

**Action Research as Process:**  
**The two stage model for active adaptation**

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### ***The Action Research Paradigm***

Reason and Bradley (2001) suggest that it is premature to define action research, and they suggest it is "... a participatory, democratic process concerned with developing practical knowing in the pursuit of worthwhile human purposes, grounded in a participatory worldview that is currently emerging (Reason and Bradley, 2001 p.1)." Indeed to try and further define action research would be stifle its development (van Beinum, Faucheux & van der Vlist, 1996). It is not going to far to suggest that action research is a radical enough departure from traditional academic forms of scholarship so as to take on some of the characteristics of a new social science paradigm.

There are many variants of action research. Gloster (2000) outlines the socio-ecological systems action research model developed by Fred Emery (1981, reprinted in Trist, 1997). He differentiates between action research (ar) which improves the practical affairs of a particular social system and Action Research (AR) that in addition contributes to social scientific knowledge.

To describe socio-ecological AR, following Peirce, Emery demonstrated that the type of logical inference required to generate concepts, and hypotheses about their connections, was based primarily on the logic of abduction:

Peirce demonstrated that there were three forms of logical inference and not just the two, deduction and induction, that were generally supposed. He distinguished between induction as a form of statistical generalization and abduction (retroduction) as a form of inference that yielded 'reasonable ex post-facto hypotheses'. He showed (1878).... that it was only by this ability to arrive at 'reasonable hypotheses' that we could advance scientific knowledge (Emery & Emery, 1997 page 1).

In this model, inquiry begins with a surprising phenomena or a problematic situation. In the case of action research conducted through the two-stage model (Emery, 1999) it is often a new demand or opportunity that creates the need for inquiry. Such AR often begins as 'ar' with a pragmatic real world situation rather than the hypothetical pursuit of theory (de Guerre, 2002). This article will review some of the theoretical roots of the two-stage model of active adaptation and describe it's unique capacity to discover new knowledge by using a proposal for AR into the health effects of direct citizen responsibility for a desirable community.

### ***A Brief Introduction to the Open Systems Theory of Fred Emery***

The version of open systems theory developed primarily by Fred Emery, OST(E), has two main purposes. The first is to promote and create change towards a world that is consciously designed by people, and for people, living harmoniously within their ecological systems, both physical and social. 'Socioecology' captures the notion of people-in-environments. Included within this is the concept of open, jointly optimized, sociotechnical (and sociopsychological) systems, optimizing human purposefulness, and the best options afforded by changing technologies. The second purpose is to develop an internally consistent conceptual framework or social science, within which each component is operationally defined and hypotheses are testable so that the knowledge required to support the first purpose is created. OST(E) develops from integrated theory and practice where the practice involves important human concerns.

OST(E) preserves and strengthens a long line of antecedents which traces an increasingly coherent body of knowledge about people-in-environments (Emery, 2000).

### Building Blocks of Socioecology in its OST(E) Form

'Socioecological' means 'people in environment' which is expressed by the concept of the open system. Behind the concept of the open systems lies the concept of directive correlation (Figure 1).

