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Partow Izadi

IN QUEST OF  
THE SCIENCE OF EDUCATION



FROM REDUCTIONISTIC DISCOURSE  
TO SYSTEMIC THEORY

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## ABSTRACT

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Partow Izadi

### IN QUEST OF THE SCIENCE OF EDUCATION: FROM REDUCTIONISTIC DISCOURSE TO SYSTEMIC THEORY

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The overall reasoning that forms the backbone of this dissertation is summed up in the following points: (1) we live at a global turning point in the history of humankind and, therefore, education and pedagogical science need to assume their central and active role in building a sustainable global future; (2) to do this, the science of education needs a generally acceptable philosophical foundation, a credible meta-theory for enabling the holistic and coherent exploration of the phenomenon of education; (3) it is plausible to pursue this by focussing the science of education on the universals of education instead of its mere particulars; (4) the general epistemological paradigm of science, mainly used by natural sciences, can be meaningfully applied also to the study of educational universals, while avoiding the pitfalls of a merely positivistic approach; (5) the theoretical model provided by General Systems Theory appears to provide a good basis for the formulation of educational universals that would correspond to the futuristic role of education as an agent of change in the paradigm of globalization.

Science seeks to unravel the essential reality of things, which in turn requires focus on the universal qualities of reality. Within the science of education, this would mean *the study of the phenomenon of education as a whole* and focus on the *universals* of education. At present, however, the study of the particulars of education is the target of the majority of pedagogical research and theory. This excessive focus on particulars is due to certain ingrained habits of the scholarly mind, which in turn is attributable to the power of tradition. This power generates certain fears and caution against human and educational universals. It is feared that *positivism would be reintroduced into human sciences* if universals are viewed through a realist interpretation and natural scientific epistemology. While understandable, such fears constitute an obstacle to the potentially beneficial effects of such interpretation and epistemology.

This dilemma can be solved by acknowledging that *science without holistic vision is prone to dogmatism*. If interpreted broadly, a realist view on universals and a natural scientific approach can be instrumental in avoiding dogmatism in science. Therefore, this research seeks to take the first modest step in focussing the attention of the science of education on educational universals. It seeks to demonstrate the philosophical and meta-theoretic feasibility of educational universals through a study of the *applicability of General Systems Theory to the science of education*.

The overall postulate of this study is: *The general epistemological paradigm of science and its method of exploring universals, mostly used by natural sciences, are relevant and applicable also to the paradigm of the science of education*. The main hypothesis, on the other hand, is: *If the science of education is to focus on educational universals, General Systems Theory is fundamentally*

*relevant for this quest.* From these points of departure further hypotheses are proposed that reposition the science of education in a systems theoretical philosophical context. Such systemic hypotheses on the phenomenon of education include: (1) education is a universal function manifest in evolutionary systems, the holistic process of interaction and transformation that *guides a system's evolution towards the realization of its potential*; (2) self-conscious and purposeful systems can produce *intentional and goal-oriented educational processes*; (3) conscious choice of educational goals and models affects the future and is *a manageable tool for purposeful evolution*; (4) there are universal principles and ideals that are critically relevant to the realization of the potential of human systems and, thus, bear directly on the *appropriate educational paradigms and goals to be adopted*.

In order to get some tangible understanding of the plausibility of the proposed hypotheses a *speculative test* is carried out — an empirical study that *takes as its basic postulates the proposed hypotheses*, as if these were generally accepted and established presuppositions of the science of education. This recursive approach thus examines the plausibility of such hypotheses as a basis for educational research. The results of the speculative test indicate that the original hypotheses can provide a meaningful and relevant conceptual frame of reference for educational research.

It is proposed that, if such hypotheses are accepted, theorems on human reality and on human education can be formulated that provide theoretical tools for pursuing a *global ethos*. Such a framework can enable some measure of objectivity in seeking constructive educational goals and values (or “good education”) that would be relevant to the global turning point of humankind. In conclusion, the study suggests that holistic vision and meaningful scientific thought within the science of education can result from a focus on universals regarding *moral existence* and *global ethos*; it also proposes that the *general epistemological paradigm of science* and *General Systems Theory* are applicable to, and fundamentally relevant for, such educational universals. This means that it is possible to investigate ontological approximations of educational universals through empirical observation, and it is also possible to pursue alternatives for an ethically justifiable and futuristically sustainable human paradigm through practical educational measures.

Our global state of change presents us with a fundamental futuristic choice: Do we want to be reactive pawns drifting in the flow of global change, *or* do we want to have some control over our futures and manage change towards a desirable and sustainable paradigm of globalization? It is this latter choice that brings educational reform to the centre of discussion.

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**Keywords:** philosophy of education, science of education, systems theory, futures studies, globalization, human evolution.

Partow Izadi

KASVATUSTIEDETTÄ ETSIMÄSSÄ:  
REDUKTIONISTISESTA DISKURSSISTA SYSTEEMISEEN TEORIAAN

Väitöskirja:

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Tämän väitöskirjan selkärangan muodostavan ajatuskulun voi tiivistää seuraaviin kohtiin: (1) elämme ihmiskunnan historian globaalia käännekohtaa, ja siksi kasvatuksen ja kasvatustieteen täytyy omaksua keskeinen ja aktiivinen roolinsa kestävän globaalin tulevaisuuden rakentamisessa; (2) tämän tehdäkseen kasvatustiede tarvitsee yleisesti hyväksyttävän filosofisen perustan, uskottavan metateorian kasvatusilmiön kokonaisvaltaisen ja eheän tutkimisen mahdollistamiseksi; (3) tätä voi uskottavasti tavoitella keskittämällä kasvatustiedettä kasvatuksen universaaleihin eikä vain sen partikulaareihin; (4) yleistä episteemistä tieteenparadigmaa, jota pääasiassa luonnontieteet käyttävät, voidaan mielekkäästi soveltaa myös kasvatuksen universaalien tutkimiseen samalla, kun vältetään pelkän positivistisen lähestymistavan karikkoja; (5) yleisen systeemiteorian tarjoama teoreettinen malli näyttää tarjoavan hyvän perustan sellaisten kasvatuksen universaalien muodostamiseen, jotka vastaavat kasvatuksen futuristista roolia muutosagenttina globalisaation paradigmassa.

Tiede pyrkii paljastamaan asioiden perimmäisen todellisuuden, mikä puolestaan edellyttää kohdentamista todellisuuden universaaleihin ominaisuuksiin. Kasvatustieteessä tämä merkitsee *kasvatusilmiön tutkimista kokonaisuutena* sekä kohdentamista kasvatuksen *universaaleihin*. Tällä hetkellä kuitenkin pääosa kasvatustutkimuksesta ja -teoriasta keskittyy kasvatuksen partikulaareihin. Tämä liiallinen keskittyminen partikulaareihin johtuu tietyistä oppineen ajattelun piintyneistä tavoista, mitkä puolestaan juontuvat tradition voimasta. Tämä voima luo tietynlaisia pelkoja ja varovaisuutta ihmistä ja kasvatusta koskevia universaaleja kohtaan. Pelätään, että *positivismi löytäisi tiensä takaisin ihmisihteisiin*, jos universaaleja tarkastellaan realismin tulkinnalla ja luonnontieteellisellä epistemologialla. Vaikka tämä on ymmärrettävää, nämä pelot muodostavat esteen tällaisen tulkinnan ja epistemologian mahdollisille myönteisille vaikutuksille.

Tämä pulma voidaan ratkaista tiedostamalla, että *tiede ilman holistista näkemystä on altis dogmaattisuudelle*. Laajasti tulkittuina realismin näkökulma universaaleihin ja luonnontieteellinen lähestymistapa voivat osoittautua keinoiksi välttää dogmaattisuutta tieteessä. Niinpä tämä tutkimus pyrkii ottamaan ensimmäisen vaatimattoman askeleen kasvatustieteen huomion keskittämisessä kasvatuksen universaaleihin. Se pyrkii osoittamaan kasvatuksen universaalien filosofisen ja metateoreettisen hyödyllisyyden tutkimalla *yleisen systeemiteorian soveltuvuutta kasvatustieteeseen*.

Tämän tutkimuksen yleinen postulaatti olettaa: *Yleinen, enimmäkseen luonnontieteiden käyttämä episteeminen tieteenparadigma ja sen menetelmä universaalien tutkimiselle ovat relevantteja ja sovellettavissa myös kasvatustieteen paradigmassa*. Toisaalta tutkimuksen päähypoteesi väittää: *Jos kasvatustieteen on tarkoitus paneutua kasvatuksen universaaleihin,*

*yleinen systeemiteoria on olennaisen relevantti tälle pyrkimykselle.* Näistä lähtökohdista esitetään edelleen lisää hypoteeseja, jotka asettavat kasvatustieteen systeemiteoreettiseen filosofiseen kontekstiin. Näitä systeemiä hypoteeseja ovat: (1) kasvatustieteen ilmenevä universaali funktio, kokonaisvaltainen vuorovaikutus- ja muutosprosessi, joka *ohjaa systeemin evoluutiota kohti potentiaalinsa toteutumista*; (2) itseään tiedostavat ja päämäärätietoiset systeemit voivat saada aikaan *tarkoituksellisia ja tavoitebakuksia kasvatustieteellisiä prosesseja*; (3) kasvatustieteellisten tavoitteiden ja mallien tietoinen valinta vaikuttaa tulevaisuuteen ja on *ballittavissa oleva työkalu päämäärätietoiseen evoluutioon*; (4) on olemassa universaaleja periaatteita ja ideaaleja, jotka ovat kriittisen relevantteja ihmisyhteisöiden potentiaalisen toteutumisen ja ovat siten suoraan merkittäviä *omaksuttaviksi soveliaiden kasvatustieteellisten paradigmojen ja -tavoitteiden* kannalta.

Jotta saataisiin jonkinlaista tuntuva käsitystä esitettyjen hypoteesien uskottavuudesta, toteutetaan *spekulatiivinen koe* — empiirinen tutkimus, joka *ottaa peruspostulaateikseen ehdotetut hypoteesit*, ikään kuin nämä olisivat yleisesti hyväksytyjä ja vallitsevia kasvatustieteen lähtöoletuksia. Tämä rekursiivinen lähestymistapa tunnustele siis tällaisten hypoteesien uskottavuutta kasvatustieteen perustaksi. Spekulaatiivisen kokeen tulokset viittaavat siihen, että alkuperäiset hypoteesit voivat antaa mielekkään ja relevantin käsitteellisen viitekehksen kasvatustutkimukselle.

Työ esittää, että jos tällaiset hypoteesit hyväksytään, voidaan muodostaa sellaisia ihmisen todellisuutta ja ihmisen kasvatusta koskevia väittämiä, jotka tarjoavat teoreettisia työkaluja *globaalien eetosien* tavoittelemiseksi. Tällainen viitekehys voi mahdollistaa jonkinasteisen objektiivisuuden etsiessä sellaisia rakentavia kasvatustavoitteita ja arvoja (eli “hyvää kasvatusta”), jotka olisivat relevantteja ihmiskunnan globaalille käännekohtalle. Tutkimus päättää, että kokonaisvaltainen näkemys ja mielekäs tieteellinen ajattelu kasvatustieteessä voi syntyä paneutumisesta *moraaliseen olemiseen ja globaalien eetosien* koskeviin kasvatustieteen universaaleihin; se myös esittää, että *yleinen episteeminen tieteenparadigma ja yleinen systeemiteoria* ovat sovellettavissa ja olennaisen relevantteja tällaisille kasvatustieteen universaaleille. Tämä merkitsee sitä, että kokemuksesta havainnoinnin kautta on mahdollista tutkia kasvatustieteen universaaleja koskevia ontologisia approksimaatioita ja myöskin että käytännön kasvatustieteellisin keinoin on mahdollista tavoitella eettisesti oikeutettuja ja tulevaisuuden kannalta kestäviä inhimillisen paradigman vaihtoehtoja.

Globaali muutoksen tilamme asettaa meidät perustavanlaatuisen tulevaisuusvalinnan eteen: Haluammeko olla reaktiivisia pelinappuloita globaalien muutoksen virrassa *vai* haluammeko itsellämme olevan jotain valtaa tulevaisuuteemme ja ohjata muutosta kohti toivottavaa ja kestävä globalisaation paradigmaa? Juuri tämä jälkimmäinen vaihtoehto asettaa kasvatustieteen uudistamisen keskustelun keskipisteeksi.

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**Avainsanat:** kasvatustieteen filosofia, kasvatustiede, systeemiteoria, tulevaisuudentutkimus, globalisaatio, ihmisen evoluutio.







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*Partow Izadi*  
Rovaniemi, FINLAND  
21 March 2003



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## PROLOGUE

The theme of this study, “In Quest of the Science of Education”, can be characterized as a nonconformist exploration of pedagogical science with a systemic and futuristic frame of thought. Since the study is openly nonconformist (or ‘unorthodox’), it is difficult to root it within any existing tradition of pedagogical science. My intent is not, however, to belittle the high endeavours of scholars in the field of education, nor to undermine their valuable work. Rather, I intend to address openly the problematique of the current paradigm of pedagogical science: its theory and research appear, today, to focus compulsively on educational particulars — on specific issues of applied education with no holistic frame of reference. The field is not focussed on searching into the whole phenomenon of education. Consequently, educational theory resembles an incoherent body of tenets that form no overall platform for thought. This narrows the scope and distorts the focus of scholarly exploration, and is unproductive of theoretical coherence.

Given the rapid change of our world, the globalizing paradigm of the human society, and the innate need of each citizen of this planet to live a meaningful life — and, simultaneously, given the present inability of humankind to cope with such challenges — the potential significance of education cannot be overestimated. There is, thus, a growing need for education to become an agent of social change, a strategic tool for a serious reach towards goals and models relevant to the future prospects of human society. Therefore, those involved with education are entrusted with a solemn responsibility towards the future of humankind. This sentiment is voiced even by the protagonists of world affairs. For instance, Agenda 21 — the United Nations programme of action adopted in 1992 by the U.N. Conference on Environment and Development (UNCED or the ‘Earth Summit’) in Rio de Janeiro — states:

“Education ... should be recognized as a process by which human beings and societies can reach their fullest potential.

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Education is critical for promoting sustainable development and improving the capacity of the people to address environment and development issues. ... Both formal and non-formal education are indispensable to changing people's attitudes so that they have the capacity to assess and address their sustainable development concerns. It is also critical for achieving environmental and ethical awareness, values and attitudes, skills and behaviour consistent with sustainable development and for effective public participation in decision-making. To be effective, environment and development education should deal with the dynamics of both the physical/biological and socio-economic environment and human (which may include spiritual) development, should be integrated in all disciplines, and should employ formal and non-formal methods and effective means of communication." (United Nations, Agenda 21, Chapter 36.3.)

