

The Purola model and the Holistic Concept of Man metaphor as bases for the networked view of decision-making in eHealth and eWelfare

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Abstract

The essence of the essay is to outline two models or metaphors of different philosophic and practical origins, with the aim of recombining the two to encompass some relevant aspects of modern information systems contexts in eHealth and eWelfare. The Purola model and the Holistic Concept of Man refer to the same real world phenomena but with different ontological and epistemological views. However, many further applications in areas of education, rehabilitation, accounting research, computerized decision support, sociomedical and information systems research remain yet to be contrived. Deeper analyzes of decision making environments of networked systemic wholes in eHealth and eWelfare are needed, both on micro and macro levels. Researchers and practitioners should strive for a balance between ethical demands of individual biopsychosociality and confrontations of technological and economic efficiency, also with macro scale cooperative options in mind.

Keywords: eHealth, eWelfare, model, metaphor, information system, network

Introduction

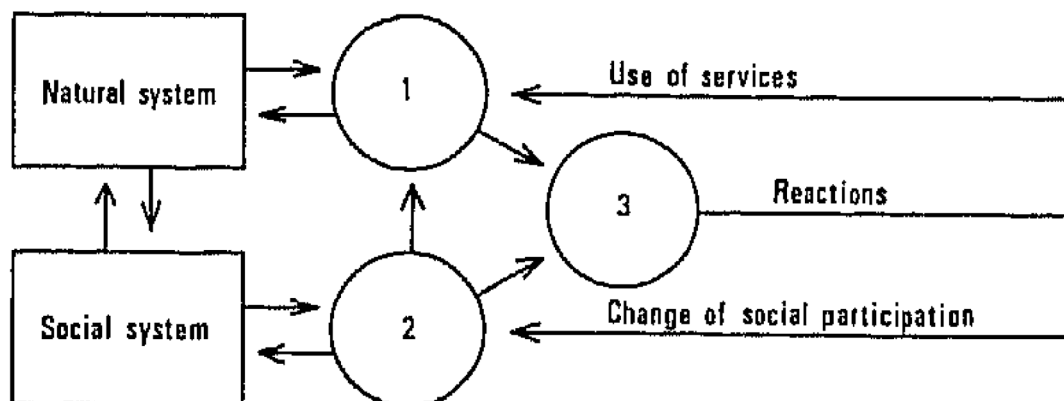
The aim of the essay is to sketch some aspects of the current knowledge management rationale in the Finnish eHealth and eWelfare contexts, based on two historical metaphors or models widely used in theoretical and empirical studies in Finland during the latest decades. I first outline the essential features of the Purola model, applied especially in several sociomedical population studies organized by the Finnish Social Insurance Institution (Kela). Secondly, I introduce the Holistic Concept of Man metaphor, initially described by Lauri Rauhala, a philosopher and psychologist, the metaphor having further been developed and applied e.g. in areas of accounting research, decision support, biopsychosocial rehabilitation and medical knowledge management. With some novel technological perspectives added, I then suggest that for future studies the two were to be recombined with the networks of modern information systems, knowledge management, and health care and social welfare informatics — both on micro and macro levels.

The Purola model

Purola elaborates a systems-oriented view from both a micro and macro level medical and social knowledge of health and ill health, and health policy. He stresses the three-partite role of ill health as a naturalistic, psychologic and social phenomenon. The organized medical care and health policy with social goals, the welfare of citizens and society, are produced by institutions making use of medical knowledge and technology. The whole of interrelated systemic elements, or combinations of them, range from the micro processes of the human organism to the macro processes of national and international health policy. Consequently, the aim of the Purola model is to analyze medical and sociologic illness, morbidity, medical care, and health policy, as integrated parts of the same macro system. The concept of illness refers to a disorder in the processes of subsystems and their relations (1).

The psycho-biological system of the individual is the man as an organism and an active element in a natural system. The psycho-biological system with its subsystems is the individual's internal natural system, with relations to and interactions with his external natural and social systems, exchange of perceivable influences and information taking place between the two (cf. Figure 1 on page 5). Purola makes a distinction between the concepts of a medical disease and a sociologic illness. An active man has many roles in a social context, with various links to his surroundings, i.e. the individual's social connections (1).