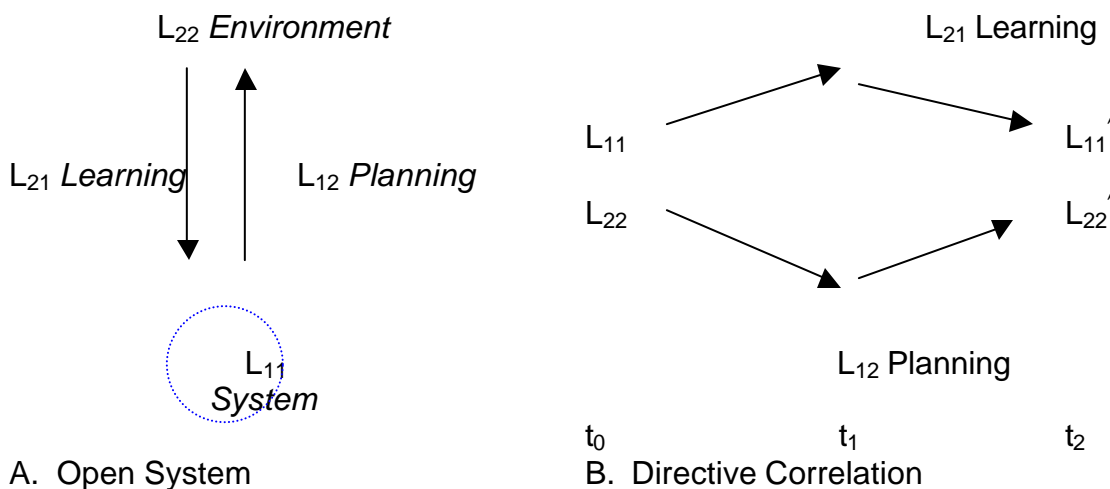


Figure 1. The Models of Open System and Directive Correlation

The open system (Figure 1A) expresses the transaction of system and environment, all components of which are governed by laws (L) that can be known. The system (designated '1') acts upon the environment (designated '2'). This is the planning function ( $L_{12}$ ). Environment acts upon the system and is known to us through the function of learning ( $L_{21}$ ).  $L_{11}$  and  $L_{22}$  express the intrinsic nature of the system and environment respectively. The laws that govern them are implicitly learnt about in the OST(E) method for participative planning and policymaking called the Search Conference (SC) (Emery, 1999).

The parameters of the open system-in-environments ( $L_{22}$ ,  $L_{11}$ ,  $L_{21}$ ,  $L_{12}$ ) define the necessary and sufficient conditions to characterize any open system or any environment. They are the foundation for the derivation of the model of human decision making and hence the derivation of the set of human ideals and the societal maladaptions described below.

The concept of *directive correlation* (DC) (Fig. 1b) states that it is a necessary condition for the subsequent occurrence of a certain event or goal that two or more variables, should at a given time be in exact correspondence for an adaptive relationship. Environment and system are then *directively correlated* with respect to the goal and the starting conditions (Sommerhoff 1969). That is, they are correlated in terms of direction. They act to bring about the same future state of affairs from the same starting point. From the original condition at  $t_0$  which consists of system and environment, both system and environment make changes at  $t_1$ , resulting in a new set of conditions consisting of a changed system and environment at  $t_2$ . In Figure 1B the changes shown are *directively correlated* and, therefore, adaptive. There are of course, an infinite number of cases in which system and environment are not *directively correlated* and, therefore, are *maladaptively related*. The DC model expresses precisely when adaptation is or is not occurring over time.

A *system* ( $L_{11}$ ) is defined by its *system principle, unitas multiplex* or *construction principle* (Anygal 1941, 259). This principle, which expresses the unique relation between the entity and the environment, governs the behaviour of

the system and the arrangement of its parts. Organizations may or may not be systems.

*The environment (L<sub>22</sub>)* is a social field consisting of the changing values, expectations, and ideals of the human systems within it. It is formally defined as 'the extended social field of directive correlations' (Emery, 1977a) with a causal texture that has changed over the course of human history (Emery & Trist, 1965).

People are defined as *open, purposeful systems* who "can produce (1) the same functional type of outcome in different structural ways in the same structural environment and (2) can produce functionally different outcomes in the same and different structural environments." They display *will* (Ackoff & Emery 1972: 31). By constantly acting as active, responsible agents (Chein 1972: 6), they change the environment.

Concomitantly, nobody is an island. Mental health is "the capacity both for *autonomous expansion AND for homonomous integration*" with others (Angyal, 1965: 254). 'Autonomous' means governed from inside, purposeful activity with a systemic direction towards expansion through coherence. But "life is an autonomous dynamic event which takes place *between* the organism and the environment" (Angyal, 1965: 48, my emphasis). Autonomy without corresponding homonomy or interdependence with others inhibits growth. Humans are social or group animals constantly seeking the best balance between these two vectors.

People also have the *potential for ideal seeking*. They can confront choices between purposes and choose outcomes called ideals that are endlessly approachable but unattainable (Emery F 1977a, 69). The ideals spring from our

capacity for potential directive correlation (Sommerhoff, 1969), to *imagine* and *expect*. The ideals corresponding to the four parameters of the open system as above will be discussed in more detail in the next section.

The OST(E) view of human learning is based on Gibson's (1966) notion of *ecological learning*. Since we are physically adapted to our planet, we are able to directly extract meaningful information from physical and social environments (Gibson, 1966; Emery 1981). OST(E) is based on this extracted knowledge or serial-genetic constructs. Viewing people as ecological learners is very different from viewing them as *tabulae rasae* who need teaching.

The DC model is also elaborated in terms of levels of environment. Apart from the  $L_{22}$ , we distinguish 'task environments' which are simply slices of the  $L_{22}$  relevant for any given system. Thus the global pulp and paper industry functions as a task environment for a paper mill. Task environments allow a system to better approximate active adaptation. Similarly, we distinguish systems within systems, which function as environments for smaller units within them. A large organization functions as an environment for a department within it, and that department functions as an environment for the people within it.