This commitment to genuine betterment is a feature that educational science shares with *futures studies*: both are similar to the science of medicine in that they seek *to produce effective practice for real-life improvements* and they need *to be backed up by proper and credible theoretical thought* — they are future-oriented in that they are meant to be *proactive* (not merely *reactive*). In other words, they are not theoretical sciences, as such, but rather they are forms of prospective practice that need a coherent science to support them *and* a sincere commitment to betterment. The problem is that, while the science of medicine has little problem in identifying relatively objective criteria for physical healing (i.e. the betterment of the biological aspect of human reality), the science of education is lost in its search of relatively objective criteria for good education (i.e. the betterment of the social, intellectual, emotional and spiritual aspects of human reality). Moreover, a science *must* axiomatize itself in order to define its purpose and its field of interest.

As it is, any attempt toward a more coherent mode of education would, eventually, confront the existing ambiguity of educational theory, its lack of universality and coherence — especially when it comes to core educational concepts (such as the ontological perspective on human reality). Reducing this ambiguity and attaining to some level of universal coherence is a necessity, if education and educational science are to evolve up to their calling. The scholars of the field understandably have given up serious attempts of finding a consensus on such broad and deep questions. The controversies in the history of human and social sciences have discouraged and silenced the protagonists of

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such attempts. Consequently, most scholars continue their specific and narrow lines of work, without realizing the need, or risking the challenge, or simply bothering to ask questions like: *What is the human conception at the core of my research? What sort of humanity am I promoting by my assumptions?* Such questions are *privately* considered by many scholars, but if presented within the frame of professional work, they may evoke apprehensions about professional credibility.

The ethical responsibility of a scientist must have a firm foundation; it cannot be based merely on ideological claims or personal preferences. Philosophical schism must, therefore, recede in favour of sound theory which, in turn, must be based on a credible ontological view of human reality — on a vision that would have some universal appeal to the human mind. Generating such a vision of course cannot be the task of educationalists and scientists alone. It entails decades of ongoing search and interchange of ideas by a multitude of participants representing diverse cultural mentalities and world-views, longstanding synergic interaction between concerned elements of society — including governmental agencies and scholarly institutions, and especially, organizations of the civic society and the rank-and-file of world population. My purpose, and my sincere hope, is that this study could make a humble opening for a process of interactive search for this fundamental element of vision. Only after a long process of ongoing dialogue in pursuit of coherent educational thinking and theory, anything conclusive could be claimed. The work at hand can, therefore, serve only as a start for this discourse — not a conclusive end but a coherent beginning.

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## Chapter 1

# THE QUEST

The first issue to clarify is our quest. The provocative question is: Is there any justification for education to be designated as a science? This question, while perhaps annoying to some, is based on the observation that in pedagogical science, and indeed in most of behavioural and other human sciences, there are very few generally accepted ontological premises bearing on the nature of human reality and society. The study of *educational universals* — the phenomenon of education *per se* — has become a marginal activity and the mainstream of research is fixated on delving into educational particulars. The intent, in this chapter, is to show the justification of this quest for new vision and relevance in the science of education.

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## 1.1. IN QUEST OF THE SCIENCE OF EDUCATION — INTRODUCTION —

Our main question, for now, will be: Is there any justification for education as a science? While in natural sciences there are basic coherent assumptions and presuppositions about *physical reality* that the generality of the scientific community agrees upon, there are virtually no ontological assumptions about *human reality* that would be accepted by the majority of scholars in human sciences. For instance, almost all natural scientists would agree with the assumption that the same natural laws are applicable everywhere in the universe; human scientists, on the other hand, can agree on no universal assumption about the essential character of human reality (and its education).

What are, then, the qualifications of a science? There are two ways of looking into this: first, defining science through the *method* of the acquisition of knowledge; second, defining science through its *purpose* and ultimate goal. While both modes of definition are, in the end, arbitrary and based on human agreement, one can justifiably argue that *method is secondary to purpose* — i.e. defining science through its purpose is primary to definition through its method. Of course, it is possible that science shares some of its goals and purposes with other modes of accumulating human knowledge (e.g. culture, religion, politics etc.), and therefore, it could be argued that it is the method that makes the difference. This is true as such but, should the purpose shift or become obscured, and should the pursuit of science divert from its goal, it is not qualified as science even if it would use the methods of science.

What, then, is the purpose of science? Works on the philosophy of science are varied and numerous. There are, however, certain generic aspirations that are, one way or another, always associated with science. Although it may not be usually articulated in this particular manner, perhaps one of the strongest generic aspirations is that of *essentiality*: science is a form of search after *truth* — scientific knowledge, while studying the workings of particular phenomena, seeks in the last analysis to understand the *essence of things* in a credible and verifiable manner. This statement refers, thus, to both the purpose and the method, in a very general manner. For instance, the science of physics

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seeks not only to explain isolated physical events and observations but also to decode the essential principles of the material reality, to find core explanations on the whole physical universe — the whole phenomenon that we call the physical universe, if you like. While this goal is highly difficult to achieve (even unachievable), it is yet *the* highest aspiration of the science of physics. It is not sought because it would be easily done or readily accessible, but because it gives a direction, a vision — a compass for scientific progress.

Such aspirations focus the overall direction of science on the *universal qualities* of reality (or a certain domain of reality), not on the particular cases and isolated phenomena within that vaster phenomenon. These particulars must certainly remain the actual target and material for most of the research but, even then, the goal is to attain *theorems that can be generalized*, statements on the universals of the reality being studied — this is the focus of *basic research*. It should be noted here that by focussing on universals is not meant that the conclusions themselves are universal; each scientific statement or statement is only an approximation of reality and is, thus, true only conditionally (cf. *Gödel's Incompleteness Theorem*; see: Hofstadter 1979). It is the target of inquiry that is universal, not the drawn conclusions.

Moreover, as stated in the Prologue, a science *must* axiomatize itself in order to define its purpose and its field of interest — and axioms are, by definition, universal within the field of reality that they address. Now, given these criteria, does educational research in its present form qualify as a science? Firstly, the science of education has certainly *not* yet been axiomatized. While the methods and approaches used in educational research, for the most part, fulfil the requirements for scientific methods of investigation, the overall development of pedagogical theory seems largely unconcerned with the universals of education, the phenomenon of education as such.

The investigation of the universals of educating human reality and, thus, the refinement of the art of education, appear to be of little interest to mainstream of educational research. This has narrowed the scope of scholarly exploration and has deprived the field of pedagogical science from the breadth and universality it would deserve as a science. Should a paradigm shift take place and the science of education come one step forward in the path of scientific exploration, the work hitherto

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done by the educationalist community would not be lost. On the contrary, that work would find a broader rationale, a coherent context and a more appropriate platform to evolve and thrive. It is, therefore, to the task of addressing the universals of education that this study is hoped to contribute. Of course, no presumptuous claim is made for completing such a task or even a major part of it — that must emerge as a result of a long process of contemplation, research, and interaction by numerous contributors.

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## 1.2. IN QUEST OF THE STUDY OF EDUCATIONAL UNIVERSALS

Let us return to the notion that science must axiomatize itself to define its purpose and field of interest, and that axioms are universal by definition. This would indicate that at least one of the goals (if not *the* goal) of the science of education should be *the holistic and coherent study of the phenomenon of education* or, in other words, *the study of educational universals*. This means forming an holistic philosophical framework for addressing the theory of education *per se*, i.e. the ontology of education. Such a titanic task can hardly be undertaken by an individual, much less by a single dissertation. It would entail a long process of ongoing dialogue, of argumentation and counter-argumentation in pursuit of coherent educational thinking and theory — placing the science of education in a broader theoretical or philosophical framework. Short of such a longstanding process, nothing conclusive can be achieved in this quest nor any definite claims be advanced. Therefore, the aim here is to make a modest but firm start for this discourse — a beginning that, while certainly not conclusive, is at least coherent.

What, then, are universals? The dictionary gives us the obscure definition that they are *generic existences* that are not physically limited to a particular event or physical object — they can be characterized as “something that may be applied throughout the universe to many things” or, philosophically, as “a general term or concept or the generic nature that such a term signifies” (Webster’s Encyclopedic Unabridged Dictionary 1989, p. 1555). But this is, at best, a vague description for our purpose. A more definite discussion on the nature of universals is needed.

An extensive study made by Langendoen & Postal (1984) on the ‘vastness of natural languages’ is relevant. While initially interested in linguistic universals, this study involves a profound discussion of the ontology of universals in general. I came across this issue when my wife, Anne Izadi, was finishing her Master’s thesis. There are three generally acknowledged, distinct and mutually exclusive views on the ontological status of universals according to Langendoen & Postal (1984, pp. 104-

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112; see also: A. Izadi 1996, pp. 19-23). Let us, briefly, examine each of the three approaches:

*(Platonistic) realism.* The realist view considers universals as objectively real; that they are objects which have an independent existence, distinct from physical phenomena or mental activity; and that such objects may then be manifested in the physical domain or the human mind. This view is Platonistic in the sense that it maintains the independence of the *ontology* of universals from their *epistemology* (see: Hatcher 1990: 4-5). This means that the existence of universals is, in no way, dependent on or determined by the method of gaining knowledge about them — in the same way that laws of nature are unaffected by the means of studying and understanding them. Thus, the realist view stands for an independent existence of universals irrespective of how they are attested to, or whether they are attested to at all.

*Nominalism.* The nominalist view is diametrically opposed to realism; it insists that universals are real only as ‘names’ or ‘titles’ assigned to various linguistic objects. In other words nominalism, as described by Katz (1981, p. 22), asserts that “only the sensible signs of language are real”. Taken to its logical conclusion, the nominalist view is *reductionistic* in that it upholds the belief that if all the sensible (physical) elements of a domain of reality are known, that domain (in Katz’s case, natural languages) could be fully described; consequently, it also upholds that, indeed, *known or described* universals exist and that these constitute what can be called reality.

*Conceptualism.* The conceptualist view is something of a compromise between nominalism and realism. Conceptualism ascribes universals to a mental domain, to the realm of the human psyche: universals are considered to be ‘mental devices’ — generative rules that produce descriptions or definitions of a given domain of reality. Thus, in the conceptualist view, universals are real in the sense that they exist but their existence is dependent upon the human psyche, mental limitations and conditions.

The limitations of nominalism are not hard to recognize. Its strict reliance on the explanatory power of only those aspects of universals

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that can be perceived through sensible elements, and those elements alone, makes it vulnerable to demands of those universals that are abstract but are, at least to the human mind, very real (e.g. meanings of words). Thus, the nominalist view provides very few tools for even addressing universals, much less to disprove them. In the case of linguistic theory (which was the domain of reality under scrutiny by Langendoen & Postal), the nominalist view is, today, rejected by the vast majority of linguists and philosophers. Langendoen & Postal (1984, p. 108) write:

“... maintenance of a nominalist interpretation of linguistic reality is out of question. The most obvious and basic feature of sentences and NLS [natural languages] cannot even be discussed, still less explained, in such terms. If the position is taken literally, it makes no sense to talk about sentential properties like syntactic well-formedness, synonymy, phonotactic well-formedness, ambiguity, etc. For none of these is definable in terms of physical structures. Under a nominalist view, linguistics must reduce to the physics of human utterances, to the neurophysiology of the human vocal apparatus, or to some sort of neurophysics of brains.”

The problematique and viability of the realist, nominalist, and conceptualist approaches to universals will be discussed in many of the sections of this work and its implications constitute one of the major themes of this study. However, our general notion is that universals can be assumed as *objective realities* of which our *knowledge is always relatively subjective*. While we can always attain *relatively more objective* understanding of universals, their ultimate or essential nature must remain disclosed to us. This is the basic point of departure when discussing universals as *objects of scientific exploration*.

This is, in fact, also the paradigm of *natural scientific epistemology*. In natural sciences, the quest for universals requires scientists to make *approximations* of what they *assume* could be universally true, i.e. approximations of natural laws. This does not mean that such approximations are claimed to be objectively true, or that natural scientists would imagine that they would know for a fact what those laws are as objective entities. Rather, they make such approximation in order to be able to estimate the plausibility of a certain *generalistic notions* or *theorems* about such possible laws; in other words, they put forward *proposed universals*. Then they set out to *evaluate* the credibility of these

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approximations by sampling the observable reality, i.e. known facts — they explore the empirical consequences that should logically follow from those approximations and see whether these conform to what was expected.

It is important to realize that this notion of the ‘scientific method’ is quite different from the positivistic pursuit of knowledge which seeks to establish the ‘truth’ of a general statement in a rather black-and-white manner: a positivistic approach sees knowledge as *either true or false*, assuming that empirical evidence would give *exact information* about the validity of a statement, including statements on universals. Thus, the positivistic approach does *not* view such statements as mere approximations but as ‘on/off’ claims about reality; for it, a notion becomes a fact if it conforms to the observed phenomena. Natural sciences, today, do *not* subscribe to such a notion of scientific exploration nor claim to be ‘exact sciences’. Based on natural scientific epistemology, a theory’s good correspondence with known facts indicates that the proposed universal (i.e. the theory) is a reasonable approximation and has, thus, *relative* objectivity. Therefore, the perception that natural sciences would be, or even consider themselves as, ‘exact sciences’ is an illusion.

Hence, the idea of *studying ontological realities through empirical research* is intrinsic to natural sciences, without endorsing any positivistic notion. Indeed, the field of theoretical physics, for instance, is simultaneously very ontological and very empirical, in that it seeks to formulate extremely abstract generalizations (approximations) regarding natural laws (cf. General Relativity Theory), which are *ontological universals* in the sense meant here, and yet evaluates their plausibility by examining meticulously their consistency with the observable reality (measurable phenomena).

If, indeed, the goal of the science of education should be “the holistic and coherent study of the phenomenon of education” meaning “the study of educational universals”, then the kind of realism represented by the epistemological paradigm of natural sciences may well be applicable. Thus, by endorsing a realist view on universals is not meant that our *understanding* of them would ever go beyond a conceptualistic perception, but that a “universal”, while not something absolute, can be an *approximation of assumed absolutes* (call it “ontological

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approximation”). This approximation itself is not a Platonically real object but a *conceptualistic* one that has a *certain universal plausibility and authenticity*. That is to say, our understanding of universals is, by definition, conceptualistic — the absolute or objective nature of universals remains unknown to us. Then, our ‘realist’ view of universals is not absolute in the sense meant by Platonistic realism, because our understanding will anyway remain conceptualistic. However, this conceptualism should be attributed to the *approximations we have made* about universals, not to the *ontological quality of the universals themselves*. Insistence on such an ontological assumption would impose an unnecessary and arbitrary confinement to the study of universals, whether natural or human.

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### 1.3. IN QUEST OF FREEDOM FROM THE CONFINES OF EDUCATIONAL PARTICULARS

If the ideal goal of the science of education would be “the holistic and coherent study of the phenomenon of education”, the first task at hand is to remove the obstacles presently in the way of this goal. The greatest obstacle is the fact noted earlier: the investigation of the universals of educating human reality appears, indeed, to be of little interest to the mainstream of educational research (cf.: Noddings 1998, pp. 121-133). Why might this be? My claim is that this is due to the *fixated focus on the particulars of education*.

