traditionally diagnosed is viewed as the manifestation in symptoms of only one side of a duality. From an ecosystemic perspective, in order to understand the phenomenon of CFS, one needs to understand both sides of the functional interaction.

In this sense an ecosystemic diagnosis of CFS can be regarded as a way of knowing the problematic situations through the epistemological framework or paradigm representing cybernetics, ecology, and systems theory. These have already been discussed in some detail in Chapter 3.

The ways in which these “representations or descriptions are informed reflect implicit epistemologies, that is rules for describing, categorising and knowing our experience” (Keeney, 1983c, p.46). Therefore epistemology refers to the way meaning and sense is given to the world. Therefore it can be said that meanings and behaviour with regard to CFS are in a recursive relationship with one another.

Diagnosis as the problem-determined system

The ecosystemic perspective proposes a move away from defining a system according to social parameters as does the diagnosis of CFS in traditional terms. It recognises as a system the inclusion of all those who talk about the particular issue (Anderson & Goolishian, 1988) and hence, the problem-determined system. This was discussed in Chapter 3 and will further be elaborated on in Chapter 6. The ecosystemic epistemology points to the observer’s inclusion in that which is being observed. Therefore the self-referential nature of any and all descriptions is emphasised. In this way the autopoietic nature of the system is respected.

Taking into consideration the implications of double description, cybernetic complementarities, context, the autopoietic nature of a system, and its coherence, the following must be emphasised: It must be remembered that if CFS is diagnosed or conceptualised as a physical or pathological

condition and that the emotional as well as physical changes are regarded as nothing more than a result of the physical condition, the context in which it takes place is ignored.

To go to the other extreme, and view the condition as simply imaginary, the reality of the physical changes is ignored. This all implies reductionism, linear causality and contributes to the mind-body separation of traditional thinking. In this way the holistic nature of the system is ignored, which may not be the case if these dualities were viewed in terms of cybernetic complementarities, and the autopoietic nature and coherence of the system were considered.

According to Watzlawick, Weakland and Fisch (1974, p. 22) to view symptoms in terms of their aetiology and pathology by means of linear epistemology is to “reify the relationship metaphor”. For Keeney (1979) the reification of symptoms perpetuates the myth of their having an exclusive substantive locus within the boundaries of individuals. In this way the meanings and contexts are ignored. (Bateson, 1979, p.24) argues that “context is linked to another undefined notion called ‘meaning’. Without context, words and actions have no meaning at all’. This implies that in order to understand CFS it should be placed within the context within which it occurs. Furthermore, the changes that occur in terms of meaning and relationship patterns, cannot be predicted, but can take place through the inter-subjective co-construction of meanings around CFS, through all those in communication about the problem (Hoffman, 1990b).

Meaning and the premise of language in diagnosis

As previously discussed, meaning arises through language (for Maturana (1978) nothing exists prior to language). This implies that the therapist working with CFS internally makes distinctions between what is observed and what is known through the use of personal constructs, that is meanings (Anderson & Goolishian, 1988). These meanings are exchanged through verbal and non-verbal language. The exchange of these meanings eventually leads to the construction of a particular reality for that system, for

example the problem of CFS and its related symptoms and behaviours. According to Keeney (1983b) language can be seen as a representational system of our experience. It not only represents our experience to ourselves, but communicates our experiences to others.

All the above implies that from an ecosystemic approach there is no objective problem to be diagnosed, the problem only exists in the consensual domain that has evolved around the behaviour. In addition, these consensual domains are continually changing, and even our thinking about (diagnosing) them changes them. This means that emphasis is placed on 'the ecology of ideas'. This is what determines the problems or behaviour requiring treatment. Diagnosis in ecosystemic terms according to Anderson and Goolishian (1988) is talking with the clients about how they see the problem. The clients are seen as the experts on the problem, not the therapist. Therefore if a person makes a shift from the "expert-dummy model" (Hoffman, 1985, p.390) the idea of traditional diagnosis must be done away with as well. From the ecosystemic perspective there would be a shift in emphasis from a concern with the aetiology of CFS to a concern with the meanings attached to it.

The ideas of Gergen (1991) connect to those of Anderson and Goolishian (1988) when he speaks of "negotiated understanding", the term given to the shared meaning or understanding in language in a particular relational context. When this is applied to CFS it can be said that the illness, traditionally seen as located within the sick individual, can rather be conceptualised as a contextually shared meaning in language. It is further argued that the description of anxiety, depression (and in that case other symptoms related to CFS), and also the diagnosis of CFS in itself, which involves ontological, inclusive criteria based on the assumptions of the medical model, is an example of negotiated understanding of social processes. These are described as emotions and physical conditions to which the individual is bound. This is seen as individual pathology. An individual problem such as CFS and its related symptoms are therefore viewed as objective and universal facts and form part of our general

language. This promotes the stigmatisation of emotions. Gergen (1991) believes that problematic behaviour should not be viewed as part of the individual and the construct "problematic behaviour" must be banned. He argues that this can be achieved by the construct "negotiated understanding of social processes".

Bateson (1979) regards language as the vehicle through which all meaning is created. Reality is therefore transformed through language in order that explanations may be constructed. This implies that the diagnosis of CFS cannot be seen as an objective reality or entity as does the label imply. Rather it can be seen as the result of the arbitrary nature of language, as a subjective description of reality that can never be objectively known. Therefore any understanding or co-constructed meanings that are developed around CFS are only, what Bateson (1979) calls "arbitrary punctuations and partial arcs" (p.84).

SUMMARY

The debilitating physical, biological, cognitive and social changes associated with CFS get meaning within the context of which it is part. From a constructivist position it is not possible to diagnose CFS as an individual, biological disease or pathology. This would imply only a partial arc of a more complete description, as well as the denial of cybernetic complementarities and the autopoietic nature of the human system, which includes the therapist. Rather, diagnosis can be seen as a process in which meanings around CFS are co-constructed by all in communication about the problem. CFS can therefore be described as "news of difference" (Bateson 1972). Everybody who is affected by the phenomena is part of the context and process. It is by considering the 'context' that one is able to reach a more holistic understanding of the problem of CFS.

In this chapter the positivistic approach of the medical model for the diagnosis and case definition of CFS was discussed. The historical overview placed the problem within the context of Western thinking in the

past few years. Controversies regarding terminology as to whether the illness exists or not were touched upon. Furthermore the relationship between epistemology and diagnosis was briefly discussed followed by suggestions for an alternative epistemology and understanding of diagnosis.

In the next chapter the problems associated with positivistic research in the field of CFS will be highlighted. A discussion suggesting a shift towards methods of research consistent with the ecosystemic epistemology will follow.

CHAPTER 5

CFS : A CALL FOR AN ALTERNATIVE RESEARCH PARADIGM

INTRODUCTION

As will be seen throughout the literature review, CFS has mainly been described and researched from a positivistic perspective. The underlying assumptions of positivism have been discussed in Chapter 2 and will further be highlighted throughout the following discussion. In the first part of this chapter, the main areas of positivistic research into CFS will be highlighted as well as the current areas of research interest. The second part of the chapter suggests a shift towards research that is consistent with ecosystemic thinking.

An alternative epistemology calls for alternative models of investigation that are coherent with its underlying assumptions (Moon, Dillon & Sprenkle, 1990a). These authors argue that traditional (positivistic) research methods are derived from linear, reductionistic paradigms and are therefore inadequate to contribute to knowledge about how systems operate and change. For them, a call has been issued for new research methodologies that are consistent with systems theory, within the field of family therapy.

The epistemology of positivism has been touched on in some detail in Chapter 2. Various concepts of importance such as second-order cybernetics, constructivism and ecosystemic thinking were addressed in Chapter 3.

The positivistic worldview separates the observer from the observed. It seeks to explain and understand the phenomena of CFS in terms of linear

causality and through reductionism, it further attempts to discover the one 'true reality' of CFS. The epistemology of positivism is objectivism. This implies that it is possible for the observer observing CFS to remain separate from the condition that he or she observes. Furthermore it is believed that these bias-free observations of the CFS patient are essential to scientific research and that this is possible by means of appropriate methodology, such as valid and reliable instruments and randomised experimental designs.

In the section to follow a literature overview will be presented. The main areas of research into CFS based on the positivistic assumptions of the medical model will be highlighted, as well as the current areas of research interest. Because the aim of this study is to suggest a shift toward an alternative approach to CFS based on ecosystemic thinking, it is regarded as a necessity to introduce a research design that is consistent with ecosystemic thinking. This will follow the literature overview.

POSITIVISTIC RESEARCH

Research into CFS is coherent with the reductionistic principles of positivism. Investigators seek to identify a single primary cause, or number of causes, that can be linked to CFS in a causal, linear way, and so be treated. Research is concerned with symptomology and causal linearity and thus implies a reification process. In their search for a "true" cause, researchers make distinctions based on dualism. In the process, as described by Griffith et al (1990), human behaviour is divided into components caused by, or related to, either mental events or physiological events. In this way, among other things, the autonomy and autopoietic nature of human systems are ignored.

According to various authors (Dawson & Sabin, 1993; Demitrack & Abbey, 1996; Shorter, 1993) when looking at the origins of CFS it becomes clear that a residual mass of fatigue symptoms became converted into a

“syndrome” as a result of four separate chains of events. In turn these became the main areas of positivist research, and include Poliomyelitis, Epstein-Barr Virus, Myalgic Encephalomyelitis, and Fibrositis.

POLIOMYELITIS

The first epidemic of CFS was reported in Los Angeles in 1934. The first people to be infected were those working on the polio wards and in the admitting office of the wards. This was followed by students and graduate nurses working in the polio wards but not living on the hospital grounds, and then those who were not working in the communicable disease wards. The last to be affected were non-residential graduates working in the non-polio wards. There was also the opinion that hysteria had a role to play in this outbreak although it was unlikely that many of the cases were purely hysterical in nature.

Shorter (1993) suggests that the fatigue and muscle pains reported by these individuals may well have been an experience of an undiagnosed viral infection. This became a model for nosologists in search of new disease labels. He states “the sobriquet epidemic neuromyasthenia became coined for epidemics of fatigue and muscle pain occurring in the 1950s and 1960s” (p.13). He further explains that because of the publicity given to these epidemics of unknown aetiology, patients who had not really been part of the epidemics but who were experiencing similar symptoms began attributing their experiences to neuromyasthenia. They, as well as their physicians, insisted that external agents caused the disorder, but anybody who exhibited the symptoms could qualify for the diagnosis.

EPSTEIN-BARR VIRUS

The second area of research involved the organic disease mononucleosis (Shorter, 1993). According to Jones (Goodnick & Klimas 1993) the well-recognised signs of infectious mononucleosis (IM) included for example, fever; jaundice; rash lymphadenopathy; pharyngitis; splenomegaly; hepatomegaly; and palatal exanthema. The symptoms included a sore throat, malaise, headache, anorexia, myalgias, chills, nausea, abdominal

discomfort, cough, vomiting, and arthralgias. When carefully scrutinised, the symptoms of IM reveal great similarities to those found in CFS.

According to Goldstein (1993), mononucleosis had been discovered to be caused by the Epstein-Barr virus (EBV). At the time, it was known that patients with this condition had an elevated amount of suppressor or cytotoxic cells. Demitrack and Abbey (1996) state that in the context of older studies, there was a revival in interest in chronic fatigue states as sequelae of acute or reactivated Epstein-Barr virus infection. This was sparked by an apparent clinical outbreak in Lake Tahoe in the early 1980s. According to these authors, this may be seen as the historical heir to the prior epidemics.

Goldstein (1993) states that research showed that, although the symptoms were systemic and constitutional and included a number of symptoms in various parts of the body, the Epstein-Barr virus could be recovered from only a few locations such as the oropharynx. From this it seemed obvious that most symptoms were the result of the reaction of the immune system to the virus, rather than the virus itself. Further research revealed that if this were the case, and since most people are exposed to the virus and develop antibodies to it, we should all get mononucleosis unless there is some reason, such as our genetic predisposition, causing some people to respond to the virus in this way. It is important to note that with the discovery that the Epstein-Barr virus was responsible for mononucleosis in 1968, an organic explanation for chronic fatigue and muscle pain was provided. The condition was called Chronic Epstein-Barr Virus Infection. The problem with this was, as mentioned, the ubiquity of EBV antibodies that are present in the majority of the population. In 1996, Gary Holmes at the Centres for Disease Control, with his co-workers, realised that the correlation between patients who had haematological evidence of chronic EBV infection and patients who had symptoms of chronic fatigue was poor. He therefore renamed the syndrome Chronic Fatigue Syndrome, or CFS (Demitrack & Abbey, 1996).