### **Ideals and Maladaptions**

Both the set of ideals and the passive and maladaptive scenarios flow from the parameters of the open system and the choice model it presents (Ackoff & Emery, 1972; Emery, 1977a; Emery & Emery, 1979).

Choosing is a form of behaviour of any organized system and is the distinguishing characteristic of purposeful systems such as human systems (Ackoff & Emery, 1972). There is a correspondence between OST and the

parameters of choice or decision making. The set,  $L_{11}$ ,  $L_{12}$ ,  $L_{21}$ , and  $L_{22}$  represents a complete set of the parameters of choice behaviour for human decision making (Ackoff & Emery, 1972; Emery, 1977; Emery & Emery, 1979). Probability of choice, the  $L_{11}$  dimension, refers to the tendency to preserve the integrity of the system in familiar ways. Probable effectiveness, the  $L_{21}$  dimension refers to the knowledge the system has in terms of what the system can do in its environment or what purpose can be achieved. Relative intention maps the  $L_{22}$  relation or the seriousness attached to the matter about which the decision is made. Probability of outcome is related to the  $L_{12}$  dimension and therefore has to do with what and how the system learns from its environment ( $L_{21}$ ).

“Active adaptation is being in a constant state of change appropriate to both the nature of people and a continuously changing environment” (Emery, 1999 p25). Ecological learning and dynamism are inherent to active adaptation. “The model of directive correlation expresses the idea that for both system and environment to be in an active adaptive relationship, they must be heading in the same direction from the same starting point (Emery, 1997b, p. 6). There are of course a number of cases where the system and environment are not directly correlated in terms of direction, and therefore the nature of adaptation is crucial. There is a choice between:

- 1) Passive adaptation. One waits and prepares for the future, and when it comes, deals with it as best one can. The system changes its behavior to fit the econiche rather than attempting to shape it. This is an expression of dependency.



2) Active adaptation. One does not just wait, but creates the future. One takes action based on choices. One selects futures in accordance with one's beliefs, values, and ideals (van Beinum, 1990). The system chooses to actively change or shape the econiche.

In turbulent fields, active adaptation requires a group response in that the field is too complex for any individual to deal with alone. Therefore, the actors must find common ground on which to establish cooperative and collaborative relationships for puzzle solving and this common ground is to be found in human ideals (see Figure 2).

*Homonomy* (Angyal, 1965) expresses a sense of belongingness and interdependence. It relates part to part within the whole for the benefit of the whole and all its parts. It is complementary to autonomy and the opposite of selfishness. *Nurturance* is cultivating those means that contribute to the health and beauty of the whole and all its parts. Its opposite is exploitation. *Humanity* expresses what is appropriate for the spiritual as well as physical wellbeing and development of people as people, not subordinated to their institutions. Its opposite is inhumanity. *Beauty* is recognizing and moving towards that which is aesthetically ordered and intrinsically attractive, the antithesis of ugliness. For active adaptation, the ideals must be pursued as a set and SCs usually elicit the whole set (Emery & Emery, 1979).

All the maladaptive strategies and resultant scenarios are attempts to reduce relevant uncertainty and simplify choices in the face of a Type IV turbulent environment (Emery & Trist, 1965). They are maladaptive because they

actually lessen the chance of reducing that uncertainty. Our cultures normally show changing patterns of maladaptions, and active adaptation.

The active forms are the prerogative of elites who have the power to change social arrangements while others pursue the passive forms as they adjust and react to those changes. The active forms may have had survival value in the previous, Type III social field (Crombie, 1997), before the gathering rejection of the assumptions governing acquiescence to personal dominance (Emery, 1977b), but today these strategies are widely perceived to indicate a leadership increasingly out of touch and provocative.

*Segmentation* results from the solidification of ingroup/outgroup demarcations transforming one social field into a set of fields, each internally coherent but poorly integrated with the others. Authoritarianism or *Law and Order* as its active correlate acts to keep the society intact. *Dissociation* denies that working with others enhances individual effort, leading to withdrawal, apathy and indifference, the symptoms of rampant autonomy. *Evangelicism* is an attempt to generate the psychic support required to overcome the frustration and anxiety of dissociation and breaks out as a highly contagious emotional response, often associated with the emergence of a messianic leader. *Doomsday* expresses the powerlessness of people to influence outcomes while in *Social Engineering* the elites act to deliberately obtain their most desirable outcome. If Segmentation and Law and Order are associated with Orwell's *1984*, then Social Engineering is associated with Huxley's *Brave New World*. Social engineering was previously called 'Eugenics' (Emery & Emery, 1979) but the scenarios that arise from this

parameter of choice are broader than the meaning conveyed by that term.