This focus on educational particulars has created an orientation toward sectarian ideologies and dogmatic mentality, alien to the ideal of scientific exploration. It was mentioned in the Prologue that the ethical responsibility of a scientist cannot be based on arbitrary or ideological claims or personal preferences, but on sound theory — a vision that has a more universal appeal to the human mind. As long as contrary bases persist, such visionary approaches are considered either irrelevant or impracticable. To be sure, it is *not* that the door to the study of educational universals would be closed; numerous efforts have been, and are presently being, made in the field of educational philosophy addressing fundamental issues. By the existence of “contrary bases” is meant that such efforts, while respected, are treated as interesting theoretical examples and sporadic philosophical insights — not as works constituting a *unified foundational paradigm* that would stand at the core of the science of education.

The issue, then, is that we practitioners of educational science have not yet taken up the challenge of investigating the possibility of such a unified foundational paradigm for the science of education *as a whole*. This has become a habitual trend that easily goes unnoticed in the practice of our work and feeds the distraction caused by focus on less fundamental issues. What, then, prevents educational scholars and the scientific community from re-evaluating such ingrained habits of the academic mind? The simple answer could be: the power of tradition.

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Two complementary social forces upholding human societies can be distinguished: (a) the power of *tradition*, i.e. the inclination to preserve the achievements of society; and (b) the power of *progress*, i.e. the aspiration to promote further development of society (see: P. Izadi 1994, p. 232). Both serve the evolution of society — the one seeks to conserve gained advances against deterioration, the other aspires to achieve new advances. In stable times, where no dramatic change is imminent, both tradition and progress play complementary and equally significant roles. But, in tumultuous periods of possible evolutionary breakthrough, these two forms of ‘social loyalty’, if we may call them so, are polarized as opposite competitive forces. Tradition becomes a mainly decelerating force whereas progress becomes a chiefly accelerating force to development. If the force of progress prevails and taps tradition to its use, the evolutionary leap can be easy and smooth; if, on the other hand, the force of progress is overcome by tradition, the process will become complicated, more chaotic, and painful and can even lead to collapse.

The turbulence of our times represents just such a case of dramatic change with evolutionary potentials and threats — and, for the first time in known history, on a *global* scale (cf.: E. Boulding 1988, p. 116; King & Schneider 1991; Laszlo 1989, pp. 122-124; Mesarovic & Pestel 1974; Toffler 1974; Moskowitz 1968, p. 71; P. Russell 1983, p. 55). In such a situation, a delicate challenge is to neither let tradition hinder new progressive models from emerging nor to let progress, in its aggressive drive, neglect the vital experience and achievements of the past.

This dichotomy of social forces can also be seen in the role that is conventionally assigned to education: preserving society and sustaining its continuity. But in the face of the present world paradigm, this twofold profile emerges in a sharper contrast: (a) education must ensure the transmittal of past achievements to the future and apply them to emerging global conditions; and (b) education must carry forward such *new* values, goals, world-views, models and skills as are essential for the reformation of human society in this uniquely global period of history (see: Capra & van Steenbergen 1985, pp. 528-536).

Now, it would be unfounded to claim that education and its scholarly investigation are all bound by tradition and that they have

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taken no interest in the “reformation of the human society in this uniquely global period of history”. There are multitudes of groundbreaking educational approaches, experiments, policies and theories suggested and tried out by the educationalist community, exploring new avenues of education (see also Section 3.2.1.). Only posterity can evaluate the true value of this work. The issue, however, is that these attempts still fall within the boundaries of rather isolated islands of educational thought which, if not contradictory or antagonistic to each other, are quite unconnected and do not relate to the total work being done — they do not seek to produce an holistic paradigm for the science of education as a whole. In other words, while the human being is arguably a coherent entity, the totality of research and theorizing done on educating human beings appears to be a conglomeration of relatively unrelated approaches that do not converge into educational universals and a theory of the whole phenomenon of education.

It is precisely here that the power of tradition subtly persists — in the continuing lack of interest in attaining to *generally accepted* educational universals and the persistent study of isolated particulars or seclusion in unconnected philosophies. Indeed, the very notion of the human being as “a coherent entity” is considered by many scholars (if not most) as an unrealistic abstraction that serves no scientific purpose (see Sections 3.1.3. and 3.1.4.). The scientific community within the whole sphere of human sciences has given up on such universalities; the controversies in the history of education and social sciences (see Sections 2.3.3., 2.3.4. and 2.3.5.) have quieted the would-be protagonists of such aspirations. Indeed, evading focussing on a generally acceptable paradigm of educational universals appears to be the result of some elusive form of fear (see Section 2.1.).

Here, tradition becomes an informal and subtle form of dogma whose workings go unnoticed within the scholarly community. Thus, acknowledging these obstacles in the way of the goal of the science of education, we can derive the following reformulation of our quest: *to empower the science of education to be free of the chronic pursuit of the particulars of education or contentment with isolated educational philosophies.*

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#### 1.4. IN QUEST OF RELEVANCE AND METHOD IN THE SCIENCE OF EDUCATION

In the Prologue, *vision* was called for as “a compass for scientific progress”, and this vision was identified as something with a “universal appeal to the human mind”. It was also noted that generating such a vision cannot be the task of educationalists and scientists alone and that it requires “ongoing search and interchange of ideas by a multitude of participants representing diverse cultural mentalities and world-views”. Many, I am sure, think of such thoughts as idealistic and utopian. Be that as it may, it remains a reality that we live in the first known global paradigm of humankind. No one has prior experience of such a situation and no unprejudiced spectator can seriously claim that humanity’s past experiences and knowledge are sufficient for humanity to survive its new predicament and turn it, instead, into a successful evolutionary breakthrough (see: Fromm 1976, pp. 9-10; Commission on Global Governance 1995). In such a situation, the role of education as an *agent of change* cannot be overemphasized, nor can the task of pedagogical science to provide an holistic frame of reference be overestimated.

Is not the science of education, then, such an agent of change? Does it not provide an holistic frame of reference? Given the widespread focus on educational particulars, as discussed earlier, it would be reasonable to answer: *at least not sufficiently*. Why might this be? Perhaps, one major reason is that notions like “agent of change” and “holistic frame of reference” do not lend themselves to meaningful processes unless there are means systematically and methodically to study educational universals. In the absence of such means, the discussion of educational universals easily yields in philosophical vagueness and ambiguity which, at worst, may even result in absurdism. In this manner, educational universals become uninteresting or substantially ‘ungraspable’, leading to their unintentional and subconscious avoidance, which will then leave room only for focus on educational particulars.

This need for systematic and methodical means brings us back to the possibilities of the *epistemological paradigm of natural sciences* for studying educational universals. Such a proposal may arouse suspicions

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and, perhaps, resistance because it is easily interpreted as endorsing *positivism*, since it involves empirical validation of proposed theories. As discussed in Section 1.2., however, there is indeed a clear difference between endorsing empirical research and being positivistic. The use of the natural scientific approach in fact entails the simultaneous use of ontological and empirical argumentation, which at first may seem odd and even incompatible to many human scientists. There is, however, no contradiction in the mix of the two: ontological argumentation constructs approximations on universals; empirical argumentation seeks to establish the plausibility of these approximations.

One could argue that, if it would not be possible to investigate ontological universals through empirical research, many methods used by a vast number of respected scholars in the whole array of sciences would be worthless. For instance, the entire science of physics would become impossible to practice, for it would no longer be able to explore the value of ontological approximations about natural laws through empirical sampling of natural events; this, in turn, would mean that all the amazing achievements of present-day technology should not have been possible — i.e. everything that *applies* these ‘proved’ *approximations of supposed universal laws of nature*. Yet, such applications do exist (e.g. skyscrapers, dams, bridges, vehicles, spacecrafts, satellites, computers, electronic devices etc.) and they utilise the generalistic approximations of natural laws with amazing accuracy. Of course, we can *prove* neither for nor against the *objective* validity of the proposed approximations against the *true* reality of natural laws, but since millions of people make daily use of the fantastic technology at hand with great success, we can safely assume that these approximations have reasonable correspondence with what is actually possible — i.e. the ontological approximations show a striking correlation with the empirical sampling.

Thus, I am only arguing in favour of the idea that the scientific method of proposing ontological approximations, and confirming and applying them through empirical practice, is *meaningful and beneficial also to the science of education*. Indeed, I feel that celebrated figures who, by means of education, effected serious changes in the annals of their nations and peoples, must have believed in the empirical practicability of their ontological approximations. There are great examples of such people in recent history; in Finland, for instance, personages like Johan V. Snellman (1806-1881) and his contemporaries most certainly

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believed that a radical transformation in the society was possible; they suggested clearly idealistic goals (read: approximations of universals) and applied them through a systematic process of education (read: empirical validation); finally, they *did* produce very tangible changes in the society — changes in the general direction of those goals. Such examples can be found in most every country. They saw and practised education as a *proactive* force.

It is, therefore, not far-fetched to claim that the natural scientific epistemological approach (or, more generally, the scientific method) would be applicable also to the science of education. Surely, the types of universals that this science needs to address, the ontological approximations that it must produce, the empirical approaches that need to be invented are all very different from those in the natural sciences *and* those currently in use in human sciences. Yet, there can be an *epistemological monism* — and hence, a *methodological monism* (very broadly defined) — among all sciences in respect to the manner in which they seek to augment our understanding of reality and, thus, in respect to scientific exploration. It is in from this point of view that the possibilities inherent in General Systems Theory are examined (see Sections 3.2.4. through 3.2.7.) — as an overall scientific paradigm addressing the epistemological nature of reality as a whole.

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## 1.5. SUMMARY & ARTICULATION OF THE QUEST

1. The initial question at the point of departure of this study is: Is there justification for *education as a science*?
  2. A generic criterion of science is the aspiration to unravel the *essential reality of things*; pursuit of essentiality focusses long-term interest of science on the *universal qualities* of reality — this is basic research.
  3. There are three mutually exclusive interpretations of what universals are: *realist*, *nominalist*, and *conceptualist*; the problematic and viability of these approaches is one of the main themes of this study.
  4. Essentiality in the science of education includes *the holistic study of the phenomenon of education*; in other words, the long-term goal of the science of education should be *the study of educational universals*.
  5. Through a commonly agreed paradigm based on educational universals, the work hitherto done by educationalists would find a broader rationale, a coherent context, and a more appropriate platform to evolve and thrive.
  6. There are no generally accepted *universal ontological assumptions on the nature and education of human reality*; the mainstream of pedagogical theory appears largely uninterested in pursuing a core paradigm based on the universals of education, of the ontology of the phenomenon of education *per se*; the *study of the particulars* of education remains the target of the bulk of pedagogical research and theory.
  7. The *fixated focus on the particulars of education and contentment with isolated educational philosophies* appears to be due to lack of willingness to re-evaluate *ingrained habits of the scholarly mind*, which in turn is attributable to the *power of tradition*.
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8. Holding to tradition is *not* the characteristic of the entire length and breadth of pedagogical research; groundbreaking educational approaches, experiments, policies and theories *are* being worked on, exploring new avenues of education; yet, such attempts remain unintegrated islands of educational knowledge and do not contribute to the emergence of a generally accepted foundational paradigm for the science of education.
9. There is *an informal and subtle form of tradition* within the science of education, sustaining the lack of interest in generally acceptable educational universals; this subtle tradition is content with isolated educational philosophies, thus inclining towards *atomistic dogma*.

**Articulation of the Quest:** The relevant quest of the science of education, for the present, can be reformulated as follows: *to empower the science of education to be free of the chronic pursuit of the particulars of education or contentment with isolated educational philosophies.*

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## Chapter 2

# THE TASK

The purpose of this chapter is to embark on discharging the task of this research. While the quest, as delineated in Chapter 1, is to empower the science of education to free itself from the chronic pursuit of educational particulars and contentment with isolated educational philosophies, the task is now to show that there exist *unfounded apprehensions* within the scientific community against the pursuit of a *generally acceptable scientific paradigm* based on educational universals. More articulately, these apprehensions culminate in the fear of falling back to positivism, if such universals are pursued through a *natural scientific epistemology*. Further, I will attempt to show that educational universals *are* a plausible reality that *can* be studied through a general scientific epistemology *without* falling back to positivism. In addition, I seek to demonstrate that there are no grounds for apprehensions against the scientific pursuit of educational universals. Finally, the task is to design *a first step to study the feasibility of educational universals* as a focus of the science of education.

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## 2.1. THE TASK OF EXPOSING FEARS AGAINST THE SCIENTIFIC STUDY OF UNIVERSALS

While quite aware of the unpleasant sentiments that the term “fear” may evoke in many, I beckon the reader to bear with me until I have explained my meaning. The purpose of this section is to show that unnoticed fears against the pursuit of a generally acceptable scientific paradigm *do* exist within the academe and that, while there are valid bases in the background of such fears, the fears themselves are not justified.

This exposition may be seen by some as ‘psychologizing’ the current practice of the science of education. Any *call for change* (which this work tries to be), unavoidably, brings along a ‘psychological’ undertone because it involves pointing out things that need to be changed and, since these changes are aimed at a human community (not the least a scientific community), the problematique entails some degree of ‘psychologizing’. It should be noted, however, that this feature pertains only to observations that have motivated my embarking on this task, *not* the entire reasoning of this treatise.

### 2.1.1. *THE PRESENCE OF FEARS AGAINST THE NATURAL SCIENTIFIC EPISTEMOLOGY*

In Section 1.3. it was pointed out that “evading focus on a generally acceptable paradigm based on educational universals appears to be the result of some elusive form of *fear*”. Does such a fear exist? First, it must be emphasized that not necessarily universals themselves are feared (although there is a tendency to avoid them, as shown in Section 1.4.); it is the idea of making use of *natural scientific epistemological approaches* — and thus, *methods* — that may be feared. As discussed in Section 1.2., this approach can easily be confused with a purely positivistic method. This confusion, on the other hand, may give reason for such fears: rigid positivism has lead to so many scientific impasses and has proved so inadequate an approach that it is justifiably rejected. Thus, the target of potential fears may the possibility of *degenerating towards positivism by endorsing the epistemological approach of*

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*natural sciences*, with the misconception that this approach would characterize positivistic and ‘exact’ sciences.

How can we ascertain whether such fears actually exist and whether there is such a misconception of epistemological stands? In Chapter 1, we concluded that “there is an informal and subtle form of tradition within the science of education” and that “this subtle force is content with isolated educational philosophies, thus inclining towards *atomistic dogma*”. It is reasonable to ask whether *subtle tradition* and *informal dogma* are somehow related to the concept of fear. When tradition becomes a subtle or unconscious trait — that is, when its forms are less articulate and observable — its effect also becomes more difficult to trace. One form of such tradition is what we call here “informal dogma”. This is dogma that is not formalized into an official doctrinal system but which, nonetheless, indoctrinates those under the influence of the particular tradition.