MYALGIC ENCEPHALOMYELITIS

Myalgic Encephalomyelitis was the third focus area for researchers (Shorter, 1993). In 1955 there was an outbreak of an illness at the Royal Free Hospital in England that was associated with the similar syndrome that reached epidemic heights at the Los Angeles County Hospital in 1934. The dramatic quality and speed of onset of the Royal Free epidemic made it even more striking than the Los Angeles outbreak (Demitrack & Abbey, 1996). In less than two weeks in July 1955, more than 70 staff members were admitted to the hospital for an acute illness that started with a headache, sore throat, malaise, lassitude, vertigo, and pains in the limbs. Within four months 292 staff members had been infected with this strange disease. Only 12 of the in-patients were affected even though the hospital was full at that stage. It was noted that in sporadic cases and smaller epidemics, sedentary individuals were rarely affected. This suggested that in-patients were protected by their inactivity.

Presenting symptoms did not differ much from those of other viral illnesses but the intensity of the malaise from the stage of onset was a striking feature of this specific outbreak (Dawson & Sabin, 1993). The symptoms and signs of this epidemic seemed to marshal a case for epidemic hysteria. The early symptoms of malaise and headaches were commonly associated with encephalomyelitis and renamed benign encephalomyelitis the following year because no one had died from the illness. The "benign" was later left out as patients were not experiencing their symptoms as benign and the condition came to be called myalgic encephalomyelitis, or ME. According to Shorter (1993), the symptoms were the same as those found in neuromyasthenia, Chronic EBV, and Chronic Fatigue syndrome, but an "accident in geography" resulted in a different disease label.

FIBROSITIS/FIBROMYALGIA

The fourth strand of research focused on rheumatological diagnoses, namely Fibrositis, or Fibromyalgia (FM) (Shorter 1993). According to Goodnick and Sandoval (Goodnick & Klimas, 1993) the major criteria for FM in contrast to CFS do not include fatigue but rather generalised aches or

stiffness involving three or more anatomical sites for at least three months, as well as at least six typical and reproducible tender points. The minor criteria include eight symptoms: fatigue, headache, sleep disturbances, neuropsychiatric symptoms, joint swelling, numbness, irritable bowel syndrome, and modulation of symptoms by activity, weather, and stress. In contrast, the Centers of Disease Control's definitions of CFS are only alike in three of its 12 minor criteria and have three additional physical criteria. Despite the differences in their definitions, those people suffering from FM and those suffering from CFS share many symptoms and epidemiological factors.

Goldstein (1993) states that the aetiology of FM is still unknown. A defect in muscle microcirculation has been found consistently, perhaps causing hypoxia. Immune dysfunction in FM is still unresolved. The importance of FM as a strand in the development of CFS is that the prominence of muscle pain led many to conclude that CFS is a muscle disorder. This hypothesis, has, however, been disproved by various studies. At present a hypothalamic dysfunction, particularly involving 5-hydroxy tryptamine metabolism is postulated, however an elaborate description of this is not within the scope of this study. According to Meyer (1996) a study was undertaken to determine the prevalence of the fibromyalgia syndrome (FMS) and major depression in patients fulfilling the Centers for Disease Control (CDC) criteria for CFS. It was found that there is a high prevalence of both among young patients and it is frequently a long-standing problem. Accordingly, it is believed that CFS, FMS and major depression probably share a similar neurochemical background, although there are clinical and therapeutic differences.

None of the four areas of research discussed above could isolate one cause for, or a number of causes or factors that could be linked to CFS. There is still much disagreement on the subject. The next area of interest is personality characteristics and how they can be linked to CFS.

PERSONALITY

Biomedical authors have drawn on the concept that illness could be the consequence of a specific personality type (Berne, 1992; Cohn, 1999; Millon, 1989). This theory has recently gained renewed prominence through the proposal that two categories of personalities have different probabilities for having a heart attack (Cohn, 1999).

According to Berne (1992), CFS sufferers can be premorbidly described as energetic, motivated, intelligent, goal orientated, perfectionistic people. He further contends that a CFS patient can often be described as taking the role of the "magic caretaker", taking care of others at the cost of him- or herself, and can be regarded as "people pleasers". This fits with the A-type personality as described by Cohn (1999). In research undertaken by Millon (1989), he found that CFS sufferers often have premorbid personalities that have a tendency to be depressive. This manifests in depression with symptoms of fatigue, insomnia and cognitive problems. He further suggests that these patients are hard workers but have difficulties dealing with failure. Berne (1992) undertook a study to determine personality traits prior to onset and after onset of CFS. He found a significant decline in certain categories after onset of CFS. The findings were as follows: "Outgoing personality" (82% to 26%), "High achiever" (87% to 18%), "Energetic" (87% to 26%), "Competitive" (87% to 8%), "Perfectionistic" (76% to 21%), "Caretaker of others" (84% to 34%), and "Independent" (92% to 18%). Cleare and Wessely (1997) state that patients seen in specialist clinics often show characteristic Type-A personality traits such as perfectionism and over-achievement. According to these authors post-infectious fatigue that would otherwise be self-limiting may be exacerbated and perpetuated by the high levels of psychological distress it induces in such personality types. Type-A personality traits could also cause sufferers to convalesce in a non-sensible fashion.

On the other hand, however, Cleare and Wessely (1997) state that such observations may simply reflect the patient's desire to be seen as

psychologically robust, or the traits may be associated with getting referred to a specialist clinic and in reality tell us little about CFS.

Cohn (1999) states that attempts have been made to integrate such claims with general theories of somatisation. This has resulted in much literature now presenting personality types or traits as predispositions and the process of somatisation being triggered by a period of psychological conflict. However, studies that have attempted to apply such measurements of personality with CFS have largely failed to establish any clear statistical relationship.

Most CFS sufferers vehemently reject the arguments that their illness may be related to their personality. The same applies to the argument that CFS may be the somatisation of an affective disorder. Many patients feel that being described as psychosomatic does not give them the status of really having a disease, one that they mostly experience not in terms of psychological states but on-going impairment of their body. This combined with a hypothesis that suggests a categorical nature to the kind of people affected- whether it be class, gender, personality type- is interpreted as part of a victim-blaming ideology.

Attempts are made to link personality traits to CFS in a causal way. This is not only a linear process but also one of reification. In reality, one reification is related to another. A personality is constituted of a number of distinctive characteristics. Thus, the characteristics of Personality Type A are different from those of Personality Type B. The two personality types also differ from one another. Like the name CFS, the term "personality" in this context is used to make distinctions and draw boundaries. These descriptive concepts are then spoken about as though they actually exist as concrete entities. The traditional research into CFS and personality characteristics, as well as the causal relationship between them is based on the anti-contextual, reductionistic, and linear premises of Positivism.

The same goes for the attempts made to link CFS with psychiatric disorders, a discussion of which will follow. As mentioned earlier, problems

that become named psychiatric disorders and is labelled as either "Depression", "Anxiety Disorder", or whatever the case may be, implies a reification process, linear causality, and reductionism. These psychiatric labels are related or linked to CFS in a linear causal manner as though they are objective entities. Researchers seek either/or causes that can assist in understanding and explaining the phenomenon. This implies that they are viewed as standing apart from what they observe and that they are able to do so in an objective manner. These descriptive concepts are also removed from the context in which they originated and are regarded as objective entities. This furthermore implies that one side of a cybernetic complementarity is identified and described and treated as though it offers the complete picture of reality.

PSYCHIATRIC DISORDERS

There have been frequent reports of psychiatric symptoms in CFS as well as suggestions that it is a variant of a psychiatric disorder (Howlett & Lindegger, 1996). According to Clear and Wessely (1997) a strong association between CFS and psychiatric disorders exists. One- to two-thirds of CFS sufferers have a co-morbid psychiatric disorder, usually depression, anxiety, or somatoform disorders. The precise role of psychiatric disorder in CFS remains uncertain and in the literature there is much controversy and disagreement among authors.

Most patients who fulfil the criteria for CFS also fulfil the criteria for a variety of psychiatric illnesses. Wessely (1996) points out that the greater the number of somatic symptoms the greater the risk of psychiatric disorder. He states that this psychological morbidity is often missed and that patients are often reluctant to discuss their emotional issues, and that most patients prefer to receive a physical rather than a psychological diagnosis. Conversely, many clinicians are unfamiliar with, and often not willing to consider psychological diagnoses. Such cases of "hidden" psychiatric morbidity may reflect the perceived stigma of psychiatric illness.

Lewith (1996) notes that in many patients, depression, anxiety, and sleep disturbance can be shown to follow a viral infection in an otherwise healthy pre-morbid personality. In the author's attempt to answer the question as to whether CFS may be a neurotic disorder, he contends that there are numerous reports relating to the psychometric testing of patients with CFS that indicate that there are quite specific patterns of memory loss and confusion in these individuals, which are different from those with pure personality disorders or simple neuroses. Although most people feel depressed and "out of sorts" for a few weeks after a severe viral infection, it seems as though CFS sufferers have these symptoms in an extreme and persistent manner. He further states that neuropsychiatric symptoms, while part of CFS, do not in themselves indicate a primary psychiatric aetiology. He does, however, believe that there are individuals who take refuge in the diagnosis of CFS as an explanation for their personality disorders and emotional difficulties.

Richards (2000) states that there are several ways in which the co-morbidity of CFS and depression could be explained. Firstly, the two conditions could arise from the same aetiological factors and be different presentations of the same disorder. Secondly, and in contrast, depressed mood as a secondary phenomenon to the functional impairment associated with CFS is very understandable and could account for the association. In addition, the predicament for many patients with CFS could be experienced as much more hopeless than having a disorder with a more widely accepted label, with a physiological basis, such as cystic fibrosis or cancer. The author emphasises that the sense of isolation, demoralisation and hopelessness for many patients with CFS and their families should not be underestimated and provides an adequate explanation for the associated depressive symptomatology in many of the cases.

According to Buchwald, Gantz, Katon, and Manu (1991) studies that have included a psychiatric assessment indicate that 50-80% of patients with chronic fatigue has an underlying psychiatric disorder - usually depression. Only one study with a lower prevalence, in which 46% of patients satisfied

the diagnostic criteria for major depression sometime during the course of their illness, could be found. Ellis (1996b) differs slightly when he contends that 40-50% of patients with CFS are suffering from depression as well, while up to 70% have some form of mental disorder. Interestingly, they report that in studies that used patients with severe medical illnesses (neurologic muscle disease and rheumatoid arthritis) as control, the control population had substantially lower rates of depression. They further report that studies show that in 70% of patients with CFS, there is no evidence of chronic psychiatric illness prior to the onset of CFS.

Anxiety disorders are fairly common with patients suffering from CFS. There is however also a co-morbidity between anxiety disorders and depression (Pelcovitz, Septimus, Friedman, Krulov, Mandel & Gaplin 1995). Sharpe (1996) emphasises the similarity between the typical somatic symptoms of anxiety and the physical symptoms that some patients with CFS report in addition to fatigue. He does, however, conclude that CFS is not adequately explained by anxiety, or as previously discussed, by depressive disorders. Richards (2000) states that there has been surprisingly little interest shown by researchers in delineating anxiety symptoms and disorders in people with CFS. A study indicated that 30 out of 53 CFS sufferers met the DSM- III criteria for Generalised Anxiety Disorder. It was found that symptoms associated with generalised anxiety disorder were retrospectively reported by subjects as having had an insidious onset from early adulthood or adolescence. It was then believed that early onset anxiety disorders could be a vulnerability factor in the development of CFS. Richards (2000) emphasises that this possibility requires further research.

The process in which psychological distress becomes associated with physical symptoms is known as somatisation. Throughout the history of medicine and psychiatry clinicians have sought to understand this mechanism. The term, as used by Lipowski, refers to the physical experience and/or expression of human distress. Richards (2000) makes no assumptions about aetiological factors or whether the process involves

conscious or unconscious emotions. There are various forms of somatisation, which include the experience of pain, loss of function and fatigue (Garralda, 1996). There are also various theories explaining the process and need for somatisation, for example, some individuals only being able to express emotional conflict or distress through physical symptoms. The applicability of these theories to CFS has been questioned due to lack of validation (Richards, 2000).