On the micro level, individual disturbances have complex relations to the population level morbidity and institutional systems producing the goals of the national health policy, where the preventive, curative and rehabilitative strategies of scientific and practical interests are intertwined with those of information gathering and utilization. This macro level system is depicted in Figure 2 (on page 5) (1).



1. Individual's psycho-biological system/illness as a psycho-biological state (medical morbidity).
2. Individual's social connections/illness as a social state.
3. Individual's awareness/illness as a perceived state (perceived morbidity).

Figure 1. The Purola micro model (1).

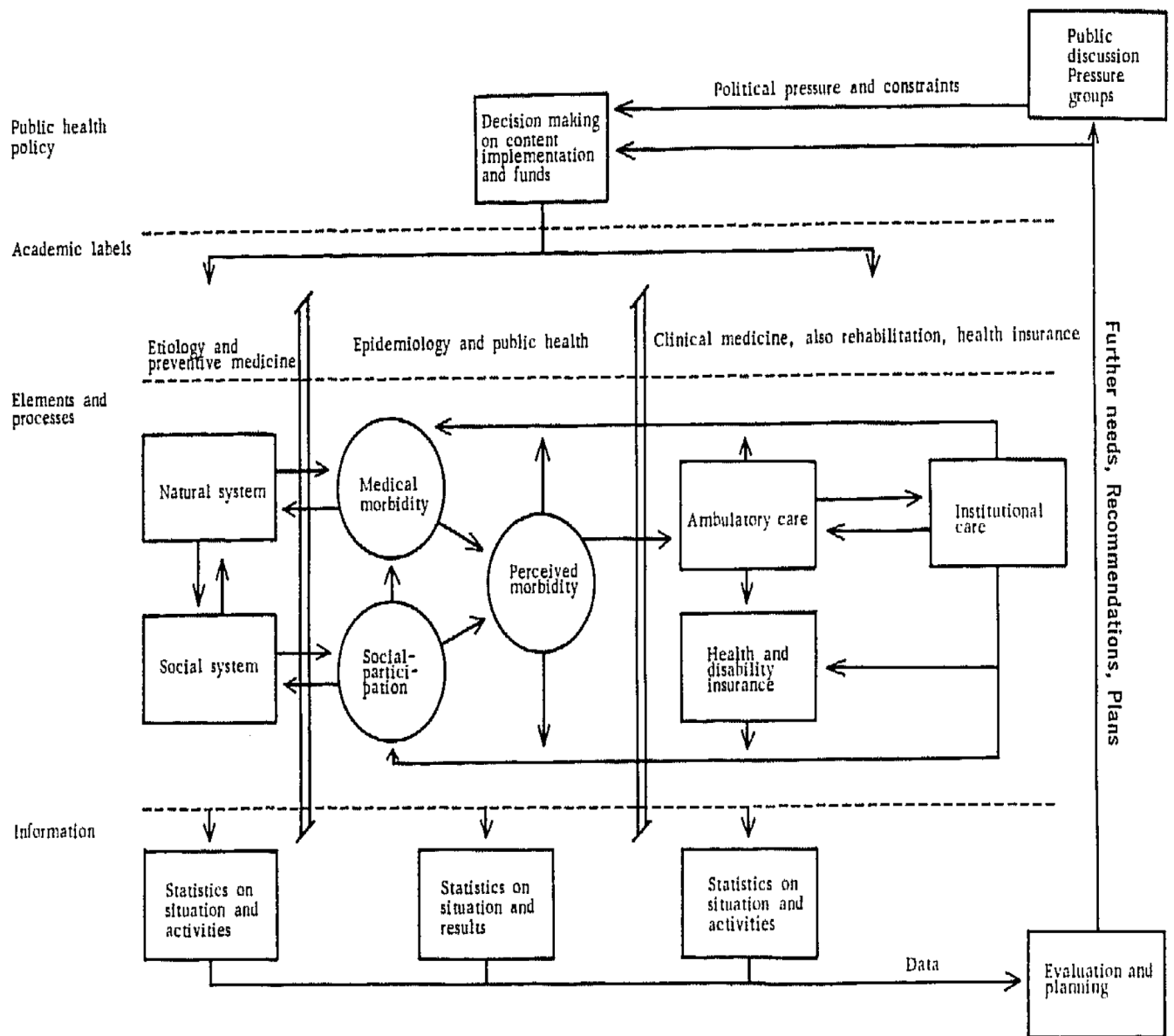


Figure 2. The Purola macro model (1).