In themselves, these tradition and dogma do not constitute fear. However, it is in the nature of dogma to be highly protective and territorial. The slightest observable threat (whether real or imagined) to the authority of doctrinal orthodoxy is known, throughout history, to have provoked strong defensive reaction on the part of the protagonists of the *status quo*. This opposition is caused by *fear* — in fact, by a variety of possible fears: fear of losing the sense of security inherent in what is known and familiar, fear of getting lost in something unknown or dangerous, fear of re-establishing some old wrong that has been gotten rid of, fear of breaking a well-established and tried-out order of things, etc. In short, *fear of insecurity*. It is the existence of the abovementioned *defensive reaction* that is a sign of fear (perhaps unconscious ones).

So, are there defensive reactions against a universalist paradigm of education within scholarly circles? If I had to base the answer on my own experience, it would definitely be a “yes”. Caution and defensive reactions against a natural scientific epistemology *do* seem to exist within the field of education, and indeed within human sciences in general. And since, based on the foregoing discussion, such reactions are symptoms of fear, it follows that *fears against a natural scientific epistemology exist*. Now, it must be emphasized here that the existence of fear tells nothing about its validity; a fear can be well justified and based on valid reasons or it can be false and based on ignorance or

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prejudice. Moreover, quite obviously, the more unconscious a fear is the more it is likely to be based on lack of knowledge. It will be the aim of Section 2.1.4. to evaluate the validity and bases of these fears.

By “defensive reactions”, I do not mean any systematic front against a natural scientific epistemology — there is no need for it since neither is there a systematic front (or any front at all) *in favour* of it. What I mean by opposition is that attempts to formulate generic or universal statements about education or about human reality and to study them within a natural scientific epistemological stand, more often than not, provoke an articulate displeasure or annoyance among a great number of scholars. This is also seen in the tendency of various educationalists to be overcautious as not to make generalizations concerning the reality of human existence, the nature of human society, the goals of education, or the values inculcated through education. Some examples of such caution will be discussed in Sections 2.1.2. and 2.1.3.

### 2.1.2. CASES OF CAUTION AGAINST HUMAN UNIVERSALS

Before examining rejection of educational universals, it is quite necessary to have a look at fears against *human universals*. By human universals, we mean generic and essential qualities of the reality of human existence, both individual and social. It is reasonable to argue that any tendency to avoid educational universals is closely related, if not actually derived from, the broader caution against human universals, because educational views and concepts are founded upon some perception of human reality. In this section, we will review some samples of such misgivings.

**Avoiding universal definitions of human reality.** This type of caution is, perhaps, too common to need any further explication. Today, such caution is seen in that any attempt to make universal statements on human reality, unless such statements are so obvious that there is not room for debate, are avoided and even rejected by scholars and laymen alike, particularly in the Western world. For instance, anybody would be comfortable with the generic statement that “human beings have an awareness of self” and most scholars would accept this as a scientific postulate as well. Then

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there are other kinds of generalizations — for instance, “humans are fundamentally different or higher than animals”, “a materialistic world-view corrupts human nature”, “humans have an innate aspiration for truth”. Such statements, while perhaps plausible to some, are considered as *normative* and, thus, unsuitable as bases for scientific exploration. They are feared to compromise the standard of scientific work.

**Avoiding universal definitions of right vs. wrong.** This form of caution is founded on the aforementioned reservation against definitions of human reality — it is a logical continuation of that same concern. If nothing ‘normative’ can universally apply to human reality, then no universal ethical principles or global values can apply either. In society at large, there are some signs of the loosening of the grip of this apprehension. For instance, during the past decade or so, it has become generally acceptable that the *Golden Rule*, the teaching that “treat others as you yourself would wish to be treated”, is becoming globally articulated as it is found at the core of the majority of the world’s ethical values (see: K ung 1991; K ung & Kuschel 1993). However, any attempt to identify more substantial or applied global values is avoided — in fear of tying up human freedom too much. In the case of human scientists, even the Golden Rule is accepted chiefly as a personal ethical stand, not as a scientific principle whose validity could be studied or debated.

**Avoiding universal definitions of socio-political objectives.** The next logical step from the avoidance of universal ethical principles and global values is the tendency to abandon the pursuit of universal objectives. Especially in the field of socio-political development, setting universal objectives is almost an insurmountable task. Such goals are limited to some regional or continental alliances of nations and, even then, diluted by internal disagreements. On the global level, only the United Nations Organization has been able to bring the majority of nations together to agree on at least a few universal objectives that nonetheless usually remain on the level of intent and statements. Socio-political objectives are generally feasible and consistently adopted up to the national level, but from there on, the realm of international socio-political life is a chaos, in terms of objectives, and it has very little capacity to set

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goals for itself. This is certainly *not* due to the lack of practical capacity but due to a paralysis of will, a pragmatic need to compromise long-term progress with short-term benefit — the fear of losing the immediate advantages in sight. Moreover, the majority of scientists and scholars have left the job of formulating socio-political objectives to the politicians and interest groups and non-governmental organizations, in their fear of mingling science with normative politics.

**Avoiding global systems of governance.** Our final example of misgivings concerning human universals is, again, a logical conclusion from the suspicion against universal socio-political objectives. If long-term and universal socio-political objectives indeed threaten the immediate political, economic or social advantage of certain groups, then any global system of governance would do the same, only more efficiently and tangibly. Here too, the existence of a consistent system of governance up to the level of the nation-state is generally accepted, but supranational systems of governance are viewed with apprehension. Although, due to their practical necessity, tentative steps towards international legislation and governance are taken on a daily basis, yet, such steps are very cautious and timid. This, too, is *not* due to the absence of practical means but due to a deep-rooted and complex combination of two concerns: totalitarianism and loss of independence or liberty. It must be admitted that this particular arena of cynicism has come under increasing critical debate, due to the practical pressures against it, and many political scientists have done extensive and progressive work in this field, contributing to the curtailment of some of these fears (cf.: Commission on Global Governance 1995).

None of the abovementioned concerns against human universals is new. They are fuelled by the deep-rooted fear of *giving in to totalitarianism* and *giving up one's independence or freedom* — i.e. such concerns relate to the *upholding of liberty*. These concerns have become increasingly more acute and, perhaps, traumatic during the past one-and-a-half century or so. Moreover, they have fluctuated between the realms of science, politics and daily life with varying intensity, flowing from the minds of scholars, becoming embodied in political and civic movements, ingraining themselves in the minds of the populace, finding

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their way back to scientific research and theory. Due to this oscillation, the specific manifestations of these misgivings in the academic and scholarly circles vary greatly and are not easily noted or pinpointed.

### *2.1.3. CASES OF CAUTION AGAINST EDUCATIONAL UNIVERSALS*

Now we will examine the cases of rejection of educational universals. These apprehensions are almost directly derivable from the concerns against human universals discussed in the previous section. Here, we will delineate some instances of concerns against educational universals symmetrically with the aforementioned concerns against human universals.

**Avoiding universal definitions of education.** The rejection of universal definitions of human reality is necessarily manifested in the avoidance of universal definitions of education. Again, unless they are so generic or obvious that there is nothing to debate on, such educational definitions are altogether avoided by the educationalist community. One could easily state, without facing objections, that “education is the conscious input that supports the development of the individual”. However, if one would advance such claims as “education is an objective phenomenon that can be also controlled by human volition”, or “education is the mechanism that can alone reveal the potentials inherent in human reality”, or “education is a manageable tool for conscious shaping of desirable futures” — with such proposals, one would not get away that easily. For the majority of educationalists, considering such views would mean stepping into an area where their science could have potentially dramatic social and psychological impact in society and that they would have to take responsibility for that impact. And due to the possible dangers inherent in such an impact, most educational scholars would refrain from becoming (formally) involved in such contemplations.

**Avoiding universal (or global) educational values.** It could be argued that wariness of global educational values is a specific case of the more generic concern against universal definitions of education discussed above, because defining global educational values would imply definitions of education itself. Here again, the

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educationalist is faced with the problematique of personal ethics vs. professional conventions: How to reconcile one's convictions of right vs. wrong with one's theoretical conceptions, without bartering away the scientific standards that make one's field a science? This question, perhaps, is not asked consciously but remains a subtle dilemma that takes the form, not even giving consideration to the possibility that some relatively objective touchstone for global educational values could exist. This misgiving is almost identical to the rejection of *universal definitions of right vs. wrong* discussed in the previous section (cf.: Puolimatka 1989; Launonen 2000).

**Avoiding universal educational goals.** A direct consequence of shunning global educational values is the dismissal of such educational goals that would be universally applicable. Such goals directly imply certain global values at their core. For instance, one could seek to study the scientific plausibility of the following universal goal “the purpose of education is to unite human beings”; one would immediately face the need to assess the *universal value* of ‘unity’. Similarly, the hypothetical goal “the purpose of education is to improve society and to shape a better future” would call for considering the possibility of the existence of some *universal ideals* for the state of society. In all such instances, the scholar would be tangling with the dilemma of making value judgments as part of scientific theorising, which in turn would supposedly imply taking personal opinion as a criterion for scientific knowledge.

**Avoiding unity in educational systems.** A logical consequence of rejecting global educational values and goals is a more subtle dismissal of globally applicable educational systems, especially if these have to be theoretically endorsed. There are many educational principles that are proposed by various protagonists of education as universally relevant, and such principles are being globally promoted in various ways. Some such principles could be: “basic education must be compulsory for all human beings”, or “the first priority must be given to the education of women and girls”, or “growing into world citizenship must be part of the standard curriculum”. Most of the scholars in the field of education would agree with, at least, some of these principles, as matters of

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policy. But when it comes to the scientific examination for possible theoretical endorsement of such principles, scholars become hesitant or even disinterested. Scientific or theoretical examination of applied educational principles would need an equally scientific assessment of the educational goals and values from which they are derived and, finally, the scientific assessment of the whole conception of human reality behind them. Since there are, at present, no scientific standards for such studies, this challenge provokes, understandably, great reluctance in educationalists, fearing to step into an unmanageably vast arena of exploration where it is not unlikely to misplace one's academic profile.

As seen in the reasoning above, the misgivings listed here are closely related to each other and have to do with *scientific credibility*. One way or another, these apprehensions stem either from caution to *keep science clean from arbitrary or normative elements*, or from the sense of *protecting one's academic fame from disreputable indications*.

#### 2.1.4. THE VALID BASES OF FEARS AGAINST THE SCIENTIFIC STUDY OF UNIVERSALS

While the foregoing discussion focussed attention on certain apprehensions related to human and educational universals, the essential issue is not that universals *per se* are shunned (as stated in Section 2.1.1.). More importantly and to the point, what is feared are the *natural scientific epistemology* and the approach it implies for the study of universals. This approach is seen by most as the *positivistic* method, which in turn has proved so inadequate that it is rightly avoided. What is feared then, and justly so, is falling back into positivism; what is feared *along with it* — throwing the baby out with the bathwater, in a manner of speaking — is the incorrect perception that natural sciences would be essentially positivistic. Moreover, it would not be farfetched to observe that the majority of scholars actually tends to avoid a focus on universals as well.

From the foregoing discussion, it is fair to maintain that most of these apprehensions relate either to (a) *scientific credibility* or to (b) *upholding liberty*. At the outset, it must be acknowledged that both scientific credibility and upholding liberty are unarguably valid and also

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honourable criteria for any honest scholarly stand. The validity of these criteria is *not* at stake here; rather, what may be questioned is the validity of the *supposed threat* that a paradigmatic focus on the scientific study of educational universals would pose on keeping with these criteria. Thus, the misgivings arising from such suppositions may be founded *either* on valid historical experience and critical knowledge, *or* on traditional prejudice and biased views — or on a mixture of these.

A broader historical picture needs to be addressed in order to better understand the background of the mentioned twin criteria of scientific credibility and upholding liberty that needs to be addressed. This background is not directly related to the academic world but has its roots in the historical traumas of humankind. Given the millennial experience of humanity with the abuse of social, political and religious authority, it is both understandable and, indeed, justified that there exists a certain dread of totalitarianism, despotism and arbitrary use of spiritual and intellectual leadership.

Particularly, this is true in the case of clerical authority. Religions have historically been the most powerful instrument for producing visions and ideals that give meaning to human life, and at the time of their appearance, world religions were the most progressive force in their contemporary societies. Later, however, they always fell into opportunistic hands of the clergy and their religious institutions, which throughout history have made a crucial disservice to humanity and to the unbiased investigation of truth (often with the full support of secular rulers). By assuming the exclusive right for the understanding and propagation of spiritual and intellectual ideals, they segregated people's lives from high-minded aspirations, thus giving rise to the abhorrent manifestations of religious behaviour, which is summed up in dogmatism and fanaticism.

Such violations against truth and humanity are common knowledge and are in no need of elucidation. It was the enlightened scholars and thinkers of each era — beginning from the Renaissance up until the opening years of the twentieth century — that, in their yearning for intellectual and spiritual freedom, sought emancipation from dictated doctrines and pursued *critical thinking, objective validity and reliability of knowledge* — in short, *unhindered search for truth*. Names such as Dante Alighieri (1265-1321), Nicolo Machiavelli (1469-1527), René

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Descartes (1596-1650), Thomas Hobbes (1588-1679), John Locke (1632-1704), François Voltaire (1694-1778), David Hume (1711-1776), Immanuel Kant (1724-1804), Georg Wilhelm Hegel (1770-1831), Karl Marx (1818-1883), and Émile Durkheim (1858-1917) come readily to mind. While groundbreaking in their pursuit of intellectual emancipation, the legacy of these great thinkers forms no coherent pattern of thought — it is patchy, at best. Their ideas and propositions started to gather a diverse congregation of followers from different walks of life, but mostly from the intelligentsia. As the nineteenth century drew to an end, new momentum began to gather in the form of social movements that appealed to the masses of people, not only to the advantaged elite. Primarily in Europe and North America, but also elsewhere in the world, diverse and often incompatible views on the nature of society and human reality thrived and nourished, fuelled by the severe conditions under which thousands of less advantaged members of society lived — members who had, all of a sudden, become aware that they were capable of effecting their own destinies. Simultaneously, the scientific advancement of the late nineteenth and early twentieth century seemed to encourage easy assumptions about human nature — an almost unnoticed overlay that went on in the hurried discussions of society. These unexamined views communicated themselves to ever widening audiences.

Then came the two Wars that, in two successive blows, changed the entire perception of Europeans and, to a lesser degree, peoples of other nations of the world. While devastating tens of millions of lives, the human losses and horrors of two world wars pale in the face of the *moral* devastation they wreaked. The moral damage caused by any war is often underestimated and buried under the claims of ‘victory’, ‘honour’ and ‘peace’ so noisily voiced in the aftermath. The consequences of wars of the magnitude of these two Wars are incalculable. The ensuing brutalization of the human nature was, perhaps, the worst legacy of these catastrophes, particularly on the European continent. Indeed, by the end of the Second World War, Europe, which still in the first decade of the twentieth century had represented the summit of civilization, had lost this pre-eminent station.

This entire historical process, with its traumatic experiences, has disillusioned the human race of the practical, intellectual and spiritual authority under which people had, traditionally, toiled and lived

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throughout their lives. Little wonder then, that the protagonists of enlightenment and human progress began to dread all manner of doctrinal orthodoxy, especially those concerning human reality. It is the repercussions of this dread that are manifested in *the fear of the scientific study of human (and educational) universals*, particularly in the Western world. Elsewhere, the effect is somewhat less dramatic but, since academic tradition is squarely based on a Western influence, this is true for most academic people worldwide.