Howlett and Lindegger (1996) investigated attributional style and illness behaviour in CFS. They hypothesised that CFS patients are characterised by abnormal illness behaviour and a tendency to over-attribute difficulties in living to somatic causes. These authors are of the view that the construct of illness behaviour implies the manner in which people monitor their bodies, define and interpret their symptoms, take remedial action and utilise various sources of help as well as the more formal health care system. Linked with attributional style or process, illness behaviour can be described as the ways in which individuals perceive, evaluate, and respond to aspects of their own functioning, to which they are predisposed to appraise in terms of "illness" and "health". Abnormal illness behaviour then refers to the persistent mode of inappropriate or maladaptive way of perceiving, evaluating, or acting in relation to one's own state of health. They found patterns of abnormal illness behaviour with high somatic pre-occupation. It was also found that there was a preference in ascribing or attributing difficulties to somatic problems.

Howlett and Lindegger (1996) suggest that psychological distress may trigger or enhance pathological processes associated with CFS through immune system dysregulation. Ironically it was found that apart from the tendency to attribute difficulties to somatic rather than psychological causes, patients with CFS are more similar in illness behaviour to depressive patients than to patients with other chronic illnesses.

According to Wessely (1996) the strength of conviction that symptoms have a solely physical cause, is the best predictor of poor outcome. Concern about the meaning and significance of symptoms (which are often

interpreted as “warning signs”) is heightened by the unpredictable nature of CFS. He contends that increased concern leads to heightened awareness, selective attention and “body watching”, which can intensify both the experience and the perceived frequency of symptoms, thereby confirming illness beliefs (e.g. any activity that causes an increase in fatigue is damaging or impossible; over-exertion causes permanent damage; and CFS is untreatable and irreversible) and reinforcing illness behaviour (or abnormal illness behaviour). Richards (2000) contends that our knowledge about somatisation in general is applicable to specific disorders such as CFS and has some face value validity, but that further exploration into specific mechanisms involved when emotional pain is expressed as fatigue, is necessary.

As mentioned earlier, the relationship between CFS and psychiatric disorders (especially depression) is the focus of major controversy. Some authors contest the idea that CFS may be a form of psychiatric condition. Saunders (1998) cites three reasons to reject the notion of a psychiatric underpinning. Firstly, there is a striking difference between patients with major depression and those with CFS. Secondly, there is a prevalence of CFS in diverse populations. Thirdly, a sudden onset after a viral illness often characterises cases of CFS. The author insists that understanding the relationship of depression to CFS is a key part of the differential. If depression preceded the onset of fatigue, CFS is excluded. If depression developed with the onset of fatigue or during the course of illness, CFS is not excluded.

Buchwald et al. (1991) are of the opinion that some symptoms of depression are included in the criteria given in the definition of CFS, blurring the line between CFS and depression. The case definition does not address the issue of whether a past or ongoing psychiatric disorder may have made the patient vulnerable to developing CFS, or whether current CFS can be attributed to a past psychiatric condition. Some experts believe that if a current psychiatric disorder preceded the chronic fatigue by more

that one year, it is the primary disorder. Otherwise, it may be considered secondary to CFS.

Cleare and Wessely (1997) emphasise that more and better-designed studies are necessary to determine the nature of the link between psychiatric disorders and CFS. They feel that it is unlikely that psychiatric disorder is solely the consequence of physical disability. They are of the opinion that concentrating on whether a patient fulfils criteria for psychiatric disorder may be a limited way of understanding the role of psychological factors in CFS. Whatever its origin, psychiatric disorder affects the outcome of CFS, and requires treatment if present.

Ellis (1996b) rightly states that most general practitioners prefer making a diagnosis only in a linear cause-effect way, but that CFS may be co-constituted or interrelated with other conditions in a non-causal way. He argues that the finding of a psychological problem within an individual suffering from the illness does not necessarily indicate a causal relationship to CFS, as depression, somatisation and anxiety are not uncommon in the general population and patients may become anxious or depressed as a reaction to their illness.

The following four areas of interest include the link of the central nervous system and CFS, cognition and CFS, genetic predisposition, and lastly, stress and life events and CFS. It will become clear that research in all these areas imply causal relationships, reductionism, and reification. This is once again coherent with the linear epistemology of Newtonian thinking. A brief discussion of each will follow.

THE CENTRAL NERVOUS SYSTEM

The most convincing abnormalities to date, according to Shepherd (1997), stems from studies of regional blood flow (SPECT scans) to the brain, levels of hormones under the control of the hypothalamus (part of the brain responsible for hormonal balance, temperature control, appetite regulation and normal patterns of sleep) and disturbances in neurotransmitter activity.

Cleare and Wessely (1997) contend that the most widely publicised neuroimaging studies of CFS found widespread abnormalities, in particular lowered perfusion of the brainstem. They warn however, that other studies have not reported values for brain stem perfusion because of technical difficulties and therefore this finding must be interpreted with caution.

Demitrack and Abbey (1996) report that studies of hypothalamic function have found abnormalities relating to the chemical neurotransmitter serotonin, as well as changes in growth hormone level, and decreased cortisol production. According to these authors, low levels of cortisol may explain symptoms such as joint pain as well as increased allergic illness reported in CFS. Further research is, however, required before any certainty can be reached.

COGNITION

Cognitive impairments, more often than not, accompany CFS. This is likely related to neurophysiology. According to Shepherd (1997) neurological tests, designed to gauge electrical activity in different brain regions, performed on some CFS patients reveal a similar dearth of activity in the temporal lobes and the hippocampus. This region of the brain plays a central role in the formation of memories and may explain the memory problems experienced by some CFS sufferers.

Cognitive deficits and difficulties are often reported by authors (Ellis, 1996b; Meyer, 1993; Spencer, 1998) as characteristic of the syndrome. Complaints generally include short attention span, difficulties in concentrating and memory loss. Although complaints of cognitive deficits are common among CFS patients, there is insufficient objective data to support these subjective reports and further research in this area is needed (Goodnick & Klimas, 1993).

GENETIC PREDISPOSITION

Researchers do believe that a genetic predisposition may play an important role in the contraction of CFS. Further research in this field is, however, required (Berne, 1992).

STRESS AND LIFE EVENTS

Cleare and Wessely (1997) find the idea of stressful life events influencing the development of CFS attractive. This is often supported by observation of individual patients. They do not doubt that life stress together with an acute infection such as infectious mononucleosis strongly predicts the development of post-infectious depression. There is, however, no clarity on whether stress itself influences the development of CFS.

According to Hicks, Jones, Renner, and Schmaling (1995), previous trauma appears to be a triggering event in some cases of CFS. They emphasise that it is important to ask patients, especially women, if they had ever experienced an episode of assault or rape. These authors were surprised at the number of instances of prior rape or sexual abuse. They state: "We know that people who have experienced some type of victimisation typically have increased rates of medical and mental health utilisation. In some CFS patients we may be dealing with the sequelae of trauma, as in patients with posttraumatic stress disorder." (p. 57). They further suggest that CFS may not even be a distinct disease in the way we traditionally have thought of disease but rather a learned response to illness in physical and psychological ways that predispose patients to conditions such as CFS.

SUMMARY

In the previous section it became clear that positivist research approaches into CFS is limiting by the very nature of its principles. Until now researchers have not yet been able to reach agreement on the cause or causes of CFS. In all the cases mentioned above, researchers suggest that further investigation and research is required. This rings true with Bearr's (1986) comment that disagreements and divergent explanations in Newtonian thinking are taken as inadequate knowledge that can only be corrected with more scientific data. Needless to say, from the same scientific epistemology.

Although the limitations of Newtonian thinking for the understanding of complex phenomena were highlighted years ago (Capra, 1983), it seems to be discounted in this context. Although CFS seems to be a complex phenomenon, positivistic researchers are trying to understand and explain it in terms of the questions asked, and principles applied by reductionistic research.

TOWARDS ECOSYSTEMIC RESEARCH

The above discussion is coherent with the words of Atkinson, Heath and Chenail (1991, p. 161-162) when they state "The conventional (positivistic) scientific paradigm assumes that a real and social world exists independently of our observing of it and that this independently existing world is singular, stable, and predictable. It further assumes that if we apply the proper methods, we can have increasingly accurate views of what really happens in the world. ..."

From a ecosystemic or constructivistic approach, the epistemology is subjectivism. The observer cannot be separated from the observed. Atkinson, et al, (1991, p. 161-162) state : "What is out there is necessarily singular, stable, or predictable as it has been assumed in the traditional science...Instead, we assume that at any point in time there may be many equally accurate ways to describe events in the social world. ... we assume that an act of observation may change the observed phenomenon" As mentioned earlier, according to constructivism reality is not something out there that can be observed or discovered. As opposed to the realist perspective in which research can aid the discovering of reality, from a constructivist position it is believed that research findings are created by the way and circumstances in which they are conducted.

Fourie (1996b) emphasises that the way we think about science and human functioning influences what we see and how applicable it is to the dilemmas we face. This implies that we can only know our constructions of the world

and of others. These constructions take place in language. Knowledge is therefore local and not universal.

From a constructivist point of view, problems (such as CFS) are not seen as semi-concrete entities existing within the person exhibiting the problematic behaviour (symptoms and associated behaviours), but rather as social constructions in language. According to Fourie (1996a) these constructions are not only constructed, but can also be deconstructed. Because knowledge is constructed through language, people can be said to be actively engaged to create meanings about the world they live in (Epston, White & Murray, 1992).

Case definitions of CFS should thus be seen as co-constructions in language and not as some concrete entity "out there", that can furthermore be observed in an objective manner, and about which the ultimate truth can be discovered.

For the sake of clarity the terms "ontology", "epistemology", and "methodology" and the implications for ecosystemic thinking will be discussed.

ONTOLOGY, EPISTEMOLOGY AND METHODOLOGY

The term "ontology" refers to the nature of reality, and "epistemology" to the relationship of knower and known. Ontology and epistemology underlie our assumptions that inform and shape our research efforts. "Methodology" on the other hand, has to do with the pragmatics of research, that is, how we go about a particular investigation of a specific area (Moon et al., 1990a). Methodology can be defined as "...the nitty gritty pragmatics of research - exactly how we will go about a particular investigation of a specific area of family therapy" (Moon et al., 1990a). Methodology is a very important part of this section and will be discussed in more detail shortly. It has to do with the pragmatics of research that is congruent with constructivism.

The ontology of positivism is realism. This implies that there is one solid unchangeable reality 'out there'. It is exactly and absolutely knowable as it is

governed by immutable natural laws. These laws are context-free, and in knowing them the true nature of reality can be known (Moon et al., 1990b).

The ontology of constructivism, on the other hand is relativism. This means that all knowing is subjective and there are a number of socially constructed realities that exist in people's minds. The truth or falsity of these constructions can therefore not be determined (Moon et al., 1990b).

From a constructivist position, in social systems the exchange of meanings leads to the co-construction of a particular shared reality for that system. Fourie (1996a) mentions that this occurs in research as well as practice, but that the adherence to the notion of objective observation results in this being denied. Thus, researchers very often act as if their observations reflect a true reality, while in actuality the observed is co-constructed by all those involved. It seems more useful then, to investigate and explain human activities and experiences within their domain and from their perspective, rather than solely from the researcher's perspective as is the case with traditional research into CFS.

Moon et al. (1990a) suggest that qualitative methods provide an avenue for examining the experiences that include the perspective of the client instead of solely that of the therapist and/or researcher. According to Atkinson and Heath (1987) qualitative research has been accepted by the scientific community as a viable way to explore and understand social phenomena. The characteristics and methodology of qualitative research falls outside the scope of this study, however certain concepts that are felt to have relevance in this study will be discussed briefly.

METHODOLOGY

It is clear that ontology and epistemology have implications for research methodology. According to Atkinson et al (1991) a number of scientists believe that there is no general methodology (including experimental designs) that can lead to the kind of certainty that once had been hoped for

in the empirical/positivist approach to science. Accordingly each angle or method of observation has its own bias and limitations.

Delia (1977) contends that all constructs including methodology, have theoretical underpinnings with certain assumptions about reality. Research methodology and research design has to be congruent with the goals of research. Therefore, when attempting to approach CFS from an ecosystemic stance, methodology or the research method has to be congruent with the assumptions underlying this way of thinking. She summarises the relationship between the theoretical assumptions of the researcher, the research questions, and methodology as follows: “methods must be developed which both share the assumptive ground of the researcher’s theoretical concepts and which capture the questions he is asking” (p. 83).