The essence of the Purola model is the practical assumption — also of philosophical interest — that the human being is an intellectual organism living in social communities. A complex whole of individual perceptions, interpretations, understanding and definitions emerges as personal dysfunction, pain and dissatisfaction, modified by medical and cultural (i.e. systemic) factors. Purola underlines that, although his model has a wide systemic scale, it neither represents mechanicity nor neurological or behavioral automatisms, but — on the contrary — it stresses the importance of the abilities of the human mind to intelligent processing, which means that the system manifests itself not merely reflexively but also reflectively (1-2).

The Holistic Concept of Man metaphor

The Holistic Concept of Man (HCM) is a philosophic metaphor described by Rauhala, a Finnish philosopher and psychologist (3). Despite the complex Husserlian—Heideggerian background, the HCM is simple enough to be utilized for practical purposes — understandable also by non-experts. Pihlanto and Vanharanta with their colleagues have applied the metaphor in contexts of accounting research and computerized decision support (4-6). Further, Rauhala's ideas have been acknowledged in several disciplines, e.g. theoretical information systems, medical knowledge management and rehabilitation research (7-9).

The basic dimensions of the HCM metaphor consist of a body, a mind and a situation. The three dimensions of the HCM, representing the modes of existence of the actor, the decision maker, are called: 1) corporeality, 2) consciousness, and 3) situationality. The three modes of existence are intertwined to each other, forming a holistic entity, where the wholeness of interactive modes builds up a "regulative situational circuit" (3-5).

Corporeality maintains the basic processes of existence emergent as physical activities of the human being. Especially the human brain and sense organs are important in conveying objects and concepts to the decision maker as meanings in a specific situation. Consciousness stands for experiences and perceptions. It enhances understanding of various phenomena inside and outside of oneself. Human beings use their outer and inner senses to receive physical signals from the environment in a certain situation providing the consciousness with a meaningful content. Perceiving and understanding the object-concept relationships make a set of meanings emergent, available for use in the decision making process . Situationality means the decision maker's relevant relations to the outer world, in all its multifaceted pluridimensionality (cf. Figure 3. below). The situational components can be concrete or ideal, the former including e.g. nature, buildings, technological equipment, data processing hardware and software, and the latter e.g. human values, norms and human relationships as experienced contents (3-5).

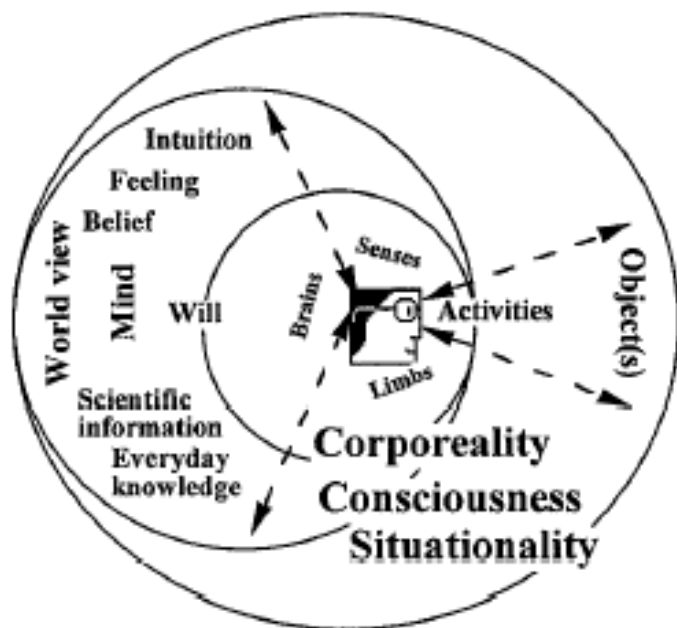


Figure 3. An active man and different types of meaning - the decision maker as a holistic entity (4).