Let us now return to the original questions: Are the bases of fears against the study of human and educational universals with a realist scientific approach (similar to that of natural sciences) valid or unsound? Does such study constitute a positivistic stand? Does the inclusion of such research in the domain of educational science pose a threat to the twin criteria of scientific credibility and upholding liberty? While the original cause of such doubts, as shown above, is certainly valid and sound, it would be absurd to adhere to the notion that a realist scientific approach to the exploration of human and educational universals, in itself, would diminish scientific credibility or obstruct liberty of thought. In fact, quite the opposite is the case: such a notion *imposes an arbitrary limitation on the scope of scientific investigation* and thus, *itself, becomes an obstruction of the freedom of thought*. Thus, the justification of such fears is doubtful because, to most scholars, the basic fear is that the approach of natural sciences would incline human sciences towards positivism. As shown in Section 2.1.1., however, this threat is not intrinsic to the natural scientific approach, nor can natural sciences be any longer considered as positivistic or as 'exact' sciences.

Others may, moreover, say that human and educational universals, while not to be avoided, are not so relevant or interesting to the field of education as they yield no immediate applications and are, thus, of no general benefit. This notion, too, is absurd in two ways: first, to set immediate application and practical benefit as a criterion for the relevance of science would *discredit the entire line of basic research* and is by no means a generally accepted condition of scientific quest; and second, there has never been *a systematic and generally adopted line of scientific exploration of educational universals within the science of education*, and therefore, the potential long-term ramifications of such a focus are unknown and its influence on science and application remains unrevealed.

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It is such notions that are tantamount to “throwing out the baby out with the bathwater”; they do a great disservice to the evolution of the science of education. I believe that the reason for the existence of such notions is that scholars in the science of education are mostly unaware of their own misgivings — they either do not realize them or they deny them. Due to this, fears are never properly identified, articulated, and opened up. They remain mostly subconscious, grounded on the traumatic experiences and the heritage of our troubled history. And since these experiences give every reason for great caution, the apprehensions feel highly justified and go unchecked.

### *2.1.5. THE CURRENT EXPRESSION OF FEARS AGAINST THE SCIENTIFIC STUDY OF UNIVERSALS*

Human scientists, including educationalists, are not immune to the misgivings of Western civilization. The deep-rooted dread of giving in to totalitarianism and giving up one’s freedom, especially freedom of thought, feeds the academic mentality. As educationalists bring their human fears along into the academic arena and couple them with scientific standards, this dread is reflected in almost dogmatic avoidance of a natural scientific epistemology in the study of human or educational universals and an overwhelming focus instead on educational particulars.

What, then, is the current manifestation and form of these fears? First, due to their informal and unconscious character, they are not easily detected, and are even less easily described as concrete occurrences. Three generally acknowledged and mutually exclusive views on the ontology of universals were discussed in Section 1.2. It is doubtful that any educationalists would seriously entertain a nominalist view of universals. Therefore, at this point of discussion, we shall touch only upon the *realist* and *conceptualist* approaches on universals. The realist stand considers universals as objectively real, as objects which have an independent existence, and distinct from physical phenomena or mental activity. The conceptualist position, on the other hand, ascribes universals to the domain of human psyche, considering them as mental tools that produce descriptions of a given domain of reality.

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I believe few would have any objection to the conceptualist definition of universals — especially since it provides only a debatable philosophical interest in universals and has little consequences on the *status quo* of the science of education. Rather, it seems that the avoidance of educational universals is targeted at their *realist* interpretation which maintains that, while our understanding (i.e. our approximations) of universals is always conceptualistic, the universals *themselves* do not need to be confined thus and may well have a realist ontology. The conceptualist interpretation, on the other hand, ascribes *less reality* to the ontological essence of universals. Thus, if there is a reluctance to approach universals as real objects that could be scientifically approximated, a conceptualist mentality (perhaps a subconscious one) comes in handy: it *dilutes the realness of universals* and makes them scientifically uninteresting or at least unresearchable.

Thus, the fear of making use of the natural scientific approach in the study of educational universals is *not* seen in the denial of these universals, but in *ignoring*, with a subtle conceptualist frame of mind, the possibility of their realist interpretation. Since, however, universals have never been systematically in the spotlight of the science of education, adopting such a position would be based on no substantial knowledge of the matter and therefore can be considered as *prejudiced*. This is not, however, to say that the conceptualist view would be a formally accepted or endorsed stand among educational scholars; rather, it can be held as the articulated *interpretation* of their current attitude on universals.

From the point of view of science, the scholars who are truly in pursuit of the science of education have certainly no reason to fear nor, perhaps, a right to ignore the possibility of exploring educational universals with a realist scientific method. If, after a dispassionate and longstanding exploration of this theme by a large number of scholars, educational universals can be shown to be relevant to human existence, a new door would have opened for the development of education and the understanding of human reality; then the science of education would need to *place them in the focus* of its interest. In any case, the first task is to establish the relevance of the scientific exploration of educational universals.

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## 2.2. THE TASK OF SHOWING THE INFLUENCE OF EDUCATION ON EVOLUTION

Section 2.1. showed the existence of fear against educational universals. The present section and Section 2.3. will attempt to make a credible case for the *general plausibility* of educational universals. I will seek to show that, *empirically*, the existence of educational universals is at least within reasonable reach. The first task is to review the *differences of biological and social evolution* in relation to the influence of education. Deduced from the influence of education on social evolution, I will then seek to propose a few sample universals as examples.

### 2.2.1. GENERAL CHARACTERISTICS OF THE CONCEPT OF EVOLUTION

The concept of evolution will be discussed in more detail later in Sections 3.2.5. and 3.3.2. For the purposes of this section, a brief discussion of some characteristics of evolution must suffice.

According to H. E. Barnes (1963, pp. 331-332), the *hypothesis of evolution* is the foremost of the various intellectual and scientific influences, which have revolutionized the perspective, orientation, and ideals of historical writing. As a general concept, the evolutionary hypothesis merely insists that all portions of the known cosmos, great or small, have been produced by naturalistic causes that bring about both progress and regression. It also implies, in agreement with the ancient hypothesis of Heraclitus, that change is the great basic principle of the cosmos. This notion, however, is somewhat vague and lacks conceptual tools.

Philosopher Georg Henrik von Wright (1988) sees the roots of evolutionary thinking in the awakening of a sense of *historicism* during the nineteenth century, rather than in the biological innovations of that period. This signified that history was no longer seen as the mere flow of *change* through the random occurrence of isolated events, but as a process of *development* carried forward by the causal and oriented occurrence of interrelated phases. This development is characterized by

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diversification, complexification, and specialization — in short, sophistication. The concept of development can be seen to refer to all forms of evolution.

There is also the notion of *progress*, which according to von Wright, relates to the human perception of advancement and is, thus, a values-based concept and is, therefore, a quality that cannot be determined by scientific means. Von Wright's reasoning is that the measure of advancement or progress of a system at a point of time compared to an earlier period is dependent upon the goals that have been set which, in turn, are a subjective choice. While the subjectivity of goal and value choices can be argued (see: P. Izadi 1994; see also hypotheses H8 in Section 3.4.2.), it can be maintained that, when speaking of evolution *as a universal phenomenon*, it is useful to differentiate between the concepts of *change*, *development* and *progress* (see: Mannermaa 1991, pp. 233-235). We shall return to this issue later (see principles S3<sup>a</sup>, S5, and S5<sup>a</sup> in Section 3.2.5.).

### 2.2.2. THE NATURE AND PROCESS OF BIOLOGICAL EVOLUTION

As generally known, it was Charles Darwin who in 1859 set forth the structure of his theory of evolution in his groundbreaking work, *Origin of Species* (Darwin 1981a [1859]). Later he supplemented and elaborated this work in many books, including *The Descent of Man* (Darwin 1981b [1871]). According to Darwin, the process of biological evolution is characterized by genetic differentiation, natural selection and biological diversification (see also Section 3.2.6.).

Before biological evolution actually began, a certain process of *inorganic evolution* diversified the available substances and prepared the chemical foundation for the emergence of biological evolution. Moreover, biological evolution itself can be viewed from the point of view of *monocellular evolution*, *plant evolution* and *animal evolution*. Here we will briefly examine these various levels of evolution from the point of view of our purpose. (See: Avers 1989; Bendall 1983; Birx 1984; Calow 1983; Fortey 1999; Grant 1985.)

The inorganic nature displays no trace of consciousness and its elements merely exist and interact according to fundamental physical

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laws. This is the most basic and most primitive level of *contingent existence*. Basic biological systems (such as monocellular life and plants) demonstrate more goal-oriented existence, endowed with the power of growth and guided by both a genetic program as well as environmental conditions; these living systems, however, have no assessable capacity for consciousness. They constitute the first level of *organic existence*. Within the organic realm, it is animals that show clear signs of awareness or consciousness; they exhibit in varying intensities, depending upon their degree of capacity, the ability to perceive their environment through senses and react to its stimuli through movement, activity, and even emotions. This is the first level of *conscious existence*. Of course, any one of these levels of existence precludes, by definition, the ones preceding it.

Now, it is estimated that the Earth formed into a planet about 4'600 million years ago. The stirring of biological evolution, towards the end of the first billion years, was in the emergence of organic compounds within the chemical activity of inanimate matter. Then, after the lapse of 3'150 million years after the formation of the planet, monocellular systems began diversifying and primitive forms of vegetation evolved; this means that inanimate systems, the first level of *contingent existence*, were the ruling form of existence during the first 68 % of the Earth's life (early Precambrian, and the Archeozoic era in Precambrian). It took another 770 million years before the first primitive multicelled animals emerged; in other words plants, the first level of *organic existence*, were the highest level of evolutionary order for 17 % of the existence of the Earth (the Proterozoic era in Precambrian). The animal kingdom, the first level of *conscious existence*, emerged as the most advance level of existence on earth and remained so until almost the present, i.e. some 15 % of the geological history (the late Precambrian, the Paleozoic and Mesozoic eras, and the Tertiary period of the Cenozoic era).

While it is clear that the concept of *change* is the characteristic quality of biological evolution, it is reasonable to maintain that it is also distinguished by the quality of *development*. Differentiation is still mere change, but natural selection leads, provably, to biological diversification, complexification, and specialization (i.e. sophistication). This means that the majority of species on this planet today are more diverse, complex and specialized than those that lived, say, 800 million years

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ago. This fits within our definition of 'development'. As to *progress*, since it relates to the human perception of advancement, it is not identified here with biological evolution.

### 2.2.3. DIFFERENCES BETWEEN BIOLOGICAL AND SOCIAL EVOLUTION

What, then, is the difference between biological and social evolution. Great care must be taken to make a difference between the notions of *social evolution* vs. *social Darwinism*. The former indicates a general notion that social reality undergoes evolutionary processes, while the latter is an assertion that social growth and change takes place in terms of a struggle in which only the fittest (strongest) socio-cultural elements can survive. The predecessor of social Darwinism can be found in *political realism* which essentially reduces to the political-ethical principle that "might is right". The theory has a long history and it was expanded by Machiavelli and others, such as Hobbes, Spinoza, and Rousseau. It underwent a new incarnation in the form of social Darwinism in the late nineteenth century. (Moseley 2001; see also: Bannister 1979; Helm 1999.)

Our point of view, however, far from endorsing social Darwinism, makes a clear difference between biological and social evolution. Why differentiate between biological and social evolution, thus indicating a differentiation between humans and animals? Biologically, there is no point in separating human beings from the rest of the animal kingdom: there are no biological evolutionary leaps significant enough to separate man as a distinct life form from animals (such as the distinction between plants and animals). But when we focus on social evolution our attention is drawn to the *sense of community* and thus to the concept of *consciousness*. It is here that an evolutionary leap from animal to human does appear to have taken place.

So, let us view social evolution, first, from the point of view of the *evolution of consciousness*. In Section 2.2.2., it was noted that animals, as apart from lower biological entities, show clear signs of awareness — the ability to perceive their environment and react to its stimuli by movements. The *human* evolution of consciousness refers to the time of human influence on earth. This period (the Quaternary period of the

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Cenozoic era, especially its Pleistocene and Holocene epochs) comprises only a few million years, i.e. a mere 0.1 % of the Earth's life.

It is possible to detect equally significant differences between human consciousness and animal awareness, as there are between animal awareness and plant non-awareness (see: P. Izadi 1994). Animals are aware, through their senses, of their surroundings and are able to react, through their instincts, to these stimuli. This can be called *instinctive consciousness* and results in what we call "animal behaviour". Human beings, arguably, possess two additional (and fundamentally different) forms of consciousness:

1. Consciousness of ego or *rational consciousness*: awareness of self, that not only the environment exists but "I" exists in that environment, an awareness of one's relationship with the surrounding reality, a capacity for rational thought and the volition to act deliberately, capable of applying latent talents through rational activity.
2. Consciousness of potential or *ideal consciousness*: consciousness and innate awareness of the possibility for progress and ascendance, of a purpose and of some truth or reality greater than one's ego, the conception of ethical right vs. wrong, commitment to high principles and ideals.

These describe the evolutionary level of what one might call *meta-conscious systems* — systems that are *conscious of their potential*. There is no indication that animals would possess and exhibit such consciousness and here we will be satisfied with the position that *the human reality is the only known evolutionary system that can exhibit meta-consciousness*.

The first manifestations of meta-consciousness in human beings may have been little more than momentary breaks from the routines of 'survivalist groups of intelligent animals'. But it seems that in meta-conscious systems external stimuli, instead of starting a mechanism of organic reactions, start a process of conscious, or more often subconscious, choice which, in the last analysis, is essentially *a choice between instinctive consciousness and ideal consciousness* — i.e. the choice between instinctive drives and immediate needs, on the one hand, and ideal goals and principles, on the other. It is a value position humans are called to take even in their smallest everyday issues.

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Why does it seem, then, that it is so much easier for us humans to opt for (or to be inclined towards) the instinctive behaviour — a behaviour that, combined with human intelligence, has often proved devastating to the purpose of attaining to the potential of the system? A considerable stretch of our time perspective seems necessary here: considering the relative shortness of the period when meta-conscious systems have functioned on the Earth (some 0.1 % of its whole life), it is reasonable to maintain that this evolutionary level of consciousness is a mere child. Therefore, it has been only natural that meta-consciousness has been weak and undeveloped and it has easily fallen prey to the long-established and straightforward instinctive consciousness.

While many animal species evince clear signs of social life and organization, there is little evidence to support the idea that such social organization would be the result of conscious innovation and the expression of collective will and effort. Indeed, the abovementioned meta-consciousness seems to be the factor that makes a difference between human society and animal sociability. It involves individual and collective choices as well as social inventions. It is here that von Wright's (1988) notion of evolutionary *progress* (as apart from *change* and *development*) emerges, with accompanying "human perception of advancement" as a values-based concept.