*Superficiality* is a reduced emotional investment in outcomes denying the deep realities of human life and the motivation that flows from them. *Synoptic Idealism* expresses the intention of the elites to plan and administer with such control that the society can function adequately without the motivation of its people.

Parameters of open systems (1)	Parameters of choice (2)	Possible Scenarios		
		Adaptive (3)	Maladaptive (4)	
			Passive	Active
L <sub>11</sub>	Probability of choice	Homonomy	Segmentation	Law and order
L <sub>21</sub>	Probable effectiveness	Nurturance	Dissociation	Evangelicism
L <sub>12</sub>	Probability of outcome	Humanity	Doomsday	Social Engineering
L <sub>22</sub>	Relative Intention	Beauty	Superficiality	Synoptic Idealism

**Figure 2: Conceptual framework.<sup>1</sup>**

### ***Organization Choice: The Design Principles***

The new concept of organizing differs so radically from the existing notions about organization that we can speak of a new paradigm of organizing or a new genotype as opposed to phenotypic modifications on an existing theme. This new paradigm is the result of a change in the choice of design principles. Driven by a desire to humanize the workplace and by the emergence of a Type IV turbulent extended social field (Emery & Trist, 1965), the theoretical point of departure is based on OST (E) and is concerned with the adaptive capability of

<sup>1</sup> 1. Emery and Trist, (1965); 2. Ackoff & Emery, (1972); 3. Emery, (1976); 4. Crombie, (1973); quoted in Emery & Phillips, *Living at Work*. Canberra: Australia Government Publishing Service, 1976 and reproduced in Trist et al. 1997, p 338.

social systems. To be able to pursue business objectives, organizations must have the redundancy (flexibility) to be able to respond to a wide variety of changing circumstances socially, technically, politically, and economically. Redundancy can be acquired in one of only two ways (Emery, 1972). The first is called redundancy of parts (DP1) because it is achieved by adding extra parts to the system, or more than is needed at any point in time thus producing an overcapacity of parts (people). The second is called redundancy of functions (DP2) because it is achieved by increasing the capacity of the individual parts by building in as many skills and functions as possible into every person resulting in an overcapacity of functions or skills. The third option is laissez-faire (Lewin, Lippitt, & White, 1939), which is the lack of structure or the lack of organization. It is not an option. As Lewin, Lippitt and White (1939) discovered, laissez-faire social climates are not productive and are dysfunctional for human beings. There is such a thing as organization choice (Trist, Higgin, Murray, & Pollock, 1963).

### ***The two-stage model of active adaptation***

The long term practical purpose of OST (E) is cultural change (de Guerre, 2000, Emery 2000b) in which the use of the two-stage model of active adaptation is a critical tool. "Searching is the translation of a system of understandings into practice to extend the emerging culture and to bring it under conscious control (Emery, 1999)." It includes all of the elements discussed above and is the operationalization of OST (E). The SC is an event in the middle of an extended participative planning and policymaking process that includes preparation, and follow-up implementation of action plans. Failures of implementation were known

to be of two classes, poor SC design and management, and failures to carry out agreed actions after the SC. Success depends upon the quality of the preparation, management, and the structures consciously built into the implementation phase. These structures must provide the characteristics for productive group life and therefore cannot be committees, which are bureaucracies (Emery, 1999).