There are a number of methods that can be incorporated under the label of qualitative research. Lincoln and Guba (1996) see naturalistic research as an alternative paradigm, that, “largely through historical accident, is now travelling under the name ‘naturalistic’. It has other alliances as well, for example: the postpositivistic, ethnographic, phenomenological, subjective, case study, qualitative, hermeneutic, humanistic” (p.1). They provide guidelines in the form of axioms for naturalistic research. They define axioms as “the set of undemonstrated (and indemonstrable) “basic beliefs” accepted by convention or established by practice as the building blocks of some conceptual or theoretical structure or system” (p.33). These are worth mentioning as the axioms underlie qualitative research in general and are congruent with ecosystemic thinking.

Axiom 1: The nature of reality (ontology): There are a number of different constructed realities that can only be studied holistically. Furthermore prediction and control are not likely outcomes of inquiry as each inquiry raises more questions. Only a certain level of understanding can be attained.

Axiom 2: The relationship of knower to known (epistemology): Knower and known are inseparable. The inquirer and the so-called object of inquiry interact to influence one another.

Axiom 3: The possibility of generalisation: The goal of inquiry is to develop an idiographic body of knowledge that describes the individual case.

Axiom 4: The possibility of causal linkages: It is impossible to distinguish cause from effects because all entities are in a state of mutual simultaneous shaping.

Axiom 5: The role of values in inquiry: Inquiry is influenced by the values of the inquirer, such as the choice of the problem. The choice of paradigm guiding the investigation into the problem influences inquiry. Furthermore, inquiry is influenced by the choice of substantive theory used to guide collection and analysis of data and in the interpretation of findings. Values inherent in the context influences inquiry. Thus, evaluation and policy option, paradigm, theory and context must exhibit congruence if the inquiry is to produce valuable results.

From the above, qualitative research methodology seems congruent with constructivistic or ecosystemic epistemology. Thus, when CFS is researched qualitatively from a constructivistic perspective, emphasis is placed on, following Moon et al (1990a, p. 364), "social context, multiple perspectives, complexity, individual differences, circular causality, recursion, and holism". Although as mentioned earlier, from an ecosystemic perspective research, diagnosis, and therapy cannot be separated researchers have tended to act as though it can, as does positivist methodology.

Moon et al. (1990a, p. 367) argue that "although certain basic similarities exist between methods of discovery in clinical work and research, clinicians and researchers have tended to isolate camps. Qualitative research could help reunite clinicians (therapists) and researchers because qualitative

methods are close to the world of the clinician". The constructivist epistemology, according to Fourie (1996b) makes the utilisation of research findings easier and can in this way circumvent some of the problems traditionally ascribed to what he calls "the supposed research/practice gap" (p.7)

Self-reference and the co-construction of the research reality

Self-reference in qualitative research within the ecosystemic paradigm implies that the assumptions and participation of the researcher has a great influence on the inquirer's approach to research as opposed to the value-free stance of positivistic inquiry.

According to Keeney (1982) second-order cybernetics provides us with a view of self-reference and an ethical consideration for how we participate in the construction and maintenance of our experiential universe as observers or therapists. Steier (1991, p.58) emphasises the importance of self-reference in ecosystemic research when he argues that "research should concern itself with a knowing process as embedded in a reflexive loop that includes the inquirer who is at once an active observer. Reflexivity, or a turning back onto a self, is a way in which circularity and self-reference appear in inquiry."

This implies that when researching CFS from this perspective, the preoccupation is no longer with what is observed, but now includes the properties of the observer. Keeney (1982) argues that all experience is constructed and he explains that in a recursive process, "what one knows leads to a construction and what one constructs leads to knowing" (p.166).

Colapinto (1979) argues that if events are to be conceptualised, they firstly need to be punctuated. Because different observers may select different beginnings and ends when studying CFS, the realities or experiences described are seen as constructed, by both researcher and participant.

Keeney (1982) argues that second-order cybernetics proposes that we look beyond the criteria of objectivity and subjectivity to the alternative, ethics. Because the therapist (researcher) joins with his or her clients in the construction of a therapeutic reality, he or she "is also responsible for the universe of experience that is created" (p. 165). The researcher is therefore responsible for contributing to the construction of research realities. This perspective suggests then that any description says as much, or even more, about the observer as it does about the CFS sufferer as object of description.

From this perspective then a researcher investigating CFS will realise that what is regarded as real in terms of CFS, whether it be, as Keeney (1982) highlights, the problem or the cure, that reality is always the consequence of a constructed world of experience. Furthermore from this perspective there is no such thing as an observer-free description of CFS that can be assessed and evaluated objectively.

Context and meaning

For Bateson (1979) words and actions gain their meanings from context. Therefore, context becomes an important medium through which people's words and actions can be understood. Actions and behaviours can therefore not be separated from the contexts in which they occur.

According to Moon et al (1990a) "researchers operating in the phenomenological mode attempt to understand the meaning of naturally occurring complex events, actions and interactions in context, from the point of view of the participants involved. ...they are concerned with a holistic understanding of phenomena" (p. 358). Viewing CFS and related experiences and behaviours as single units avoids the entire realm of meaning in the system in which they occur. Fourie (1996a) states that there is no implication that realist thinkers ignore the social context in which human behaviour takes place. He believes that they do take it into consideration, but in a way determined by the realist epistemology. This has become clear in the previous discussion of CFS.

For Allman (1982) the goal of the researcher should be to "... increase our aesthetic resonance with the unity of contexts, transforming our consciousness from a linear, mechanistic view of reality to one governed by the aesthetics of patterns" (p.49). He emphasises that the way in which an individual experiences the contextual meanings determines the way his or her membership participates in creating the whole system.

Bateson (1979) emphasises that if the context in which behaviours occur are not included in the description, it has no meaning because it is in a specific context in which behaviours get their meanings. It is for example acceptable to be fatigued in some situations or contexts whilst in another context it may be considered a significant problem. Furthermore, Bateson (1972) argues that punctuations are made in a specific context with specific characteristics. For Bateson (1979) a particular context is always part of a larger context. Qualitative research, from an ecosystemic perspective, considers all context levels and meta-levels. Naturally, this includes the researcher. Again, because the observer is part of the observed, all descriptions are self-referential and take place within a given context. This implies that because the observer/therapist and observed (CFS-sufferer and significant others) are in a recursive relationship and with one another and meanings around symptoms and behaviours are generated within that context, the researcher and researched can no longer be viewed as separated from one another in a dualistic manner.

All this further implies that when working with CFS within the ecosystemic epistemology, the researcher/observer/therapist cannot assume the expert position during research nor have unilateral control over the system they are observing (Keeney & Ross, 1985). As mentioned earlier, the biomedical perspective with its research methodologies, is necessary and useful within a particular context

The call made for qualitative research from an ecosystemic perspective does not negate positivistic research methods. Although from a constructivistic perspective one should refrain from prioritising one model over the other, there may be more or less useful ways of approaching a

particular question and context. Keeney (1983c p. 57) states that "any position, perspective, idea or frame of reference is merely a partial embodiment of a whole that can never be completely grasped". The ecosystemic approach emphasises holism and therefore should acknowledge the existence of other linear, biomedical realities. Therefore, in the context of this study this can be seen as extremely useful as patients with CFS often have a linear understanding of the problem and this forms part of their frame of reference.

When approaching CFS from this perspective taking into account the importance of context, the emphasis should be on non-dualistic inclusive descriptions rather than linear either/or descriptions. Positivistic approaches to research and qualitative ecosystemic research approaches to CFS with their radically different assumptions and systems of knowledge can be regarded as differences in logical typing.

Logical typing can be seen as a way of drawing distinctions and points to the reciprocity between people, events, ideas, and behaviour. (Bateson, 1979) Keeney and Ross (1985) takes these ideas further and speaks of orders of recursion. He identifies three levels.

The most basic level refers mainly to the observation of singular isolated units of simple action e.g., facial expressions, body positions, breathing patterns, tempo of speech etc. in CFS this would include fatigue, anxiety, shortness of breath etc. the next level of behaviour refers to the descriptions of interaction which focuses on sequences of actions that are exhibited by interacting individuals or groups. When a person diagnosed with CFS for example exhibits symptomatic behaviour, the focus is on who is the first to notice, who reacts how when this happens and so on. The ordering of streams of events becomes more important the individual actions themselves.

The third level of recursion Keeney and Ross (1985) speaks of involves description of choreography, which has to do with higher order organisational patterns. In the case of CFS the choreography of pattern

could be organised by the patterned events and behaviours associated with fatigue. This implies that when dealing with CFS from this perspective, whether it be research, therapy, or diagnosis, the biomedical perspective as well as the ecosystemic approach can be seen as different sets of distinctions, which should not contribute to an either/or dichotomy. Both sides of the distinction can be considered and so justice can be done to the ecosystemic assumptions of cybernetic complementarity (this has been discussed in Chapter 2)

As mentioned earlier, although the biomedical perspective is useful in certain contexts it ends at the first level of recursion. It does not therefore go beyond observable behaviours. Therefore the term CFS is ascribed to actions such as fatigue, breathlessness, infection, anxiety etc. without considering how these descriptions are themselves patterned. Once again this implies a process of reification. The ecosystemic perspective on the other hand goes beyond observable behaviours to incorporate the context in which these behaviours occur and considers the meta-context, which forms the choreography of these behaviours. The ecosystemic approach to research also considers the interactional patterns of these behaviours, as well as the fact that there is a recursive link between the ideas people have about CFS and their behaviour. Meanings people attribute to CFS and its symptoms, whether psychological or physical are considered as well as the fact that they occur in a given context. Meaning around CFS is constructed in a particular context that includes the researcher.

It is important to note that because all observations are contextually bound and self-referential, a different researcher with the same underlying epistemology and assumptions will most likely have a different methodological approach. Generalisations are therefore impossible. Meanings around CFS are not only contextually bound regarding research but are also revolutionary in nature and thus constantly changing and will hence be discussed.

Research as an emergent and evolutionary process.

From the realist perspective, researchers often act as if their research findings reflected a true and fixed reality, they make attempts to control contextual influences which obscure the 'real' ways in which humans are regarded to behave, and furthermore strive for prediction and control as well as generalisability (Fourie 1996b). Furthermore they strive for re-generalisability and replicability (Lincoln & Guba, 1996).

Constructivism and qualitative research proposes something very different. The constructivistic perspective holds that what is observed is co-created by every one involved. Atkinson and Heath (1990) propose that contexts are seen as ongoing, negotiated, co-constructed, re-negotiated, and then reconstructed. Therefore from a constructivist perspective, for qualitative research to be meaningful, inquiry into human activities needs to be seen as emerging in an evolutionary manner in harmony with the changing contexts of participants. Anderson and Goolishian (1988) emphasise the evolutionary nature of meanings as follows: "meaning and understanding are socially and intersubjectively constructed ... however, it is understood that agreement is fragile and continually open to renegotiations and dispute ... systems are fluid, always in change, never stable, and never finite" (p.372). Therefore when an aspect of CFS is investigated the research findings cannot be seen as fixed or generalisable, but rather as punctuations between the researcher and participants at a given stage in the evolutionary process of the significant system.

Bateson (1972) insists that a researcher does not know what he or she is investigating until it has been investigated. In the same vein Lincoln and Guba (1996) suggest that because it is not possible to know enough about the multiple realities of the participants, the qualitative researcher should allow the research design to co-evolve and to be co-constructed with the participants as the research emerges, rather than determining this in advance. This implies that the 'design' of the research can be seen as an evolving one that emerges from the interactions between the researcher and participants within a particular context. These interactions are not

predictable before hand as the results of a mutual interaction cannot be predicted until they actually occur. From this perspective research therefore becomes an unfolding process, co-evolved between the researcher and participants.

Furthermore it is once again important to note that qualitative research from an ecosystemic perspective acknowledges the recursive relationship between the observer and observed and the changes that emerge and take place in a co-evolutionary manner. Keeney and Morris (1985) emphasise that “the observer’s reactions to the systems ‘changing’ will self-recursively participate in the systems ongoing evolution.” (p.180) This has implications for our thinking – if a researcher wants to think in terms of causality, he or she needs to view causality as recursive, that is in terms of the mutual influence and effect of the parts on each other and on the whole. Bateson (1979) argues that within this frame, notions of linear causality have little meaning.

In the following the validity and reliability of qualitative research from an ecosystemic perspective will be discussed.