This offers an alternative evolutionary interpretation of human history. It acknowledges that humankind, as a function of its meta-consciousness, has an innovative aspiration for a sense of community, of collective achievement and of social coherence and organization. Thus, human beings have evolved through initial stages of self-sufficiency and independence, inevitably towards increasing interdependence with an expanding range of organization and more complex forms of cooperation. Despite the bloodstained history of humankind and ongoing territorial wars and disputes, representing momentary drawbacks and breakdowns, this process has unfailingly advanced throughout history.

This idea is, of course, no newcomer to the interpretation of social evolution. It resonates with the Aristotelian idea of the emergence of civic communities. Although it may, at first, seem empirically unfounded, yet the observable and verifiable overall process and outcome of social evolution proves in its favour (see: P. Izadi 1991 & 1994): in the beginning of known human history, there were scarcely

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larger sustainable groups than family clans; these gradually emerged into tribal societies; later, through long periods of commotions and strife, the tribal life found its next stage in the formation of the city-state; and only relatively recently, after a bloody history of invasions and imperial rule, has the concept of sovereign nation-states established itself as the most advanced level of organizing human societies (cf. principles S3<sup>a</sup> and S5 in Section 3.2.5.).

It is in addressing this unifying aspect of subtle integration that most theories of history appear to fail. As Calhoun (1992, p. 232) puts it: “Neither Marx’s theory of capitalism nor any theory of industrial society (or postindustrial society) offers an adequate account of society itself, that is, social integration.”

There is no reason to assume that the process will end here. Indeed, today — having exhausted the possibilities of state sovereignty to answer the evolutionary needs of humankind — we seem to be going through a period of unprecedented chaotic upheavals and global challenges, and arriving at the stirrings of a world society (cf.: Moskowitz 1968, p. 71; Commission on Global Governance 1995). It is also noteworthy that at no point, during the evolutionary process, did the preliminary stages of social organization dissolve as new ones unfolded. On the contrary, the older forms of society became permanent and integral components of these new ones. Thus, even today, the basic social structure of family clans, tribes and city-states are not extinct or even scarce: family clans have transmuted into the nuclear family as the basic unit of society, tribal life has been established in the form of villages that are the heart of the rural areas of a nation, and city-states have of course transformed into cities that form the cultural and socio-political focal points of a nation — the existence and maintenance of the nation-state is, indeed, completely dependent upon these lower levels of organization.

Would it, then, be unreasonable to conclude that the independent history of tribes, peoples and nations has been completed and effectively reached its conclusion; that we are now witnessing the beginning of the history of humankind as a single society. We are at the first global turning point in the process of civilizational evolution (cf.: King & Schneider 1991; Laszlo 1989, pp. 122-124; Mesarovic & Pestel 1974; Toffler 1974; P. Russell 1983, p. 55).

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Thus, based on our assumption of meta-consciousness, it is characteristic to human nature to have a civilizing aspiration (both individually and collectively): a desire to develop and ascend to higher levels of physical, mental, social, and spiritual accomplishment. In critical points along humanity's evolution, *meta-consciousness has been fed by new visions of the future*, which in turn has significantly amplified this civilizing aspiration. As mentioned in Section 2.1.4., the most influential source of future visions has been world religions, which, at the time of their appearance, were *the* progressive force of society (although they later became corrupted through the misuse of clerical authority).

Our notion of social evolution bears, therefore, little resemblance to social Darwinism in that — in addition to the mechanisms of differentiation, natural selection, and diversification — it involves *the influence of human meta-consciousness*. In biological evolution, every next generation of a species learns the same general skills and behaviour as the previous generations (within the limits of certain instinctive adjustments), unless there are genetic mutations and adaptations that dictate otherwise. Due to the profound influence of meta-consciousness, however, every next generation of human beings learns, along with the accumulated learning of previous generations, additional *different* things (regardless of any genetic changes or lack thereof) — i.e. *every new generation of human beings also learns completely new things* unknown to its ancestors. This is the essential quality at the core of social evolution making it fundamentally different from biological evolution.

#### 2.2.4. THE INFLUENCE OF EDUCATION ON SOCIAL EVOLUTION

The title for the whole Section 2.2. has been “The Task of Showing the Influence of Education on Evolution”. However, we have not yet spoken about education. But the whole line of discussion has brought us to the concept of education as a uniquely human trait. Animals do educate their offspring in some instinctive manner. It is the workings of human meta-consciousness, however, that put education at the centre of evolutionary focus in the case of human beings. Meta-consciousness would be a mere philosophical curiosity without a verifiable manifestation in the human society. We concluded that the fact that every new generation of human beings “learns ... completely new things unknown

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to its ancestors” constitutes this “verifiable manifestation”. Such learning would not be possible if the previous generation would not have the capacity to *teach* to its posterity the things it has learned, the mistakes it has made, and the goals it would still wish to attain. *Education* is, thus, the mechanism that enables this meta-consciousness to work on social evolution.

Based on the foregoing, it would be a misrepresentation and misinterpretation of historical facts to maintain that humankind has never learned from its mistakes or that history has been a mere outcome of stochastic coincidences. This would show a lack of appreciation of all the past achievements of the human race. Perhaps, it could be maintained that *education is the human agency that carries on social evolution* and provides continuity to the process.

#### ***2.2.5. SAMPLE UNIVERSALS DERIVED FROM THE INFLUENCE OF EDUCATION***

The aim of Section 2.2. has been to examine the general plausibility of educational universals by showing the influence of education on social evolution. Let us now seek to derive some *sample universals* that seem plausible on the basis of this discussion:

1. Life forms that have no meta-consciousness have also no conscious capacity for education.
  2. Education is the carrier of social evolution and provides for the continuity of the process.
  3. Progress is a quality unique to social evolution and is dependent on the influence of education.
  4. The ability to educate enables humankind to remember the consequences of its actions and to learn from its mistakes.
  5. Education empowers every new generation to learn additional new things, unknown to earlier generations.
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As the title suggests, these are just sample universals, examples of the plausibility of educational universals as *real objects*. The purpose is to show that this position is scientifically no less plausible than the notion of universals as mere arbitrary definitions, “mental devices” that offer no new theoretical insight. Later, in Section 3.4., we shall define more accurately, and in more detail, *universal hypotheses* regarding education. But for now, these instances will suffice.

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### 2.3. THE TASK OF DEMONSTRATING THE EFFECT OF SYSTEMATIC EDUCATION

Now that the general plausibility of educational universals has been discussed, we shall seek to examine the effect of *systematic* education and draw conclusions on educational universals from that point of view. First, some definition is needed of the difference between what we call here “stochastic education” and “systematic education”. Then, three historical cases of systematic education (namely, the Nazi and Communist case, on the one hand, and the modern nationalized systems of education, on the other) will be briefly examined, and the consequences of each of them will be discussed. Deducing from this review of the effect of systematic education, I will, again, seek to propose a few sample universals as examples.

#### 2.3.1. STOCHASTIC EDUCATION VS. SYSTEMATIC EDUCATION

The division of education into *formal* and *informal* education is a generally accepted notion. Since, however, our definition of education here is rather generic and inclusive, also our notion of *stochastic* vs. *systematic* is somewhat broader than formal vs. informal.

By “stochastic education”, we mean the multitudinous (and mostly *uncontrolled*) input that bears influence on human beings and on how they grow into members of a society. This includes, for instance, the interaction and encounters between the various elements of humanity (individuals, groups, even nations) and the influence they bear on each other. Such stochastic education may also include influences that are out of the scope of human control (such as natural catastrophes that can alter the structure and mentality of entire cultures). Such interactions and influences do ‘educate’ individuals, groups and nations to one direction or another but their effects and outcome are, mostly, unpredictable and, thus, stochastic.

By “systematic education”, on the other hand, is meant those social influences that form a more-or-less coherent paradigm and are practised by various protagonists of educational purposes (such as institutional-

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ized systems of formal education, political propaganda, the voice of intelligentsia and academic elite, the input of the media, the learning of traditional norms and customs etc.). For instance, any national school system is meant to promote the well-being of that nation and its government and is, usually, in congruence with the traditions and highest norms of that nation. In addition, the media and academic opinion-makers practice an orientated educational influence. While they may not always agree, these influences and their dialogue have a noticeable 'educational' effect in that they push the various elements of society towards certain goals and are meant to promote specific agendas and are, thus, systematic.

One could object that *home education* was not mentioned in either of the types. This is merely due to the fact that home education is the first and most profound educational context human beings encounter. Its influence constitutes both stochastic and systematic education and, therefore, it cannot be attributed clearly to either of the types. Moreover, the contents and form of home education differ highly from culture to culture and, thus, the emphasis on its stochastic or systematic aspects is not meaningfully defined.

### 2.3.2. THE HISTORICAL ATTAINABILITY OF EDUCATIONAL GOALS

We have briefly defined the character of stochastic and systematic education. However, whether or not education attains its professed goals is an entirely different question. The attainability of educational goals is a problematic issue for social and educational theory.

With stochastic education, it is easier to define the 'goals' because, by definition, they can be ascertained only in *retrospect*. In fact, since stochastic education has no *professed* goals, its 'goals' are the outcome of the stochastic process and can be observed as they emerge. For instance, one of the most notable stochastic learning processes of humankind has been that of governance and social order — that is, the process of learning to manage the human society in a meaningful and sustainable manner. This learning process is an outcome of the experiences of humanity through its history. It is seen in the development of human organization from tribes to city-states and nation-states, as described in Section 2.2.3. This process accelerated considerably during the past

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century when, in the aftermath of the Second World War, it was finally found possible to begin consolidating the foundations of world order and look for possibilities of global governance, culminating in the establishment of the United Nations — a system which, while certainly inadequate in relation to its final ideals, was now endowed with powers that were absent in the short-lived and lame League of Nations. This is an example of the historical attainability of *stochastic educational 'goals'*. It indicates that there are *historically valid aspirations* that will eventually be attained, even if no human agency is systematically pursuing them.

In terms of *systematic educational goals*, however, there seem to be historical evidence of both their attainability and unattainability. Many systems of education proved, in the course of history, effective and attained their objectives, while many others failed either at the outset or after a long period of tenacious persistence. What might be the reasons for this inconsistency? Is it a mere random outcome of historical occurrences, or is there some more coherent possible explanation behind this? We shall now examine three historical cases of systematic education and seek to understand the reasons for their outcomes.

### 2.3.3. HISTORICAL EDUCATIONAL CASE 1: *EDUCATION FOR NAZI DOMINATION*

The Nazi regime of the Third Reich and the attempt of National Socialism on educational domination provide a good historical case of systematic education — for, indeed, systematic it was. Let us review, briefly, some of the features of this educational attempt (see: Beyerchen 1977; Bracher 1973; Grunberger 1974; Hirsch 1988).

The Nazi policy towards education was the straightforward 'nazification' of education; it had a direct influence on the devaluation of objective learning and ushered in an era of anti-intellectualism. For Nazis, the main educational concern was its *utility*: they considered education as useful and worthy of support, as long as it provided a means to their intended ends. Thus, the highest priority was given to the formation of good, strong physical bodies, followed by character development within a National Socialist framework. As the Nazi 'education reform' proceeded, one of the major objectives became that of gathering the youth under the service of National Socialism. The

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youth policy involved the assimilation of young people as thoroughly as possible into the Hitler Jugend and then into the Labour Service and the Armed Forces.

Nazi education, starting from early age all the way to adulthood, was based on an extreme racist ideology and on militaristic norms of behaviour. This involved the creation of new reading materials for various age groups. For instance, the 9-12 year olds were no longer allowed to read fairy tales or animal stories; instead, they read about the World War and the Hitler Jugend. The literature read by the young increasingly glorified war and lead them to believe that war is a normal feature of human behaviour, that the use of force was 'legitimate' for the pursuit of survivalist and expansionist ends. The overall effect was dramatic on educational standards. They were reduced to the very basics. The factors that lead to this include the diminishing of the educational opportunities for girls, the increasing shortage of trained teachers, and the replacement of scientific and objective knowledge with coloured political views.

The indoctrination of teachers was systematic and swift. By 1938, the majority of the teaching force had undergone compulsory 'in-service' or 'updating' training. School subjects were rewritten and reordered. Hitler stressed repeatedly that the primary task of education was the instilling of racial consciousness in the heart of every student.

Sports became the crown of all subjects, boxing becoming compulsory in upper school. Biology, history, and the German language became emphasized as tools for 'nazification'. Biology was harnessed to focus on the differences of race, on heredity and on the importance of the "survival of the fittest". History, too, was rewritten to manifest the ascendancy of the 'strong' and the naturalness that the 'weak must perish'. Even mathematics was utilized for Nazi indoctrination by focussing on mathematical problems and calculations that were related to artillery trajectories, fighter-to-bomber ratios etc.

In the Nazi system, perhaps girls suffered the greatest educational loss. Those girls who were in higher schools were redirected into the fields of domestic science or language. In 1934, a law became effective limiting the number of female acceptance for universities to 10 % of the entire student intake. Competition was so intense that sixth formers

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were prepared to denounce their classmates to the Gestapo. Of the thirty-nine National Political Educational Establishments (the educational system created for training the future Nazi elite) only two were provided for girls.

In addition to the 'reform' taking place within the education system, the mentioned National Political Educational Establishments functioned as a separate elite school to enable the Party to penetrate the existing system. In all respects, the regime functioned with two purposes: to penetrate and undermine the old system, on the one hand, and to raise new replacing systems, on the other. This is seen, for instance, in the coexistence of the Army and the SS, as well as in the dual judiciary system.

The overall educational landscape of the Third Reich was underscored by a notable decline in educational standards. So tangible was the effect that even the German Army had to admit the low standard of recruits which, according to the Army's own records, was due to the simply "inconceivable lack of elementary knowledge" exhibited by so many of the candidates. The Nazi indoctrination required the visible elimination of the established intellectual life in Germany. Nazis took gradual control over all aspects of education through seemingly indirect means. And they were successful: although most intellectual potential was lost, yet those losing it (the people) were unaware of the loss they were subjected to. The majority of Germans, willingly, gave up their human right of access to objective knowledge.

#### *2.3.4. HISTORICAL EDUCATIONAL CASE 2: EDUCATION FOR COMMUNIST UTOPIA*

Another historical case of systematic education, and one much more longstanding than the Nazi attempt, is that of the Communist ideology, particularly as applied in the Soviet Union during the 70 and some odd years of its existence. If Nazi education was systematic, Soviet education was both systematic and consistent and may, therefore, provide a more convincing case for the study of the influence of systematic education. We will now take an overview of this case (see: Bereday & Pennar 1960; Chapman 1962; Counts 1957; Matthews 1982; Merkuriev 1993; Riordan 1988).

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It is quite possible that no other society than the Soviet Union has placed such an unshakable confidence on education and mobilized such enormous resources for its implementation. Soviet education was, in a certain sense, 'messianic' and idealistic. The Soviet policy was based on the belief that man *can* and *must* improve society, and that the school has a leading role in this. The Soviet system brought Russia and its dependencies, as well as the rest of the Soviet republics, a long way since 1917 — a progress that was particularly evident in education. In 1918, the Soviet rulers took over all schools and colleges. They abolished fees and made education compulsory to all 8-15 years old children. Later compulsory education was extended, so that by the 1980s most children attended school from the age 7 to 17. In the 1960s, some 7 % of the Soviet national product went into providing formal education (while the Western countries spent the average of 3-5 %).