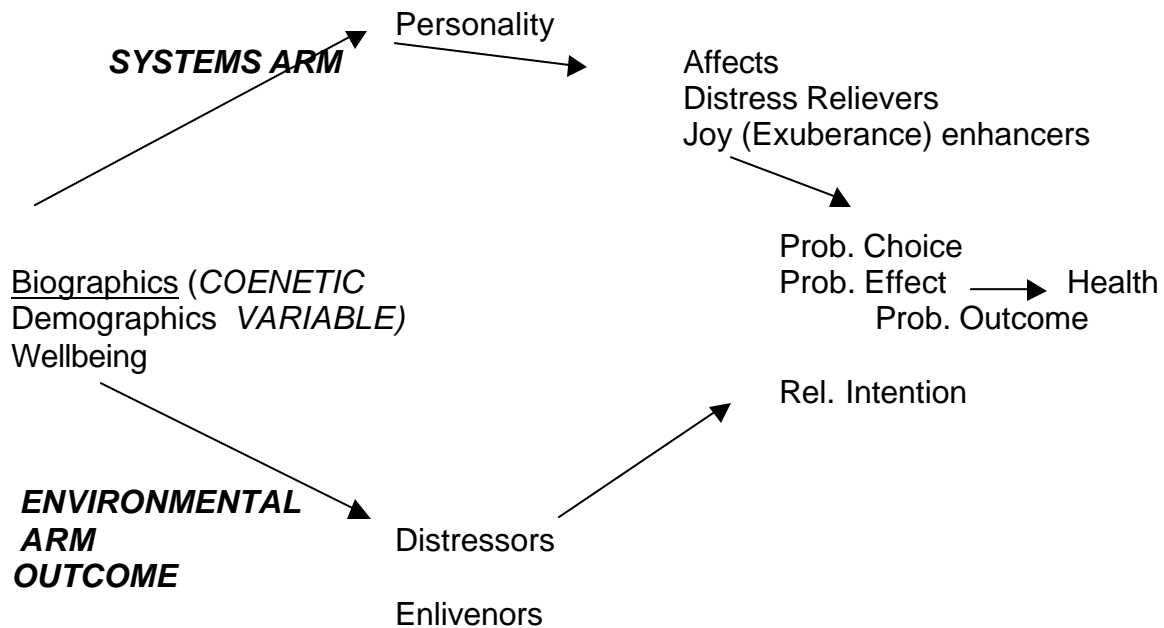
The SC is structured on the second design principle or democratic self-managing organization (Emery, 1999; de Guerre, Kalinin & Noon, 1997; Purser & Cabana, 1998). It uses this structure as a basis for ecological learning (Gibson, 1966; Emery, 1981) that establishes the conditions for influential communication (Asch, 1952) and allows for the creative working mode (Bion, xxxx). In this environment conflict is dealt with openly, diversity is celebrated, and diffusion occurs through contagious positive affect. Searching provides the cohesive conditions to develop learning-planning communities focused on integration of system and environment for their mutual success (Emery, 1999).

The SC is therefore an environment for learning about OST, taking responsibility and making choices about how to create a better world. Participants emerge from the SC with a new awareness of their context, new relationships and specific action plans. However such awareness is not sufficient for direct conceptual knowledge of organizational design and the design principles underlying it. Failures of implementation occurred because at the end of a SC, people were walking out of a carefully constructed democratic structure back into a bureaucratic structure. It wasn't long before they lost interest in

attending follow-up meetings. One identification of the problem is that there was not a manager in the follow-up sessions as there was at the SC. But this analysis suggests that people will not take responsibility to achieve their own purposes, and/or that people cannot learn ecologically in a self-organized manner. Rather there is an inherent structural conflict between the democratic structure created during the S.C. and the bureaucratic committee structure used for implementation. Maladaptation is the natural outcome of such a structural conflict. In some cases, the experience of the SC has been enough to allow participants to understand how to work in a participative democratic way after the fact. More commonly though, the implicit assumption that there must be a bureaucratic structure to make things happen takes over because there is no conscious conceptualization of an alternative. Thus, a modified Participative Design Workshop was added to create the two-stage model of active adaptation. It provided participants with knowledge of the design principles and resolved the structural conflict. Since the implementation of the two-stage model, there have been no failures.

***An application: The Health Effects of Direct Citizen Responsibility***

The conceptual design for this study is shown diagrammatically below in the form of a directive correlation showing how from a designated starting point, the individual and community mutually contribute to health. The closer the community is to active adaptation (Emery, 1977; Trist, Murray, & Emery, 1997), the closer an individual is to health.



**Figure 3. Conceptual Design of the Study**

The starting conditions or 'coenetic variable' is captured by the most powerful relevant biographics and demographics particularly those of gender, age, education, and socioeconomic status. The environmental arm measures relevant variables for the community, including its major institutions, which distress (distressors) or enhance quality of life (enlivenors). Critical variables here will include location of responsibility for coordination and control in workplaces, family (nuclear or extended), government, physical environmental conditions, social factors such as increasing uncertainty, economic circumstances etc. The systems arm measures blocks of variables pertaining to individuals, their personality conceptualized as objective behavioral preferences (Emery & Emery, 1980; Emery M, 1999), frequency and intensity of range of

affects experienced (Tomkins, 1963), and the ways in which individuals relieve their negative affects or enhance their positive affects.