VALIDITY AND RELIABILITY OF QUALITATIVE RESEARCH IN ECOSYSTEMIC THINKING

A criticism that is often made against an approach based on constructivistic assumptions is that it is an “anything goes” approach, meaning that, if all “realities” are constructed, all “realities” are equally valid (Fourie, 1996b). Reservations are often expressed about the validity and reliability of qualitative research results, as qualitative methods are viewed as subjective and uncontrolled (Atkinson, et al, 1991).

Science based on a constructivist epistemology represents a trend away from a study of the observed to a study of the relationship between the observer and the observed. This shift in focus confronts us with the necessary, reciprocal connection between the observer and the observed, and avoids the dualism represented by the notions of objectivity and

subjectivity. From this perspective criteria and standards of scientific work are established within a community of scientists (Kuhn, 1970).

As stated earlier, different scientific communities adhere to different and incommensurable criteria for determining the legitimacy of research. Conventional scientific research paradigms assume that a real social world exists "out there", which is singular, stable, and predictable, and independent of our observation. The assumption is made that if we utilise the proper methods, we can obtain increasingly accurate views of what is really happening in the world (Atkinson et al., 1991). Traditional research places emphasis on statistical experimental designs whereas qualitative research from an ecosystemic perspective does not.

In contrast to the tenets of the traditional scientific view, Atkinson et al. (1991) are of the opinion that at any point in time there may be many equally accurate ways to describe events in the social world, and that an act of observation may change the observed phenomenon. Therefore, the researcher cannot gain privileged access to 'what truly happens' in the social world simply by uniformly applying a specific method observation (Atkinson et al., 1991).

The above does not imply that the one model is more legitimate than the other. We are reminded by Colapinto (1979, p. 430) that "at the highest level of a model's conceptual structure are its epistemological premises which cannot be proven true or untrue... The fact that epistemologies cannot be tested through empirical evidence by way of carefully planned experiments does not mean that they are invulnerable. Their vulnerability lies in their effectiveness, which in turn is decided by historical, socio-cultural factors. An epistemology is efficient, i.e., allows for a satisfactory account and handling of "reality", within a certain socio-cultural context and ceases to do so under a different context."

This implies that each approach, is within its own scientific community, correct. Each scientific community represents a consensual domain whose version of the multiverse, with reference to research method, is as valid as

that of the next consensual domain. It is not useful to place one version of the multiverse above that of another.

Some qualitative researchers, such as Moon, Dillon and Sprenkle (1990b) have attempted to improve the trustworthiness of their results by making their methods more systematic. Lincoln and Guba (1996) believe that because of the methods they use, such as triangulation and external auditing, they are in a better position to evaluate the legitimacy or "truth value" of various explanations of the social world.

Although Atkinson et al. (1991) agree that the insights generated by qualitative research need to be scrutinised and evaluated, they do not believe that the trustworthiness of hypotheses, insights, or explanations can be established by individual researchers, regardless of the methods they use. They suggest that the term "legitimation of knowledge", be used instead of "trustworthiness". It requires the judgement of an entire community of stakeholders. It is argued that in the absence of certainty, knowledge becomes an ethical matter where the judgement of each stakeholder must count.

Keeney and Morris (1985) suggest that researchers address and examine the original distinctions and punctuations they made to arrive at a particular research perspective as well as describe how their particular theoretical perspective led to the constructions and interpretations they made. The quality of an insight is not related to the nature of the process by which it was generated, but it is believed that good ideas should be evaluated in terms of their elegance, effectiveness, and coherency (Atkinson et al. 1991). Furthermore researchers have a responsibility to be reasonable in their claims, to present the best possible evidence to support their insights, to be responsive to challenges, and to be open and honest with other. The consumers of the research, rather than the social science researcher establish the trustworthiness of qualitative research results. The responsibility for establishing the trustworthiness of research findings must be shared, instead of delegating it to the researcher (Atkinson et al., 1991).

Because the researcher comes to the field of observations with his or her head full of ideas and values, he or she needs to be openly acknowledged and exposed to scrutiny. For Keeney and Morris (1985, p.548) "research becomes a task of re-examining (that is re-researching) what one did to construct a particular reality". Thus, the original distinctions and punctuations made, need to be exposed so that the readers of the research can understand how they were constructed. Research should therefore become a reciprocal and recursive process in which researchers should also examine their constructing processes and expose them to scrutiny by others.

Steier (1991) emphasises that the process of constructing is done in interaction with others, who are also in the process of constructing their own experiences. According to Atkinson et al (1991) dialogue and consensus between consumers of the researcher's ideas, is the only process through which some ideas can be said to be more legitimate than others. The "consumers of research" (p.163) establish the trustworthiness of research by deciding whether they understand the researcher's reasoning that led to his or her constructions and whether these are feasible against their perceptions of reality.

The researcher's insights and explanations can be evaluated against what colleagues and consumers perceive as "reality" by using their common sense (Atkinson et al. 1991). Because it is likely that a variety of explanations will seem sensible, ethical criteria and pragmatic criteria can be applied. Ethical criteria refer to the values implied by the researcher's explanations, and moral implications of the researcher's way of making sense of the social world. Pragmatic criteria on the other hand refer to how well the explanation appears to facilitate solutions to the problem.

When presenting research findings the researcher has an ethical responsibility and is accountable to those to which the research is presented. The researcher does have the responsibility of following certain procedures, which will make it likely that the readers of the research findings will be able to assess whether the findings are legitimate. Keeney

and Morris (1985) highlight that the researcher has to state how his or her constructions were co-created. Keeney (1983b) emphasises that in order to understand any realm of phenomena, one should note how it was organised, and thus what distinctions underlie its creation.

Steier (1991) emphasises that in presenting the distinctions that underlie the researcher's co-construction, the research is subjected to be 'researchable' by others. In this way the researcher is removed from his or her privileged position as is the case in traditional research, and lets the consumers decide on whether or not the findings are legitimate (Atkinson & Heath, 1987). In this way the principle of ethicality is maintained in so far as the researcher is able to show consumers how her or she arrived at his or her constructions, and gives them the liberty to decide whether these are feasible or not.

SUMMARY

This chapter provided an overview of the literature based on positivistic research into CFS, and aimed at suggesting an alternative approach to research. Research into CFS from an ecosystemic approach emphasises multiple realities, complexity, social contexts, circularity, recursion, and holism. Furthermore, in researching CFS from an ecosystemic perspective, as opposed to a positivistic perspective implies a change from a reductionistic, deterministic and objective perspective to a self-referential, participatory, ethical perspective. For Keeney (1982), such a change in perspective represents a shift from causal unidirectional to mutualistic systemic thinking, from a preoccupation with the properties of the observed to the study of the properties of the observer.

The concern of research is no longer primarily pragmatic in nature emphasising objectivity, but rather responsibility. Keeney (1982) reminds us that since researchers prescribe particular ways of punctuating the world, it is important to examine the intentions that underlie the researcher's punctuative habits.

From this perspective, there is more emphasis on the qualities of the researcher. This implies that the distinctions we make in our research into CFS arise from an ethical, rather than an objective or subjective base. According to Keeney (1982) cybernetics of cybernetics provides us with a view of self-reference and an ethical consideration for how we participate in the construction and maintenance of our experiential universe. Furthermore, the research process is seen as an ongoing evolutionary process in which "the observer's reactions to the system's 'changing' nature will self-recursively participate in the system' ongoing evolution" (p. 180).

The next chapter offers a literature overview of positivistic approaches to the treatment of CFS. It furthermore takes a look at the implications of a shift towards ecosystemic thinking in treatment.

CHAPTER 6

CFS: FROM TRADITIONAL TREATMENT TO AN ECOSYSTEMIC APPROACH

INTRODUCTION

Beahrs (1986) explains that the medical model finds itself in a dilemma when it comes to treatment. Positivist treatment modalities seek to distinguish whether a distressing symptom's primary cause is biological or psychological and thus it takes a dualistic stance. According to this perspective, if symptoms are effects of primary causes, then only if the real cause is modified, the symptoms can change. Changes at other levels are disregarded as not "true" change. Traditionally illnesses are viewed as having a cause and that they can be cured by treating the sick individual in the appropriate way, which is based on Newtonian thinking.

Various approaches to treatment of CFS have developed. Although they differ in nature, they are based in positivistic thinking. The usefulness of these approaches have been questioned from an ecosystemic perspective. The problem is not seen as residing in the theories or techniques themselves, but rather in the ways in which they are applied to treat the sick individual or system.

In this chapter the most popular treatment approaches to CFS will be discussed. These include pharmacological treatments, non-pharmacological approaches, alternative approaches and psychotherapy. Furthermore, based on ecosystemic thinking, an alternative approach to the treatment of CFS will be suggested. This will be based on some of the principles and assumptions underlying second-order cybernetics and constructivism discussed in Chapter 3.

PHARMACOLOGICAL TREATMENTS

Pharmacological treatment is dualistic in nature and treats physical symptoms, only. The symptoms are seen as residing within the patient who is regarded as the receptor of linear causal effects and who is thus the focus of treatment. He or she is treated in a linear way by the physician (expert) who has the task of ridding the patient of his or her symptoms.

There are a number of drugs prescribed daily for CFS sufferers. According to Lewith (1996), research into CFS has tended to concentrate on the definition and causes of CFS, with little emphasis placed on the important aspect for patients, namely, examining treatments. There are thus few good clinical trials to substantiate direct treatment effects.

Although a number of medications have not been studied for their effectiveness specifically in treating CFS, evidence exists that they may be useful for the treatment of specific symptoms (Saunders, 1998). According to Macintyre (1992) the wide variety of drug therapies that are used to treat CFS, in itself reflects both the uncertainty that still exists regarding the mechanisms underlying the condition, as well as the failure of any one agent to alter the natural history of the illness.

There are three clinical and theoretical reasons for the use of psychopharmacological agents in the management of CFS. Firstly, psychiatric symptoms and syndromes are ubiquitous in the clinical presentation of CFS (CFS as a phenotypic variation of a primary psychiatric disorder). Secondly, CFS may emerge as an interactive consequence of disruptions in the integrity of the nervous and immune systems (CFS as a novel neuroendocrine/neuroimmune disease process). Thirdly, psychotropic medications may have benefits in the treatment of a variety of undifferentiated somatic symptoms (e.g., headache, arthralgias, myalgias, gastrointestinal discomfort and sleep disturbances).

Following are some of the most popular and widely used medications for CFS sufferers, which will be discussed briefly.

Analgesics: Analgesics such as non-steroidal anti-inflammatory drugs are used for myalgia, arthralgia, and headache. Cyclobenzaprine is often used for muscle pain, tenderness, and spasm. It does, however, sometimes cause drowsiness and should be discontinued if this is the case the day after use.

Tricyclic antidepressants: Although patients often resist a diagnosis of depression and may refuse to take medication of this kind, antidepressants are often beneficial for some CFS sufferers (Buchwald et al., 1991). Dosages given to patients with CFS are usually lower than those used to treat depression and the rapid beneficial effects sometimes seen in CFS patients do not usually occur in depressed patients. Amitriptyline improves the quality of sleep and reduces other CFS symptoms (Saunders, 1998). Another anti-depressant, Bupropion, may be beneficial in CFS for selected patients, but agitation and seizures could be side effects. Fluoxetine is an extremely effective drug for depression in the case of patients suffering from CFS. It is a stimulating drug and must be taken in the morning. Fluoxetine is water soluble, making a lower dose easy to administer. No controlled studies are however available for using the above-mentioned drugs (Dawson & Sabin, 1993).

Anxiolytics: Although not all experts in the field believe anxiolytics are appropriate for CFS patients, alprazolam and lorazepam are often prescribed at standard dosages for patients.

Medication for insomnia such as clonazepam, temazepam, triazolam, and zolpidem, are often prescribed at standard dosages for CFS sufferers that have problems being able to sleep. Anxiety and panic attacks often occur in the case of patients suffering from CFS. Drugs such as clonazepam (Klonopin), alprazolam (Xanax), or buspirone (BuSpar) may be useful for anxiety. Alprazolam is especially helpful in blocking panic attacks. The pitfall is that it is

potentially habit forming and requires a dosage schedule of three to four times a day because of short half-life.

Antihistamines: Non-sedating preparations are useful for allergy symptoms (Lewith, 1996). Many CFS patients report allergies to inhalants, food, or drugs. There is no evidence that food-elimination is helpful to people with CFS. Antihistamines such as terfenadine (Seldane) or astemizole (Hismanal) may be useful, although, as in the case of other medications, no controlled studies are available.