Definitions of eHealth, knowledge management, and Health and Human Services Informatics

The concept of eHealth can be defined: "eHealth refers to the use of modern information and communication technologies to meet needs of citizens, patients, healthcare professionals, healthcare providers, as well as policy makers." (11). It comprises of subjects of electronic medical records (EMR), telemedicine, evidence-based medicine, consumer health informatics and health care knowledge management. Medical knowledge management and informatics form (at least to some extent) subcategories of eHealth (11-12). Modern web-based information technology has enhanced the gradual transformation of the patient-physician relationship towards an increased patient autonomy as a citizen and a consumer (10-11,13).

Knowledge and knowledge management are complex concepts. Different perspectives vary widely. Links between practical applications and theoretical foundations of knowledge management encompass rationales of information economics and strategic management, process definitions of organisational culture, structure and behaviour, and artificial intelligence — and evaluations of quality management and organizational performance measurement (14-16).

A basic taxonomy is to categorize data, information and knowledge hierarchically. Tacit knowledge is contextual, not easy to explicate — used in action, often steered by experience, cognitive models and technical skills. Explicit knowledge can be expressed and codified (17-19). The evaluation of medical and social/sociological knowledge is an intricate matter of a broader debate (10-20, 24-26). Health and Human Services Informatics has been a paradigmatically emergent discipline in Finnish university education during the last decade, with a central practical position in the ongoing renovation of the eServices of the health care and social welfare governance in Finland (26, 22-25).

Decision-making in the networked systems of health care and social welfare in Finland

The complex nature of the multi-level systems of natural, socioeconomic, technological and cultural subcategories with intermingling dependencies can be imagined with the aid of a network metaphor. Methodologically, the network paradigm has also many potential, more or less formal applications e.g. in studying information systems of health care and social welfare on both micro and macro levels (10-32). Figure 4. depicts the network architecture of health care IT in Finland.