The block of variables headed 'Probability of Choice' represent the four parameters of the individual choice situation (Ackoff & Emery, 1972) (see Figure 2). The outcome variable 'health' in this study is measured by a set of health related variables taken from existing knowledge. In another study, a different outcome measure such as productivity could be measured instead.

The two-stage active adaptive action research process consists of a simple replicable research design in three phases. Phase I is preparation of the community or organization to Search and the participative democratic selection of participants to work through the two-stage model of active adaptation (SC) on behalf of others in the community. Phase II consists of the event itself. Prior to the event each participant is involved in a structured interview using the questionnaire described below. Phase III consists of follow-up activities when plans are actually implemented and the community or organization actually changes, thus changing the environment for purposeful people and therefore relative intention or the motivation to choose health. The second structured interview session, using the same questionnaire was scheduled eighteen months after the first. This then provides a simple 'before and after' research design.

The two-stage active adaptive AR process can be applied through the network of certified research assistants described above in as many sites as are necessary according to good research design criteria. This network of qualified research associates has been developed in the America's since 1993 at New



Mexico State University, The Bow Institute for Social Change and Development in Calgary, and Concordia University in Montreal. The training of research associates begins with a six day introduction to OST (E) course and continues with advanced workshops and apprenticeship. The proposed study on health, included fourteen communities to ensure a statistically significant sample, and to represent the various provinces, territories, and different cultural groupings in Canada. A local research associate acted as one party to the AR process while a local not-for-profit organization acted as the other. A central team of senior researchers, including the principal investigator centered around Concordia University, but could also include international data from a global network of OST (E) scholars. This research is now proceeding in a progressive way, community by community due to cost constraints.

### ***Questionnaire Design and Piloting***

The questionnaire was designed to collect data in all areas of the conceptual framework in Figure 2, and the conceptual design of the study in Figure 3 with a specific focus on health. The conceptual framework can be applied to the development of a questionnaire and active adaptive action research process in other areas such as socio-economic development. In addition qualitative data can be collected from the two-stage model S.C. itself.

The present questionnaire consisted of 232 variables after piloting with a latin square design sample in three cities in Canada. The biographics and demographics collected included information about childhood as predictors of sense of coherence (Wolf & Ratner, 1999), personal relationships as part of

social support (Health Canada, 2000) and normal questions about occupational and social status and gender, age, income.

Moving along the systems arm in Figure 2 the personality variables includes risk taking (Health Canada, 2000), a behavioural preferences test (Emery, M, 1999b) and a number of self image variables from Health Canada (2000). Affects were measured by a self assessment against a basic list of affects taken from Tomkins (1962) and some items from the Canadian version of GPI Indicator (Anielski & Marquardson, 1998). Distress relievers and joy enhancers included such things as use of various kinds of foods, beverages, nicotine, non-prescription drugs, pets and gambling (Health Canada, 2000). It also included a measure of purposes which taken together with affect (Tomkins, 1962) and time spent in various activities will indicate the areas of emotional investment in life or meaningfulness (Wolff & Ratner, 1999).

On the environmental arm, distressors and enliveners includes work activity (Health Canada, 2000), unemployment (Health Canada, 1999a, Appendix B), satisfaction with activity (Emery & Phillips, 1976; Health Canada, 1999b), supervision and its degree of closeness (Trist & Bamforth, 1951; Emery & Thorsrud, 1975; Emery & Phillips, 1976), control over activity/life (Health Canada, 1999a), psychological requirements of productive human activity (Emery & Thorsrud, 1969; Emery, M, 2000b, p309-334), psychological requirements of family life, financial security, activities and extent of activity (Health Canada, 1999a), and shift work. In addition personal perceptions of the local community and Canada were measured as key parts of the individual local task

environment. Finally, the four ideals and the four passive and active maladaptations were measured (Emery, F. 1977a; Emery & Emery, 1979; Alvarez & Emery, 2000).

Pilot data indicated correlations of the four parameters of choice with health, showing that health, as would be expected, is as subject to wholistic models of human choice as other behaviours.

The model outputs of health and well-being were measured by sick days, health interventions or consultations (Wilkinson, 1996; Health Canada, 2000), sleep, and direct and indirect rating of relative health (Health Canada, 1999a). Our research indicated self-report of health was the most reliable measure of overall health of an individual.

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