Magnesium supplements: Myalgia and fatigue have been found to improve in CFS patients with the use of intramuscular magnesium supplements (Lewith, 1996). Intramuscular magnesium sulphate is found to improve energy and emotional state and to relieve pain in the case of patients suffering from CFS and low red cell magnesium concentrations. This suggests that magnesium may have a role to play in treating patients with CFS.

Antiviral agents: This is based on the belief that in CFS a viral infection is an aetiological factor. Various antiviral agents acting on the immune system have been tested, however presently none can be recommended (Wessely, 1996).

Serotonin re-uptake inhibitors: Serotonin is one of many neurotransmitters involved in the regulation of sleep. It is also important in the modulation of pain sensation, temperature regulation, cardiovascular response, and mood. Abnormalities in all of these are characteristic features of CFS. A deficiency of serotonin results in disturbances of sleep pattern (primarily insomnia), increased sensitivity to pain through lowering of sensory threshold, and mental depression. Drugs which increase central nervous system serotonin levels, such as L-tryptophan and the serotonin re-uptake inhibitors, may prove to be beneficial.

NON-PHARMACOLOGICAL APPROACHES

NUTRITION

Nutritional supplements are very popular. There is no sound rationale for their use, but they may have a place if they are cheap and free from side effects (Wessely, 1996). Most sufferers do try this approach at some stage during their illness. Patients presenting with CFS and myalgia often purchase a whole range of vitamin and mineral supplements to boost their immune systems. While in most cases this is of questionable value, there are instances where clinical trials have demonstrated a degree of effectiveness (Lewith, 1996). Although, some CFS patients may improve with a balanced diet, this is not the case for all sufferers. The fact that any person, and not only CFS sufferers, can benefit from a balanced diet and vitamin and mineral supplements is highlighted.

EXERCISE

Sharpe (1996) mentions that patients with CFS often regard increased activity as harmful. This view has been validated by medical opinion. This view was supported by the observation that sudden increases in activity cause an increase in symptoms.

According to Cleare and Wessely (1997) prolonged rest may be effective in the short term, but counterproductive in the medium and long term. The reason for this is that with the passage of time, symptoms and fatigue will occur at progressively lower levels of exertion. Inactivity therefore sustains symptoms and increases sensitivity to them.

Often patients disagree that exercise is beneficial. This is usually due to advice of a physician, or a chronic fatigue support group, or sufferers' own experiences of exercise where they found that they were left feeling worse (Buchwald et al., 1991).

Although increasing activity does often cause a temporary increase in symptoms, Sharpe (1996) argues that there is no well founded evidence

that gradual increases in activity, starting from a sufficiently low baseline, and interspersed with proper rest, cause harm to patients with CFS. On the contrary, graded increases in physical activity are used successfully by many clinicians.

Wessely (1996) emphasises that the planning of rest is as important as activity. To make immediate reductions in the amount of rest taken, is seldom advised in the early stages. The amount of rest should be predetermined, and not taken in response to symptoms. The initial goal of treatment is to combat the unpredictability of symptoms and establish consistency before advising cautious increases in activity. The primary goal is to avoid the handicapping, stimulus-driven cycle to replace previous sensitisation by tolerance.

Saunders (1998) recommends graded aerobic exercise, including walking, cycling and swimming. This kind of exercise has better results in many patients than flexibility exercise, stretching, and relaxation techniques, which are often preferred by many patients due to the higher degree of passivity.

Different authors recommend different exercise programmes. Buchwald et al. (1991) suggest that an exercise programme should begin with two minutes on an exercise bike (or an equivalent activity) and increasing the time by one minute every three days until the patient is cycling for 30 minutes three or four times a week. Buchwald et al. (1991) suggest a prescription for exercise five days a week. Sessions should last from five minutes (at first) to 15 minutes. The prescription should be increased by one to two minutes each week up to a maximum of 30 minutes.

Although there are variations in different exercise programmes, authors seem to agree that patients should be warned not to over-exert themselves and that the prescription limits of the programmes should not be exceeded. Also, that if fatigue increases at any level of the programme, patients should continue to exercise on the previous level of intensity until fatigue lessens. Furthermore patients should not exercise to the point of discomfort or pain,

nor should they expect to be capable of their pre-morbid exercise level. Patients should start slowly and gradually build up.

Buchwald et al. (1991) suggest that it could be motivational to mention to the patient that in addition to reversing the deconditioning, exercise stimulates the immune system and counteracts depression. Furthermore it should be pointed out that the patient's illness took a long time to develop, and will probably take at least as long to resolve.

ALTERNATIVE TREATMENTS

There are a number of alternative treatments, which most CFS sufferers try at some point of their struggle with CFS. Acupuncture, evening primrose oil, homeopathy and aromatherapy will be discussed briefly.

Acupuncture has been shown to alter the way in which white cells react in vitro and have a short-term effect on the immune system. Although there are grounds for using this technique, there are no good clinical trials which unequivocally support its use (Lewith, 1996). Acupuncture concerns the reactivating of inhibited energy fields of the individual. Macintyre (1992) believes that acupuncture must be applied cautiously in CFS sufferers in order not to extract energy from the individual in the treatment process.

Evening primrose oil is often used to treat CFS and is the only other treatment besides intramuscular magnesium supplements which has been adequately tested in a controlled trial. High doses have been shown to have a significant effect in 70-80% of CFS patients (Lewith, 1996).

Homeopathy is a holistic approach to the body in the treatment of illness. Treatment is therefore adjusted to suit the individual body. Homeopathic remedies are made from natural agents and are therefore usually not harmful to the body (Shepherd, 1992). Homeopathy can be divided into two main groups, the first being

classical and the second complex. The first involves matching the patient's signs and symptoms to one or two classical homeopathic remedies. In complex homeopathy complexes or mixtures are used and targeted at a more Western-style diagnosis. An individual suffering from a viral infection will first be treated with a nosode (a homeopathic dose of the virus, which is thought to have caused the initial infection). Mixtures of herbal and homeopathic remedies are then prescribed, specifically targeted at the organs which seem to be functioning least well. In CFS the liver or colon often functions least well. While these approaches may appear to be rational, success has been reported only in descriptive terms rather than in the context of appropriate clinical trials (Lewith, 1996).

Aromatherapy may be beneficial for CFS sufferers. The use of massaging with essential oils may be useful for the alleviation of muscle pain and discomfort. The type of oil used is important and those with a calming effect are preferred above those with a stimulating effect (Macintyre, 1992).

All the above mentioned treatments are grounded in linear causality and are aimed at relieving certain symptoms within the individual. Not one of the above is an agreed cure for the primary cause of CFS.

PSYCHOTHERAPY

Current psychotherapy in the treatment of CFS is based on Newtonian premises. It, like other treatments, is applied to the sick individual in a linear way in order to contribute to his/her cure. The therapist is the expert designated to treat the individual. Psychotherapy based on traditional thinking is coherent with reductionism. It does not, as Keeney and Sprenkle (1982) propose, include its characterising and understanding of individuals within the context of relationship ecologies. In this way the autopoietic nature and autonomy of the system, as well as its coherence is ignored.

Presently cognitive behaviour therapy (CBT) seems to be the preferred psychological treatment of CFS for most researchers (Prins & Bleijenberg, 1999). According to Richards (2000), CBT is the only treatment, other than graded exercise programmes, which has been shown to be an effective treatment for patients with CFS.

According to Prins and Bleijenberg (1999), obscurity about the cause of physical complaints is not necessarily an obstruction for an effective treatment. This has been proven in cases of other somatic complaints without a known course, like irritable bowel syndrome. However, several of the studies on CBT for CFS suffer from methodological shortcomings.

According to Dawson and Sabin (1993), CBT refers to the use of techniques to change the patient's behaviour by altering his/her attitudes, perceptions, and belief systems. The approach focuses on modifying an individual's attitudes regarding the symptoms, in contrast to direct treatment of specific symptoms. Buchwald et al. (1991) see CBT as beneficial in helping patients to deal with their reduced capacity to function and to correct any maladaptive illness behaviours that may have developed.

During therapy patients learn to modify their beliefs and behaviours by reducing distress about their condition, fears about symptoms, perfectionism, and anxiety about performance expectations. Active problem solving for personal and job-related problems caused by CFS is taught and encouraged. Sharpe (1996) recommends that at the beginning of CBT treatment the multifactorial model of CFS should be discussed with the patient, and very importantly, a distinction be made between initial causes such as infection, and possible perpetuating causes such as inactivity. Individual perpetuating factors are then identified in the treatment assessment and targeted in therapy. In his view the emphasis of treatment is to break the proposed vicious circles by helping patients to re-evaluate, and if appropriate, change unhelpful cognitions about their performance and symptoms. Therefore, the problem is reframed from one of an unalterable disease to a condition which is, at least to some extent, modifiable by the patient's own efforts. In parallel with the psychological

component of therapy, behavioural goals are identified, and a programme for attaining these is worked out with the patient. Planning of a patient's rest and exercise programme, as previously discussed, forms a large part of CBT.

Presently there is no scientifically proven accepted therapy for patients with CFS. In the absence of an established pathology, treatment is targeted at factors that are apparent in clinical assessment and are known to cause similar symptoms, disability, or distress in persons who do not suffer from CFS, and are modifiable by feasible interventions.

The clinical factors that can be addressed in this way usually include reduced and very variable levels of activity; secondly, beliefs that symptoms indicate disease and activities that worsen symptoms should be avoided; and thirdly depressed or anxious mood. Furthermore, evidence of loss of fitness, hyperventilation and panic disorder may be revealed. These may all be addressed by CBT (Komaroff & Buchwald, 1991). The reverse of the effects has already been discussed under the heading of exercise. Sleep abnormalities can cause fatigue and are correctable with simple behavioural methods. In addition, hyperventilation, anxiety, and panic disorder can cause feelings of fatigue, dizziness and increased subjective effort. These symptoms can be reduced with relaxation and breathing exercises (Sharpe, Hawton, Seagrott & Pasvol, 1992).

Fear about the significance of symptoms may increase awareness of those symptoms through focusing of attention. Also, the patient's beliefs that symptoms of CFS are evidence of disease, particularly viral infection, and that activity which exacerbates symptoms should be avoided, are potential causes of disability, as has already been mentioned. CBT aims to help patients consider other, less threatening explanations for their symptoms (Sharpe et al., 1992).

Based on Newtonian epistemology, this form of therapy has its limitations. Claims can be made that it is inadequate to account for the complexity of human experience.

An alternative approach may prove more useful. Griffith et al. (1990) describe the second-order approach as an approach in which “presenting symptoms, although viewed as symptoms of the body, the problem is seen as existing in language in the web of meanings created by those who engage in dialogue about the problem...” (p.23-24). Some implications of an ecosystemic approach to treatment will now be discussed.

TOWARDS AN ECOSYSTEMIC UNDERSTANDING OF TREATMENT

From a positivist perspective, the cause of human behaviour is located within the person alone. In this line of inquiry concepts of unidirectional influence, purpose and goal are regarded as meaningful and important. The focus of therapy is therefore to label the individual, to the exclusion of context, with the therapist as an objective observer who has the ability to cause the desired effect in the patient (Schwartzman, 1984).

CFS is thus seen as located within the person suffering from the illness. He or she exhibits symptoms and the behaviour or symptoms are believed to have certain effects on him or herself as well as on others. The therapist is seen as the expert who has the purpose of determining goals for the patient in order to cure his or her symptoms. In this process the relational context in which the CFS originated and is maintained, is excluded or ignored.

This label of CFS is seen as an objective description of reality, and the aim of treatment is to predict and control future behaviour. All this implies a process of reification as discussed in Chapter 3.

The therapist is viewed as being an objective observer who can act upon the person with CFS, and cause within him or her the desired effects. According to this description, treatment of CFS, like research and diagnosis, is seen as value free, and therefore the assumptions of the therapist are seen as not influencing the outcome of therapy or treatment.

From the positivistic perspective the therapist is thus seen as the expert designated to bring about change within the individual suffering from the condition. The therapist treats the patient, based on what he or she believes would be the best for the patient in order to fix the problem. The basic idea is congruent with the notions of linear causality, dualism, control and predictability. The therapist believes that if he or she does this or that to the patient, the patient will respond in this or that way.

A second-order approach to CFS will differ greatly as the emphasis of such a perspective is on interrelation, context, ecology, relationship, and a sensitivity to holism and complexity (Keeney, 1982).