Soviet education was highly efficient in teaching basic knowledge. In 1920, the literacy rate was at 44 %. By 1939, it had climbed to 87 %, and by 1970 to 99.7 %. In 1989, 49 % of the population aged over 15 had graduated from secondary or vocational school and 11 % had finished some higher education.

The nine-year common curriculum emphasized language and literature, mathematics, military and physical training, as well as history, manual skills and natural sciences. There were special schools focussed on foreign languages, music, ballet, or art; these schools were for the gifted or the children of the privileged segments of society with good political connections. Moreover, all were encouraged to join youth organizations (such as the Young Octobrists for 6-9 year olds, the Pioneers for 10-15 year olds, and the Komsomol for the 14-28 year olds. The Soviet Union also screened schoolchildren for athletic and other talents.

During its best periods, the Soviet Union earned clear political loyalty among young people and some of this is certainly attributable to school education. But the Soviet system asked for more than just a vague loyalty; it required a firm Marxist-Leninist world-view and a committed participation in the building of Communism at the various levels of society. There was political training particularly designed to teach these virtues to the youth and was systematically pursued in schools and universities. This training mainly included compulsory

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lecture courses on Party history, historical materialism, and economics. Such courses, however, were often met by large-scale indifference on the part of the students. For the Communist Party, lack of commitment by young people to political ideals was regarded as an ongoing challenge to improve their system of educational indoctrination.

While the results of educational indoctrination are hard to measure, young people in the Soviet Union were certainly not a sheepish and undifferentiated mass that would speak with a single voice. Especially many of the better educated showed a firm capacity of critical thinking combined with profound general knowledge of philosophy, history, the sciences, literature, and the like. Many of them were also critical of the Soviet society. Yet, the fact remains that their knowledge and understanding were thoroughly influenced or 'tinted' by the indoctrinating grip of the educational system. Moreover, many students felt grateful, and rightly so, to a machinery that provided educational and working opportunities vastly superior to those available to their parents and grandparents. The combination of that indoctrination and this gratitude did conspire to encourage the youth, on the one hand, to surrender their intellectual independence to the official political doctrine and, on the other, to adapt themselves and their needs to the conditions of a peculiar socio-political structure. These resulted in two extremes: a civilized and highly informed mentality with a compatible ability of theorizing and analysis, at one extreme, and the opportunistic pursuit of personal gain, at the other.

There were also other, more tangible, problem issues within the Soviet educational system. First, the ongoing expansion and establishment of new educational institutions resulted in circumstances where students ended up graduating with skills below the average (this was particularly true of teacher training). Second, it soon became evident that the curricula and teaching methods that were used often supported archaic modes of thinking and irrelevant formal knowledge leading to unimaginative, routine-minded qualities in the students. Both of these factors resulted, of course, in a steady decline of educational quality. The typical professional expertise acquired was narrow in scope and was out of synchrony with the needs of the labour market. Another set of problems relates to the role that the State took in almost replacing the family. Social problems swelled as Soviet children began to grow up in an atmosphere of mistrust, suspicion, and segregation. A whole other

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set of issues arose from the efforts to assimilate the non-Russian peoples within the Soviet reign, particularly through education (but also through linguistic integration, migration, and intermarriage). Opposition — first indirect, but later increasingly open — against this trait was one of the contributing factors to the dissolving of the Soviet Union.

Yet, the appeal of the Communist world-view was deeply rooted in many segments of the society. Contrary to popular thinking, education in the Soviet Union had a broader basis than merely aiming at the continuance of the power of a small elite of political rulers. It was to be the instrument of creating a new type of citizen that could be the basic unit of a new social order. It is here that the appeal of the Communist ideology stood (and, for some, still stands) and it is also here that it failed.

### ***2.3.5. HISTORICAL EDUCATIONAL CASE 3: EDUCATION FOR NATIONAL CITIZENSHIP***

Our third historical case of systematic education is that of the steady emergence, since the nineteenth century, of *nationalized systems of education*. Whilst such systems are particular to no individual nation-state and are, indeed, generic to all modern nation-states, their emergence heralded a distinct and new form of institutionalized education. In fact, the Nazi and Soviet educational systems, discussed earlier, are specific forms of nationalized systems of education, and they would not have been possible without this context. We will now, briefly, discuss the general features of this phenomenon (see: Coombs 1985; Johansson 1985; Kangaslahti 1984; M. Mitchell 1990 [1931]; Posch 1990; Smolics 1981; Suutarinen 2000).

As mentioned earlier, nationalized systems of education emerged with the aim of ensuring the stability and security of society and of promoting the well-being of the nation and its government. The objectives and aims of such a system of education are, usually, in congruence with the best traditions and highest norms of the nation. These objectives can be summed up in the aspiration of fostering “national citizenship” — of educating “a model citizen of the nation”.

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The fact that such nationalized systems evolved at all may be descriptive of a growing awareness, during the nineteenth century, that a nation cannot be successful unless its citizens are educated. This national orientation has become so characteristic to our systems of formal education that most of us, today, view the nation-state and the entire national educational systems as the *largest 'natural' units* of society and of formal education. The nation-state has become our primary frame of reference.

Of course, it *is* true that social and pedagogical policies are systematically devised and administered nationally, that nations provide the authoritative mechanisms of decision-making and change, and that our lives are set within the context of national allegiances. On the other hand, it is also true that, in an increasingly interdependent world, national allegiances and arrangements, alone, are insufficient in their ability to provide for human education and social capacity. This limitation was already perceived by Émile Durkheim (1925 & 1973) who, while never believing in the practical possibility of a global human society, was aware of the limitation of a purely nationalistic approach to society and education. Marion Mitchell (1990 [1931], pp. 87-106) explains: "Durkheim believed that ... the human objective was in its turn far superior to the national. But there did not exist any real society of humanity, with its own organization, its own conscience —, in a word its own individuality. The national state was the most highly organized human group that existed. ... he scarcely expected that there would ever be constituted one [state] which comprised all humanity." Today, the effect of internationalization and globalization are strongly felt by all national systems of education.

"Broadly perceived, this intercourse [in educational and cultural affairs] constitutes a worldwide 'common market' for educational, intellectual and cultural goods and ideas that flow daily across national boundaries through books, newspapers, and magazines, by means of the revolutionary new electronic communications media and by way of performing artists, concert groups, and exhibitions. It also includes the vastly increased number of students studying abroad; foreign experts and advisers working in developing countries; the literally hundreds of international professional meetings held annually throughout the world; and the untold number of dialogues and exchanges that go on informally and incessantly between scholarly, scientific, and artistic col-

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leagues in different parts of the world through letters, reports, and personal encounters.” (Coombs 1985, p. 286.)

Still, the established traditions of formal education remain within the basic limits of national interests, although international education may be part of the curriculum. J. Kangaslahti (1984, p. 23) expands on this issue: “Any nation’s view of the world, cultures and people has never been universally shared. Today, education has dimensions other than to prepare citizens of a community and a country for participation in national activities. People have many modes of interaction across cultural and national boundaries. There are no ways that local or national authorities can control all that will be taught to their citizens.” To put it simply, this means that, today, nation-states are bound by conditions beyond their own control, and therefore, national systems of education, while never having been exclusive reflections of their particular culture, are today so to an even lesser degree.

In addition to the demands of interculturalism and internationalism, the process of change has also placed new socioeconomic requirements on education (see: Posch 1990, p. 5). Still a few decades ago, vocational structures and demands were rather static; the structure of the educational system was then an adequate institutional answer to social needs. For instance, dynamic qualities and anticipatory thinking were not a necessary condition (except for top management). Now, however, static qualities (such as discipline, punctuality, and the like) are no longer sufficient; additional *dynamic qualities* are needed. This has become a clear challenge to our national systems of education, particularly in the case of vocational education.

Another example of the challenges of national education is the increase of multiculturalism within the national boundaries of a country. In a multicultural society, the national government is expected to provide specific educational support for ethnic groups within the society. It is generally accepted that the retention and strengthening of ethnic identity accompanied by the denial of the means for its cultural expression, represents a potential threat to social cohesion. (Smolics 1981, p. 30.)

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### 2.3.6. SYSTEMATIC EDUCATION AS A FUTURE-ORIENTING MECHANISM

The foregoing discussion of the three historical cases of systematic education has shown that different educational objectives can be historically more or less attainable. Some cases end up in collapse and others thrive over long periods of history. Why might this be? Why did the Nazi system of education collapse before it even properly got underway? What of the Soviet educational system, which after prevailing for some seven decades, rapidly started to deteriorate? And why have the nationalized systems of education, despite their crises and needs of change, not undergone the same breakdown?

One could argue that the collapse of the Nazi and Soviet educational system was not due to the unsustainability of their systems of education, but that other reasons (such as historical events and coincidences) caused the collapse of the entire socio-political system of these regimes and, with them, their educational systems. This argument is true in that the collapse of the system of education is not an *independent* event and is closely linked with the entire society it represents. However, that mere *historical coincidence* would be the cause of the breakdown is not convincing. Something in the very nature of these regimes made them *unstable* and, in the long run, *unsustainable*. Moreover, their educational systems were at the very core of their functioning: whatever these regimes based their systems of education on, the same was also at the foundation of their socio-political systems. Therefore, it can be counter-argued that it was *the very character of the doctrines and ideologies*, at the core of both the educational system and the socio-political regime, that were unsustainable and, therefore, could not stand the evolutionary force of history.

It is also useful to make a differentiation between the long-term consequences of the Nazi and Soviet systems of education. Both were, of course, systems of indoctrination and sought propagandist 'brainwashing'. However, they *did* have a different general influence. The Nazi goal was the creation of a new human race — a humanly *exclusive* goal (possible for a small segment of humanity); the Soviet goal was the creation of a new type of citizen — a humanly *inclusive* goal (potentially possible for all human beings). Moreover, as shown in Sections 2.3.3. and 2.3.4., the Nazi method caused a significant decline in the standard

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of education of the entire nation, while the Soviet approach increased the standard of education of the populace.

To sum up, one could say that the Nazi system was based on *worshipping an individual and a race*, and for all humane reasons, that system can be designated as ‘evil’. It should also be borne in mind that, while the Nazi system appears idealistic, its broadest context is, in fact, quite cynical in that it does not view humanity in an inclusive and optimistic manner; rather, it has a highly exclusive and pessimistic view of humanity as a whole. Soviet system, on the other hand, was founded on *revering a particular dogma* and, while not inherently ‘evil’, implicated assumptions that were incompatible with reality, and thus for all practical reasons, it can be seen to have proven itself as ‘erroneous’. The aforementioned alleged idealism vs. actual cynicism also holds true in the case of the Soviet system, albeit not in such a flagrant manner. As to the nationalized systems of education, they appear to have a sound historical justification and are, generally, neither ‘evil’ nor ‘erroneous’ but, since they easily fall into a nationalistic idealization of a single nation, they are often insufficient to meet the demands of a changing world and can, therefore, be viewed as ‘limited’.

It is apparent, however, that while the Nazi and Soviet systems of education collapsed rapidly (in an historical frame of time), the nationalized systems of education are not actually collapsing or being eradicated at all — they are simply *evolving further*. Their original emergence was not motivated by whimsical ultranationalism nor based on an ideological fixation; rather, it was grounded on a genuine and gradual awakening of a sense of national identity. Indeed, as pointed out in Section 1.4., historical figures who harnessed the proactive power of education to effect prospective transformations in the fabric of society did so with the conviction that their idealistic goals were visionary *steps* in a civilizational process — i.e. that such steps were not the final destiny of the nation but progressive advances in an ongoing evolution. Therefore, it seems that the challenges that nationalized systems of education are facing today are not signs their defectiveness but rather an indication of *further* evolutionary needs of human society. In fact, it seems that nationalized systems of education were a successful historical case of systematic education: they achieved their goal of fostering “national citizenship” — a sustainable achievement that can be built

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upon and only needs to adapt and expand itself according to the dictates of historical change.

Moreover, national systems of education have exhibited the ability to adapt themselves. The twentieth century witnessed an accelerating extension of education to the masses. National and local governments have been gradually more willing to allocate resources to this field, and national societies have shown an ability to mobilize and train armies of professionally qualified teachers. All this has been amplified by the series of development plans focussed on educational needs and massively financed by the World Bank, government agencies, major foundations, and several branches of the United Nations system, as well as by other such bodies. Moreover, the information technology explosion has made all citizens of the Earth potential (though not yet actual) beneficiaries of the accumulated learning of the entire human race.

Perhaps, we can summarize by stating that *educational objectives that are in congruence with the conditions of reality — with social and individual human potentialities — are sustainable*, and those that are in contradiction with these conditions will finally collapse or gradually vanish with the course of history. In other words, only such systematic education that complies with these requirements is ultimately capable of functioning as a *future-orienting mechanism*.

### **2.3.7. SAMPLE UNIVERSALS DERIVED FROM THE EFFECT OF SYSTEMATIC EDUCATION**

The aim of Section 2.3. has been to draw conclusions on educational universals by showing the effect of systematic education on the future. Now we shall, once more, try to derive a few *sample universals* that appear credible on the basis of the foregoing reasoning:

1. There is both a stochastic process and a systematic process that can yield educational outcomes.
  2. Systematic education that is in congruence with human and historical reality becomes a future-orienting mechanism.
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3. Educational objectives that are in contradiction with human and historical reality make education unsustainable.
4. Education for national citizenship falls within the conditions of human and historical reality and is, thus, sustainable.
5. Education for national citizenship addresses incompletely human reality and limits the potential scope of education.

Again, these are only sample universals and must be regarded as such — examples of the possibility that educational universals could be viewed as *real objects*. These examples help to show that the notion of educational universals is not scientifically unjustified and that they *can* provide theoretical and conceptual approaches that would otherwise remain unexplored. Now we need to consider tentative first steps to utilize them for such purposes.

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## 2.4. THE TASK OF TAKING SCIENTIFIC STEPS TOWARDS EDUCATIONAL UNIVERSALS

Now that we have argued in favour of the *plausibility* of the natural scientific epistemology in the study of educational universals and have concluded that *fearing* such an approach would be unfounded, it is reasonable also to maintain that the science of education has no grounds to *ignore* the possibilities inherent in this approach to the study of educational universals. My intent is for this research to be *a first step in reintroducing a scientific epistemology in the study of educational universals*. Of course, I can only hope to make a modest opening in an exploratory process that must go on indefinitely.