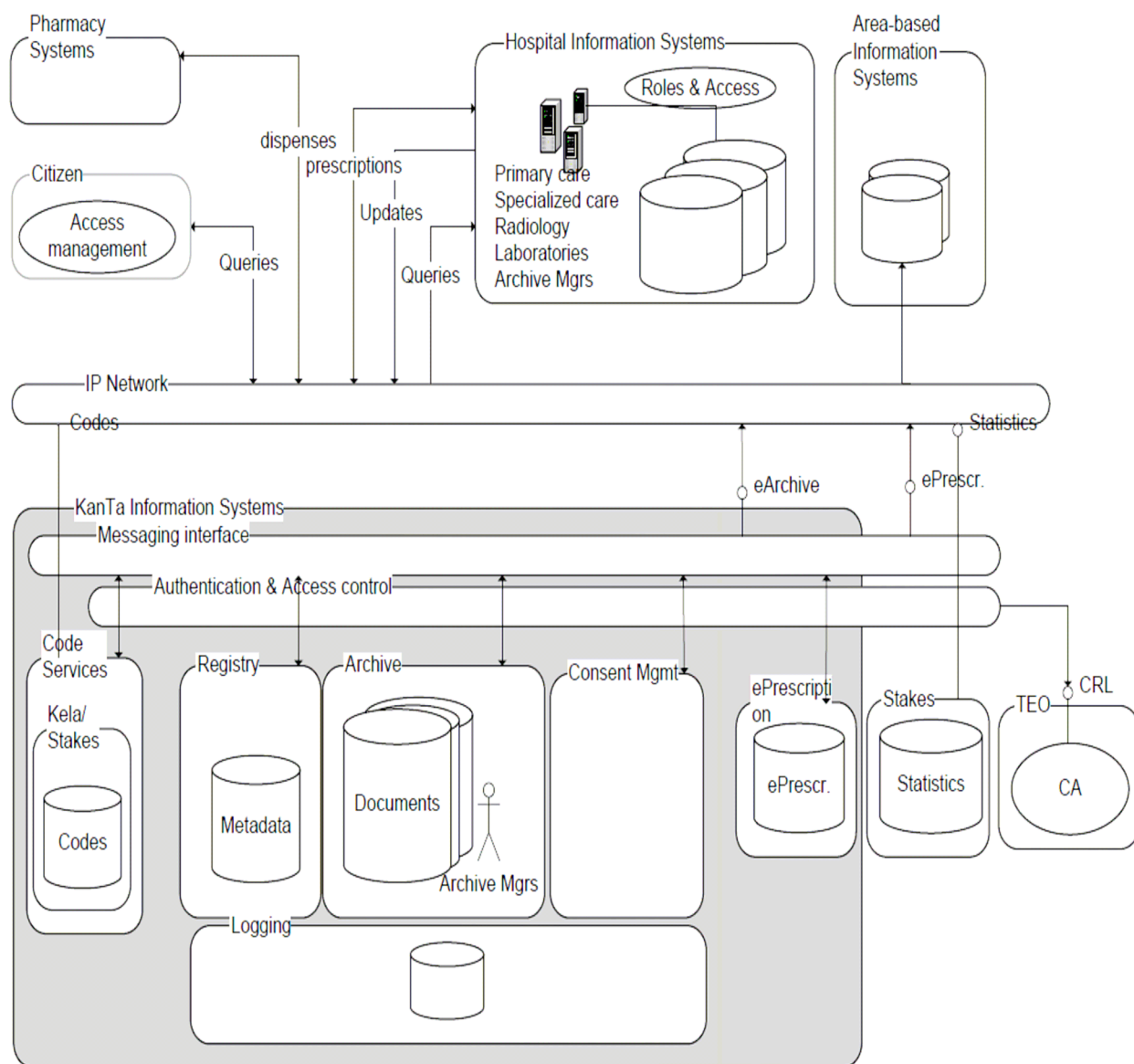


Figure 4. The architecture of health care IT in Finland (28).

In the micro context, the nature of the decision maker’s qualifications in relation to the real-world phenomena is essential. The HCM metaphor (3-6) is but one alternative to model a person making choices in a specific situation. It fits well to describe single subjects in their everyday problems, the phenomenological touch of the overall context making it possible to analyze interpersonal elements transdisciplinarily (3-6,8-9). The HCM metaphor reminds us of the multifaceted complexities of the human situationality, but it lacks expressive power e.g. in modelling biomedical knowledge or computer system ontologies (6-7,20). On the other hand, the Purola micro model and the HCM metaphor contain similar structural — but not functional— ingredients (1-3), which according to Purola

himself means that his empirical model of a human being stands for an intelligent organism living in groups and societies — and is analogical to the HCM metaphor described by Rauhala without residuals.¹ Despite a partial disparate fitness between the model and the metaphor, the two have been integrated e.g. in rehabilitational applications (9). The same might also work well in modelling computerized decision making and system specifications (1-3,7-8,20), as well as in juxtaposing the holistic decision maker with the economic man (i.e. Homo economicus) (32-33) or social ontologies of persons (34).

In the macro context, the Purola systems model (cf. Figure 2.), with its functional properties, might believably be metamorphosed towards the networked systemicity of modern eGovernance (cf. Figure 4.) (1-2,27-32). Thus, a multidimensional context of both qualitative and quantitative argumentations arise, more specifically to be studied.

Conclusion

The systems approach used by Purola makes it possible to describe elements of different ontological and epistemological origins concurrently, both on micro and macro levels. Thus, the Purola model enhances the transdisciplinary relations to be used exchangeably, depending on the focus in question. These systemic features are easy to put in the same functional system context, the result being ontologically varying models of information systems with biopsychosocial, bureaucratic, economic and informational subsystems interconnected.

The Holistic Concept of Man metaphor with its refinements mirrors some of the properties of the Purola model, but it is not deeply analyzable to its systemic parts. Despite its limitations in relation to modern cognitive sciences, the notion of the holistic decision maker or actor usually makes a very distinct impact on people with practical experience in many areas of health care, social welfare and education.

Different ontologies and epistemologies define methodologies to be recombined, aspects to be metamorphosed. Transdisciplinarily conducted theoretical and empirical research is a necessity.

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¹ According to the personal communication given by Pihlanto, Rauhala disagrees on this view.

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