Once again, this implies that the ecosystemic or constructivistic approach rejects the view that a 'real' world exists out there (Varela, 1979). CFS is therefore not regarded as an objective reality out there or within a person, but rather as the product of an active, subjective construction in the domain of language. In descriptions of the condition as well as what is referred to as its effects, self-referentiality is highlighted and the observer or therapist is included in the observed. The therapist therefore becomes part of the therapeutic system, and is not seen as acting upon the CFS sufferer or the system in which it occurs. The therapist is thus part of the problem determined system and hence part of the problem.

According to Keeney and Ross (1985) an ecosystemic view of complementarity enables all responses of a client system to be used generatively. Any particular response can be seen as a description of a more encompassing pattern enabling dialogue in therapy to be generated. Ecosystemic therapy lies within the domain of rhetoric, dialogue and conversation. Rather than solutions, an alternative reality can be built which transforms the meaning of people who are part of it.

CONTEXT AND MEANING IN TREATMENT

Furthermore this approach, as already mentioned, emphasises the importance of context. Therefore CFS is viewed as part of the context in which it occurs. Also in this perspective the ideas that meanings are

uncertain and constantly evolving, is acknowledged. Once again CFS can be viewed as a social construction agreed upon by those involved. The meanings and descriptions around the definition are not regarded as fixed or as an ultimate truth, but as mentioned, constantly evolving. The individual is therefore, as Lax (1992) explains, considered within a context of social meanings. The focus on scientific knowledge therefore shifts to an emphasis on social beliefs.

According to Keeney and Ross (1985) people's behaviours are informed by the meanings that they ascribe to situations. The relationship between these meanings and their behaviour is recursive and evolutionary. There seems to be a connection between meanings and behaviour, such that "each is a frame of the other" (p. 9). This therefore facilitates looking beyond the 'untreatable nature' of CFS as a disease to an understanding of what other relational factors contribute to the continuation of the symptoms.

Even though CFS is taken to be a disease, it is embedded in a network of meanings attributed to this experience which could have an impact on the sufferers' compliance with treatment as well as maintenance of the symptoms (tiredness, body aches, nausea, shortness of breath, anxiety etc.). These are not only physiologically based, but also psychological. Meanings are exchanged externally through verbal and non-verbal language and in social systems the exchange of various meanings result in the co-construction of a particular shared reality for that system (Anderson & Goolishian, 1988). Varela (1979) calls this the consensual domain.

These meanings are co-constructed by all those communicating about the problem, including the therapist. As such, the ecosystemic therapist does not diagnose in the traditional sense of the word, as he or she believes that it is language that confirms for the clients that the CFS patient's behaviour is a problem. In this way the problem determined system is reinforced. As stated above, the aim of ecosystemic therapy is to facilitate a movement away from a problem definition. Once again the requirement for ecosystemic therapy is a therapist who is an expert in keeping a conversation going that will not sustain the problem determined system.

Therefore, according to Anderson and Goolishian (1998), conversing about the problem does not imply that the therapist agrees that the patient's behaviour is a problem, rather it is a sharing in the concern that the clients bring to therapy.

According to Golann (1988) Hoffman argues that any therapy that respects a second-order epistemology (this applies then when working with CFS from an ecosystemic perspective) will have the following characteristics:

- An observing system stance that includes the context of the therapist;
- a collaborative, instead of hierarchical structure;
- goal setting for context changes instead of specified structural or behavioural changes;
- limitations on the therapist's instrumentality;
- a circular understanding of the problem
- and a view of the problem that is not judgmental or pejorative.

Understanding CFS and attempting therapy with the above in mind, may be more useful as a holistic understanding of the problem within a given context may be achieved. As mentioned previously, viewing a problem in terms of the ecology of ideas has important implications for treatment. This will now be discussed briefly.

ECOLOGY OF IDEAS AND TREATMENT

Fourie (1998) states that it must be remembered that when people enter into therapy, the ecology of ideas around the problem (e.g. CFS) is presented in both verbal and non-verbal ways. At this point the therapist also enters into the ecology of ideas. However, being a new member the therapist most likely has different ideas about the problem than do the other members of the system.

Fourie (1998) emphasises that the success of therapy would depend on whether or not the ideas presented by the therapist would facilitate the ecology of ideas in the new system to evolve away from the problem theme. If the therapist's ideas are incorporated into the ecology of ideas in such a way that the problem theme is left intact, the more tightly organised the ecology of ideas around the problem theme will become. In this way the therapist may help to maintain the problem.

Hoffman (1990a) argue that double description makes the inclusion of co-evolutionary concepts possible. Penn (1982) explains that no matter what the case, the family and therapist tend to relate in a way that co-evolves the therapist-family ecology. She argues that this co-evolutionary perspective enables the therapist to be relieved from the following postures toward the family:

- As nothing is predictable, and it cannot be said with certainty that if we do this, they will do that, the therapist is not regarded as the person making the changes in families.
- The idea that the family in question is suffering from a "stagestuckness" is a linear developmental point of view. It prescribes too closely when a family should change without respecting their continuous patterns of temporal unfolding. From the co-evolutionary perspective, this is not acceptable.
- *Crediting natural accidents*, the family therapist must view the family's pattern of organisation as also creating the potential for organic or physical problems. The growing identification of families with certain illnesses, such as heart attacks, ulcers, cancer, etc., does not allow that system stress is continually regarded as only having "accidental" outcomes. In this sense the coherence of the system and the so-called "fit" (refer to Chapter 3) should be taken into consideration.

- The linear view that regards families as continuous, stable systems and sees crises and catastrophes as mistakes or irregularities, is opposed. All the members of the family, whether deviant or the so-called cause of the problems, are seen as adding to the rich repertory of patterns families can draw upon.

It must be emphasised that from a second-order perspective, the relationships between individuals are not only observed by the observer. Rather, the concept of observing system plays an important role in therapy. The therapist becomes part of the double description. (Refer to "The Problem Determined System" in Chapter 3)

TOWARDS THE PROBLEM DETERMINED SYSTEM IN TREATMENT.

As opposed to the positivistic perspective of the medical model, from a constructivist position, when working with CFS (or at least what has been socially agreed upon as CFS) the therapist needs to take into account that he or she is unable to treat and influence the sufferer or significant system in a direct way. This is the result of the idea of the structurally determined and autonomous nature of a system (refer to Chapter 3) The implications for our understanding and treatment of CFS would be as follows:

- Objective knowledge about the phenomenon of CFS is impossible.
- *Linear causality is a result of semantic descriptions drawn by the observer and CFS can therefore not be described in these terms as a true and fixed reality.*
- It is not possible to take CFS as a concrete entity and directly influence, control or predict it.
- *Because of the autopoietic nature of systems, behaviour related to CFS cannot be taken out of context and be described as a malfunction or mistake, as structure determined systems act in accordance with their own structure.*

- Purposes, for example to rid a system of its symptoms, is a construction of the observer. Because a structure determined system functions in accordance with its structure and is organisationally closed, a system cannot be influenced in a direct way. Rather it can be perturbed and would react to this in accordance with its structure.

As can be seen, the above has implications for a second-order understanding and approach to treatment.

From an ecosystemic perspective it therefore seems useful to take on an alternative approach to therapy and treatment. Fourie (1998) argues that from an ecosystemic perspective problems are seen as social constructions in language and can only be addressed at that level through a linguistic process in which different meanings can be co-constructed.

According to Hoffman (1985), when understanding therapy in terms of a conversational domain, the focus would no longer be on the client as the unit of attention, but on the entire group, which includes the family plus the professionals involved, as a small evolving meaning system. Boscolo, Cecchin, Hoffman and Penn (1987) use the term "significant system" in the place of family system in order to include all those involved in the problem definition, be it family, professionals, friends, etc.

Anderson and Goolishian (1988) remind us that the problem-determined system is defined by the fact that there is a problem, and not by the fact that there is consensus around the problem or its solution. Each member of the problem-determined system has his or her objective definition and linguistic reality of the problem. There may be consensus or at least some consensus among the members but not necessarily among all. Accordingly, linguistic realities are social achievements and require social participation. In problem systems this co-operation is not easy because it is the very nature of the languaged definition of a problem that raises questions regarding the right meaning and right action that can threaten the very relationships that created the meaning.

Change is regarded as the co-evolution of new meaning and takes place in language, and not in the modification of social structure. Thus change does not mean problem resolution or problem solving, but rather problem dissipation that takes place through communicative exchange. As mentioned, in this regard Fourie (1998) suggests that the task of therapy is to provide ideas which could help the existing ecology of ideas to evolve away from the problem theme. To do so he argues that the ideas of the therapist should simultaneously confirm the individual client(s) and disconfirm the problem theme.

Hoffman (1985) proposes that problems no longer be seen as "in" the family, or in any other spatially and socially defined unit. Problems are in the intersubjective minds of all those who are in active communicative exchange and as such are themselves always changing.

As mentioned earlier, Hoffman (1990b) proposes that living systems should not be seen as objects that can be programmed from the outside, but as self-creating, independent entities. Thus, from a second-order view, this would imply that the therapist includes him or herself as part of what must change as he or she does not stand outside of that which must change. This view allows for a very different picture.

PSYCHOTHERAPEUTIC TECHNIQUES AND ECOSYSTEMIC THINKING

Although cognitive behavioural thinking or the thinking behind other treatment approaches to CFS are criticized from an ecosystemic perspective, it does not imply that techniques from such approaches are not useful (refer to Chapter 4). Loos and Epstein (1989) remind us that from a second-order perspective the whole process of treatment is conversational in nature. Within the broad second-order approach there exist different practical ways in which goals may be achieved.

Fourie (1996a) emphasises that no technique necessarily belongs to a particular school of psychotherapy. It is therefore incorrect to say that a specific technique does not fit with second-order approaches. Fourie (1996a, p.63) states that "it is not any one technique which belongs to this

approach, but rather the way it is employed, namely as part of an ongoing conversation or narrative” and also “Even techniques which originated from a behaviourist perspective can sometimes, depending on the context, be employed from a second-order perspective; but with one proviso: that they do not embody attempts to “cure” particular symptoms.” (p.63). He further explains that the “therapist is usually at least implicitly defined (mutually) as the executive of the therapeutic system and his or her inevitable structuring of the context by means of a particular technique provides grist for the conversational mill. In this context even no strategy can be seen as a strategy” (p.63) This implies that, from an ecosystemic perspective, when working with CFS, cognitive behavioural techniques may be employed, but not with the idea of curing a symptom in a linear way, but rather as part of an ongoing conversation.

CFS is a medical concept and has been researched extensively from the biomedical perspective. This is not disregarded, and from this perspective the existence of this reality has to be acknowledged as one amongst many that have relevance.

Keeney (1983b) suggests that a therapist should adopt or acknowledge the perspectives of pragmatics and aesthetics, control and autonomy, simple cybernetics and cybernetics of cybernetics, as well as linear and recursive descriptions by viewing them as cybernetic complementarities. He emphasises that it is important to note that a cybernetic complementarity involves different orders of recursion.

He points out that: “...the avenue to correcting the potentially heartless and ethically bankrupt position of a strict application of simple cybernetics to human systems involves leaping to the position of self-reference and participation prescribed by second-order cybernetics. At this higher order of process we find that we do not throw away the pragmatic advantages gained by a first-order. Instead, the pragmatics of simple cybernetics is contextualised by a perspective that brings the therapist fully into therapy” (p.82). Therefore, among other ideas of the early systems thinkers or first-order cybernetics, the second-order view holds on to the idea of the

interrelatedness of all phenomena, but extends it to include the ideas of the observer in the network of relationships.

These different orders of recursion are extremely important as they demonstrate how pairs, e.g. poles or extreme sides, are related but yet remain distinct. Cybernetic complementarities therefore provide a way in which the recursive nature of natural epistemology can be encapsulated.

IMPLICATIONS FOR CHANGE

Ecosystemic therapy is based on the principles of second-order cybernetics and constructivism. Accordingly, there is a continued focus on the interactional patterns within and between systems, on complexity and on context, but the therapist now participates actively as an observer of the interactional process (Meyer et al., 1997).

Maturana and Varela (1979, p.574) describe it as follows: "It is the position of simultaneously being an observer of the effects of specific actions and being a participant-actor that makes change possible". Thus the therapist includes him/herself as a co-creator and facilitator in the co-evolution of shared realities within the system.

According to Hoffman (1985) second-order therapy is an attempt to create a context for change rather than specifically suggesting ways of changing. It is also an attempt to change the assumptions that underlie behaviour rather than trying to change the behaviour itself. From this point of view, there is a link between "pragmatic strategies" and "aesthetic wisdom". Applying strategies is not enough; they have to be amplified by aesthetic wisdom, which has to do with a shift in the personal predisposition of the therapist. This means that therapists realise that their knowledge of the interactions within and between systems will always be limited, and they will never have a comprehensive enough picture of the whole to allow them to make accurate predictions.

Therapists must be capable of assuming a humble position within a system, accommodating different realities that exist side by side, and respecting the

ability of the system itself to bring about a healthy balance. This does not mean that therapists take a passive stance; rather it gives them the freedom to be more flexible and innovative. They can make suggestions and offer certain constructions of realities, provided that they do not assume that their suggestions and constructions will necessarily be accepted by the clients. Therefore, the therapist can enter into a therapeutic process as a person, with his or her full repertoire of theoretical frameworks, talents, attributes and creativity intact. This orientation clearly acknowledges the autonomous nature of systems and is grounded upon constructivism.

In ecosystemic therapy, the theme is always co-construction of ideas or meanings. Anderson and Goolishian (1988, p.162) express this as follows: "Therapists and client come together in dialogue and neither maintains an independent meaning structure that works only in an interactive fashion. In effect they generate a dialogically shared domain of meaning... A new world, a new narrative, a new story is created."

SUMMARY

In this chapter the most popular treatment approaches for CFS were discussed against the background of positivism on which the premises of the medical model is build. Throughout the literature study the underlying assumptions and their shortcomings were highlighted. It was demonstrated that the positivistic approach has its limitations for the understanding and treatment of CFS. CFS is a human phenomenon and is therefore too complex and too contextually bound to be explained by Newtonian epistemology. Suggestions for an alternative approach to treatment based on second-order cybernetics and constructivism were made along with the implications for such an understanding of treatment.

CONCLUSION

INTRODUCTION

This study points out that CFS can be described as a controversial illness. Little unanimity exists regarding diagnosis, research and treatment. There also seems to be little agreement regarding aetiology, epidemiology or even terminology. The study points out that the traditional approaches to diagnosis research and treatment of CFS are based in Newtonian thinking.

The aim of this study was to propose a shift towards an ecosystemic approach to CFS as it may offer wider possibilities for research and *treatment of the condition*. Because our current understanding of the condition is based on the underlying assumptions of the medical model, positivism and the traditional approaches to the condition were discussed in detail. Furthermore the study aimed at discussing the main events and concepts leading up to the ecosystemic approach in order to place such an approach to CFS in context.

TRADITIONAL DIAGNOSIS AND TREATMENT

From a traditional perspective, the diagnosis of CFS implies that there is an objective problem, and that the practitioner can arrive at an objective description of the problem. Furthermore physical, emotional, and cognitive symptoms experienced by the CFS sufferer are diagnosed and treated separately and are regarded as being in a cause/effect relationship to the primary problem of CFS. The illness is viewed as located in the individual who is exhibiting the symptoms. Treatment focuses on the ill individual who is under treatment in order that his or her symptoms be alleviated.

Presently Cognitive Behaviour Therapy is the most popular psychotherapeutic approach to CFS. Like other traditional treatment approaches, CBT is applied to the ill individual in order to influence him or her and cure him or her of symptoms. The therapist is thus regarded as the expert designated to treat and bring about change within the mindset of the individual suffering from the condition.

From this perspective symptoms of CFS are seen as the effects of primary causes, and it is believed that only if the real cause is identified can the symptom be cured. Interventions not directed at the root cause are considered meaningless and if change does occur it is discounted as not real.

TRADITIONAL RESEARCH

Research into CFS seeks to explain CFS in terms of linear causality and through reductionism. Attempts are made to discover one true and fixed reality about the illness through the observations made by the researcher. These observations are considered to be objective and value-free. These bias-free observations of CFS are regarded as essential to scientific, quantifiable research and is possible by means of valid and reliable instruments and randomized experimental design. Furthermore it is believed that that which is observed regarding CFS exists independently of the researcher and can be seen as singular, stable and predictable and that if the correct methods are applied, increasingly accurate views regarding the illness can be reached.

Although much research has been undertaken regarding this phenomenon, many controversies seem to persist. As has been pointed out, there may be a number of reasons for the disagreements around diagnosis, research and treatment and the perceived 'untreatable nature' of CFS.

Firstly, CFS is a human phenomenon and traditional research based on the underlying assumptions of the medical model may be

inadequate to contribute to how human systems operate change, and to understand human complexity.

Secondly biology and physiology alone do not explain and provide answers pertaining to the condition.

Thirdly, as explained, if problems are reduced to molecular phenomena with the aim of isolating a mechanism central to the problem, practitioners limit themselves to partial aspects of the phenomena they study.

Fourthly, refusing to value data that cannot be studied in a laboratory setting and regarding it as unscientific and valueless leads the medical model to reject potentially valuable input from more ecological and holistic approaches.

Fifthly, understanding and conceptualizing CFS as a fixed reality may be limiting in terms of interventions and is restrictive in a therapeutic sense.

Sixthly, the tendency from this perspective to regard disagreements in terms of CFS as a result of inadequate knowledge which is correctable with more scientific research based on the same underlying assumptions, leads to more of the same and the persistence of the untreatable nature of the problem.

IMPLICATIONS AND RECOMMENDATIONS FOR AN ECOSYSTEMIC APPROACH TO THE DIAGNOSIS, RESEARCH AND TREATMENT OF CFS

As explained in Chapter 3, the ecosystemic approach proposes something entirely different. From an ecosystemic perspective it seems more useful to describe CFS in terms of patterns of relationships which are embedded within a whole network of meanings, rather than dividing it into a world of dualisms of mutually excluding opposites. This implies that seeing CFS in a broader context means that the condition and its associated symptoms may

only be understood in relation to the whole network of interactions and meanings in which the person finds him or herself. This implies a shift away from trying to fix and control the problem or system based on the ideas of the clinician and halt it from evolving according to its autopoietic nature.

The underlying assumptions of the ecosystemic approach to CFS differ radically from those of positivism. In order for the alternative conceptualization to have any use, it will have implications for treatment as well as for research. From an ecosystemic approach the recursive relationship and interconnectedness of diagnosis, research and treatment cannot be denied nor separated.

From this perspective the diagnosing of CFS becomes a way of knowing the problematic situation. CFS and its related behaviours are thus no longer seen as characteristics of some external reality and so reified. In adopting an ecosystemic perspective to the study and treatment of CFS, the primary cause of the problem and its location, whether it be physical, psychological, sociological, or a combination of these is no longer relevant and one is no longer limited by these answers.

Characteristics, symptoms and behaviours are viewed as expressions of ideas. These occur within a given context and are interlinked within a network or ecology of ideas. From an ecosystemic perspective CFS can be viewed as a social construction in verbal as well as non-verbal language. The whole system can be seen as becoming organized around a network of shared ideas about CFS and the problem can be viewed as determining the system. The problems surrounding CFS are viewed as existing in language and mutually qualified as problems by all those involved in the particular ecology of ideas.

For diagnosis the whole system is involved, the identified patient, the therapist, other persons, the family, the symptoms and all the other components of the problematic situation. This system is regarded as self-referential because the simultaneous interactions identify, define and constitute the system. Therefore all domains of human behaviour are

recognized as presenting a holistic framework from which CFS and related behaviours can be viewed.

The ecosystemic perspective to CFS implies that all system levels need to be considered. No longer is only the observable data included in our understanding of CFS but also different descriptions of the situation, as well as the particular way in which the therapist arranges his or her data and hence the therapist's own participation in the situation. This helps one to move beyond the limitations of only focusing on the observable data and problem definition in a linear, reductionistic fashion.

Adhering to the ideas of constructivism, all approaches to a problem, in this case CFS have their usefulness. Therefore the usefulness of the medical model not being denied. However, there are questions around its usefulness in approaching this particular problem and context, and the ways in which theories and assumptions are applied. The ecosystemic perspective refrains from prioritizing one model above the other. It emphasizes holism and therefore acknowledges the usefulness of other, linear, biomedical realities and approaches to CFS.

A second-order cybernetic view of CFS implies that the way in which one perceives is as important as what one perceives about the problem. Once again all descriptions of CFS can be seen as contributing to a more holistic understanding of the phenomenon. Different perspectives can be seen as different levels of logical typing with their usefulness depending on the context in which they are applied.

Constructivism assumes that what we construct is self-referential. Congruent with the concepts of structure determinism and structural coupling, problem determined systems are described from within the system. Therefore the therapist can be seen as a co-constructor of that reality and the ethic of participation in diagnosis, research, and treatment becomes important in what is constructed in terms of CFS. This implies that no claims of objectivity regarding the reality of CFS and its appropriate treatment can be made as is done in the traditional approach.

IMPLICATIONS AND RECOMMENDATIONS FOR TREATMENT

In the treatment of CFS from an ecosystemic perspective self-referentiality is emphasized and the therapist becomes part of the therapeutic system. He or she is no longer regarded as able to act upon and influence the individual or system in a direct way. CFS is no longer treated as residing in the individual, but rather as a product of active, subjective construction in the domain of language by all those in communication about the problem.

The therapist is no longer seen as the expert designated to fix the problem, but is rather seen as an active communicating member of the problem determined system and becomes part of the ecology of ideas. The aim of therapy is to perturb the system in a direction that may be deemed more positive by those involved. In order to do so the therapist needs to take responsibility and be aware of his or her own assumptions, beliefs and ideas that may hinder the process of necessary shift.

The goal of therapy is not to bring about change on a first order level, but rather to create a context for epistemological change. From this perspective the autonomy of the system is emphasized. If CFS is understood as a way in which the autonomy of the individual and significant system is simultaneously conserved, the therapist is likely to take on a respectful rather than a judgmental stance. Therefore there will be no space for blaming the individual or system as a whole for the problem of CFS.

An ecosystemic approach to therapy does not prefer specific techniques above others. There is thus no right or wrong way to do therapy when working with CFS. The most useful treatment modality would depend on the context. The most useful way of doing therapy would centre around the idea or realization that the only ethical way to proceed involves an awareness of the therapist's participation in co-constructing a different reality around CFS. A variety of therapeutic techniques and modalities may be used provided it be done in a way that the ecosystemic rationale for their use is emphasized

and they are not employed with the idea to change or cure CFS and its related symptoms in a linear way.

RECOMMENDATIONS FOR FURTHER RESEARCH

As explained in Chapter 5, most literature on CFS is based on research and studies conducted from the premises of the medical model. This approach does not consider the participation of the observer in that which is observed. It adheres to the idea of an objective and fixed reality that is yet to be discovered through scientific method. Observations center around observable data. The inability of research to move beyond this level of abstraction may be contributing to the controversies and difficulties in addressing the problems related to CFS.

In order to provide a more holistic understanding of CFS, it is suggested that more research be conducted from an ecosystemic perspective. More research on CFS needs to be conducted from a perspective that acknowledges social context, multiple perspectives, complexity, individual differences, circular causality, recursion, self-referentiality, and holism.

As mentioned in Chapter 1, case studies were not included in this dissertation. This however poses a significant limitation for this study. It is therefore recommended that further research into CFS from this perspective make use of case studies. Looking at real cases and attempting to see how they can be understood from an ecosystemic perspective could offer valuable information and have important implications for further research and treatment.

Working with CFS from a second-order perspective and respecting the recursive relationship between research and treatment, research may be viewed as closer to, and more useful for clinical practice. By looking at the ethical participation of the researcher/therapist and taking a participant-observer stance there will be more access to the research process as such, and provide a better understanding of the frame of reference of the researcher. Furthermore with an ethic of participation it is realized that the

trustworthiness of research is determined by those who consume the research data.

CONCLUSION

An ecosystemic approach to CFS has implications for diagnosis, research and treatment. Although the limitations of Newtonian thinking for the understanding of complex phenomena has been highlighted many a time, it is discounted in the context of CFS and many questions remain unanswered. From an ecosystemic perspective to diagnosis, research, and treatment the focus is not on CFS and associated behaviours in a linear reductionistic way as in traditional thinking. By shifting toward the ecology of ideas and respecting the autonomy of a system and enhancing a second-order or ecosystemic approach the therapist is able to avoid focusing on the reductionistic understanding and hence limited solutions to CFS. In this way one could move beyond the 'untreatable' nature of the problem, and minimize solutions that perpetuate the problem.

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