### 2.4.1. *THE HOLISTIC AND COHERENT STUDY OF THE PHENOMENON OF EDUCATION*

The comparative ambiguity surrounding the concept of education and educational theory in the present work of educationalists is, to my understanding, undisputable. In Section 1.2., we digested that the goal of the science of education should (or could), at best, be *the holistic and coherent study of the phenomenon of education*, and we defined that this refers to *the study of educational universals*. Such focus would address, directly, the paradigm of the philosophy of education, requiring the formation of holistic ontological conceptualizations for addressing the theory of education *per se*. In taking the first steps toward educational universals, it is therefore essential to address the philosophical issues at the core of our world-view and our perception of human reality.

### 2.4.2. *FEASIBILITY OF FOCUSING ON THE STUDY OF EDUCATIONAL UNIVERSALS*

Some may argue that even if the relevance of studying educational universals with a natural scientific epistemological approach was granted, focussing the entire science of education on such universals would be unreasonable and unfeasible. This is in one sense true. I do not intend to forfeit the undeniable achievements that have been gained

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through the traditional focus on the particulars of education, nor do I mean that such research should cease or even recede to the background. Nor should my critique of particularism and call for universalism be mistaken for a confirmation of some sort of ‘methodological Dadaism’ — that, in educational research, “anything goes” and no concrete scientific standards are needed. The opposite is the case: it is precisely the absence of systematic means that yields in philosophical vagueness and ambiguity and makes educational universals uninteresting; and it is this need for systematic and methodical means that calls for exploring the possibilities of the natural scientific approach.

So, by “focussing on the study of educational universals” is meant, firstly, that these universals must be systematically addressed and studied by a considerable number of educationalists, and secondly, that the conventional research of educational particulars must, as new and generally agreeable means of formulating universals emerge, take these universals as its coherent foundational reference — as credible postulates and assumptions at its root. Only then can scientific standards and research methods emerge in the holistic framework of the science of education. Such focus on educational universals, I assert, is both needed *and* feasible — if the will exists.

#### 2.4.3. *THE NEED FOR A META-THEORY*

As acknowledged in Section 1.2., forming an holistic philosophical framework for addressing the theory of education is a titanic task and certainly cannot be undertaken by an individual, much less by a single dissertation. Search for such a framework is, in a certain sense, search for the *meta-theory* of the science of education. Such meta-theories should make the best out of existing attempts towards scientific holism. One of the most outstanding theoretic trends during the twentieth century was the emergence of *General Systems Theory*, which can be thought of as a ‘new approach to unity of science’ (Bertalanffy et al. 1951).

With the philosophical, theoretical and conceptual tools of *systems thinking* (see: Sections 3.2.4. and 3.2.5.) it may be possible to contribute to the construction of a theoretical framework within which the paradigm of the science of education can be addressed and developed — i.e. to address the meta-theory of education. In essence, this is also a

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search for a theory on human reality, because it is impossible to address education without addressing the fundamental assumptions about the ontology of human reality.

#### 2.4.4. META-POSTULATE AND THE FIRST STEP

It is noteworthy that natural sciences do not necessarily articulate their object to be the study of universals. Yet, *de facto* and for all practical purposes, to state that universals are the ultimate object of study in natural sciences would not be incorrect. Indeed, the study of universals — which, in the case of natural sciences, means the study of natural laws — is so intrinsic to the basic character and mode of quest in these sciences that it often passes unarticulated.

The entire line of argumentation in the foregoing discussions has been that the approach of natural sciences to the study of universals has a vaster appeal than just the domain of natural sciences; that an *epistemological monism* is possible among all sciences and that, therefore, a certain kind of *methodological monism* is also justified due to that epistemological character of reality as whole (see Section 1.4.). Therefore, paradigm could also be at the core of the science of education. This is the basic axiomatic assumption of this thesis and can be formulated as its *meta-postulate*:

*The general epistemological paradigm of science and its method of exploring universals, currently used by natural sciences, are relevant and applicable also to the paradigm of the science of education — they can provide substantial advances in the exploration of the phenomenon of education.*

Given this as the basic assumption, the next task is to take steps in the direction of applying the natural scientific epistemology in the methodical approach of the science of education. What, then, could be a first modest step in the direction of such a paradigm of this field? That step could be: *to examine the applicability of General Systems Theory to the study of educational universals*. The argument for this will be discussed in Section 3.2. For now, let it suffice to list the following list of tasks in taking the proposed step:

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1. To depict *postulates* on the ontological character of reality based on systems theoretic universal principles (Section 3.3.).
  2. To deduce *hypotheses* on the universal nature of education based on the systems theoretic postulates (Section 3.4.).
  3. To design a *speculative test* for the feasibility of proposed hypotheses as the systems theoretic core of educational research (Sections 4.1. and 4.2.).
  4. To conduct an *empirical study* for examining theoretical implications of the speculative test (Sections 4.3. and 4.4.).
  5. To draw *conclusions*, based on the speculative test, and to relate the findings to the hypotheses and postulates (Section 5.1.).

On this basis, I shall seek to reconsider the systems theoretic approach to the science of education and to formulate a tentative “theoretical framework within which the paradigm of the science of education can be addressed and developed” (Chapter 5). While this approach may appear complex, it has in fact a rather simple recursive structure.

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## 2.5. SUMMARY & ARTICULATION OF THE TASK

1. Caution exists against *human universals*, which is manifested in the avoidance of (a) universal definitions of human reality, (b) universal definitions of right vs. wrong, (c) universal definitions of socio-political objectives, and (d) global systems of governance.
  2. Caution exists against *educational universals*, which is manifested in the avoidance of (a) universal definitions of education, (b) universal (or global) educational values, (c) universal educational goals, and (d) unity in educational systems.
  3. Fear of educational universals is targeted at the *realist* interpretation and *natural scientific* epistemology of universals — that this would reintroduce positivism to the science of education.
  4. Fear against educational universals is *not* expressed in denying them altogether, but in *ignoring* them within a conceptualist frame of mind, ascribing *less reality* to universals than the realist position.
  5. Educational universals can be seen as plausible, for instance, through the definition of sample universals on the *influence of education*, such as: (a) life forms that have no meta-consciousness have also no conscious capacity of education; (b) education is the carrier of social evolution and provides continuity to the process; (c) progress is a quality unique to social evolution and is dependent on the influence of education; (d) the ability to educate enables humankind to remember the consequences of its actions and to learn from its mistakes; (e) education empowers every new generation to learn additional new things, unknown to earlier generations.
  6. Educational universals can be seen as plausible, for instance, through the definition of sample universals on the *effect of systematic education*, such as: (a) there is both a stochastic process and a systematic process that can yield educational outcomes; (b) systematic education that is in congruence with human and historical reality becomes a future-orienting mechanism; (c)
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educational objectives that are in contradiction with human and historical reality make education unsustainable; (d) education for national citizenship falls within the conditions of human and historical reality and is, thus, sustainable; (e) education for national citizenship addresses incompletely human reality and limits the potential scope of education.

**Articulation of the task:** The first task was to demonstrate the existence of apprehensions against the study of educational universals through a natural scientific epistemology; then, the task was to show the plausibility of studying educational universals; the next task is *to take the first modest step in focussing the science of education on educational universals*; this first step is defined as follows: *to study the applicability of General Systems Theory to the science of education.*

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## Chapter 3

# THE ATTEMPT (ON THEORY)

The next phase of our task is to make a theoretical attempt to focus the science of education on educational universals. The chapter at hand makes this attempt by studying the *applicability of General Systems Theory to the science of education*. It must be borne in mind, however, that the word “attempt” here means just what it stands for: a preliminary examination, a tentative experimentation, with the conceptual and theoretical possibilities of educational universals. This attempt is just the first step in the incorporation of educational universals as the focus of the science of education, a modest opening that is hoped to initiate a vaster process of exploration by other scholars.

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### 3.1. ATTEMPTING TO UNDERSTAND CONCEPTIONS OF HUMAN REALITY

The purpose of this section is to revisit the conceptual paradigm existing within the present scope of sociological and educational theory, relating this with the requirements of a theory on human reality, a meta-theory for human sciences. The epistemic contrast between scientific belief and dogmatic belief is acknowledged, before touching upon compatibilities and incompatibilities within the concepts of human reality as received from existing sociological and educational theories.

#### *3.1.1. THEORY ON HUMAN REALITY: META-THEORY FOR HUMAN SCIENCES?*

It was proposed in Section 2.4.4., as our meta-postulate, that: *The general epistemological paradigm of science and its method of exploring universals, currently used by natural sciences, are relevant and applicable also to the paradigm of the science of education — they can provide substantial advances in the exploration of the phenomenon of education.* In order to examine this prospect, the universals that need to be addressed are not merely educational ones but also, more generally, human universals — human reality, as such, needs to be addressed. This is the dilemma of human sciences, in general.

There is also a more practical justification to this need of addressing human reality. In the Prologue, an analogy was drawn between the science of education and the science of medicine in that both “seek to produce effective practice for real-life improvements” and that they “need to be backed up by proper and credible theoretical thought”. It was further noted that, they both need a coherent theoretical backdrop to support them. While, for the medical science, such a theoretical foundation (on the physical aspect of human reality) exists, pedagogical science has no such provision at its core and is deprived of a universalist basis regarding the social, intellectual, and spiritual aspects of human reality.

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What we are investigating here is the possibility of a meta-theory for the science of education — i.e. a theory that would provide that theoretical foundation presently lacking at the core of the science of education. Since in the pedagogical science there are very few ontological premises concerning human reality that the majority of scholars would generally agree on (i.e. premises that would constitute the axiomatic postulation of their scholarly work), an essential ingredient of such a meta-theory would be a coherent and justifiable *ontological view on human reality*. The concept of human reality is, perhaps, *the* central universal to be addressed in the human sciences, and particularly in the science of education.

Moreover, since this omission is also present in most of the behavioural and other human sciences, one could argue that a theory on human reality would be at the core of a meta-theory for *all* human sciences (and not only the science of education). However, in order to avoid the pitfalls of the past, a discussion of scientific vs. dogmatic systems of belief is in order here.

### ***3.1.2. SOCIAL AND BEHAVIOURAL PHILOSOPHY REVISITED***

Ontological and epistemic considerations on human universals are, by no means, alien to the thinking of educational philosophers, and are certainly appreciated, in principle, by the majority of educationalists. Indeed, these questions have given rise to numerous works in the field of educational philosophy. Today, perhaps, the number of such contributions is even increasing, producing scholarly accounts that excel in the knowledge of philosophy and clarity of argument. However, while such accounts do address the problematique of logic and critical thinking, of epistemology and education, of the philosophy of social science and educational research, they are yet unable (or reluctant) to address the issue of educational universals from a *goal-oriented* point of view — i.e. in a manner that would promote the emergence of such universals as generally accepted postulates at the core of science, particularly as regards our *perspective on human reality*.

Everyone entertains some view of human reality, whether explicitly or implicitly, whether consciously or unconsciously, whether articulate or intuitive — and this applies also to educationalists and their work.

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Indeed, it is *particularly* true of the field of education, as G. K. Chesterton (1950) puts it:

“Every education teaches a philosophy; if not by dogma then by suggestion, by implication, by atmosphere. Every part of that education has a connection with every other part. If it does not all combine to convey some general view of life, it’s not education at all.”

The existence of such background philosophies behind various modes of thought in social and behavioural science is both recognized and discussed by various scholars of the field (e.g.: Sloan 1997). Accounts of the variety of world-views represented in the spectrum of philosophical history are plenteous. For instance, Cooney et al. (1993) make a good job in citing “the greatest educational theorists from across the centuries and around the world”.

However, these historical philosophical views, particularly those concerning the reality and evolution of human society, are so varied that they appear almost incompatible. This is apparent in the history of general philosophy and the philosophy of science. Aristotle, for instance, was a champion of the civic society: he regarded politics as the completion and almost a verification of ethics; he considered humans as naturally social beings whose possession of rational speech (logos) in itself leads to social union; he saw the state as a development from the family through the village community, an offshoot of the family. Thomas Hobbes, on the other hand, advanced the idea of instrumental individualism: a mechanistic view of life being simply the motions of the organism and man being by nature a selfishly individualistic animal necessarily in perpetual war with all other men. In the same vein, albeit more moderately and systematically, Adam Smith described an individualistic nature for society as a system: he outlined the public benefits resulting from self-interested behaviour of individuals who realize the selfish benefit of being useful in the society. Later, Karl Marx delved into the complexities of conflict theory: the history of society was seen solely as the history of class struggle, leading eventually to a classless society after the final struggle between the bourgeoisie and the proletariat. Émile Durkheim, on his part, moved on to a consensus theory: while maintaining a serious scientific critique of religion, he proposed that almost all great social institutions were born of religion

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and that the idea of society is in the core of religion. (See: Campbell 1981.)

The plethora of views, while seemingly overwhelming at first, does appear to represent a pattern of philosophical evolution. Therefore, as a backdrop for our attempt, it is necessary to examine briefly the evolution of philosophical conceptions of human reality — in the field of social science, in general, and of behavioural and educational science, in particular.

Thus, we shall start with a brief account of sociology — the father of human sciences (see: Merton 1949; Nisbet 1966; Sorokin 1928; see also: Abraham 1973; Goldthorpe 1974; G. D. Mitchell 1968). Although not emerging as an independent discipline until relatively recently, sociology has its roots deep in the history of Western thinkers, the thoughts and works of those political theorists and philosophers who treated the issues of society and politics in a broad philosophical context without actually being sociologists (e.g. Plato, Machiavelli, Hobbes, Locke, Rousseau). Gradually, however, the sociological undertones of this process emerged. Some scholars (e.g. Adam Smith) explored the economic causes of social organization and change, while others (e.g. Adam Ferguson) delved into non-economic causes of social cohesion. It was, however, only in the nineteenth century that “society”, as a concept, ceased to be a synonym for “state”. It was then that sociology began to emerge as an independent field of study. Auguste Comte, who actually coined the word “sociology”, analysed aspects of cultural, political, and economic life, seeking to identify the unifying principles behind social reality and evolution. Later Karl Marx emphasized the notion of class struggle in the evolution of society and theorized on the economic and material basis of social organization. Further on, Herbert Spencer applied the Darwinian principles of evolution to the development of human society. Perhaps it is Émile Durkheim and Max Weber who can be considered the ‘founding fathers’ of modern sociology. Durkheim was a pioneer in the field of empirical and statistical study of society, while Weber was a theorist whose generalizations on social evolution and organization, belief systems and religion, social coherence and action are still influential. During the twentieth century, sociological theory has evolved in three major directions: conflict theory (e.g. Ralf Dahrendorf and C. Wright Mills), structural-functional theory (e.g. Talcott Parsons and Robert

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Merton), and symbolic interaction theory (e.g. George H. Mead and Herbert Blumer).

It was in the context of sociological thought that behavioural and educational philosophy found a fertile ground to grow. Many of these sprout from a Hegelian background. Georg Wilhelm Hegel (e.g.: 1953 [circa 1820]; 1967 [1821]; 1977a [1802]; 1977b [1807]), with his teleological view of history, certainly believed in the universality of ethical principles and the power of education to produce a just society and morally upright citizens. The influential figures, referred to in Section 1.4., who effected serious changes in the annals of their nations and peoples, drew inspiration from a Hegelian philosophy. For instance, many philosophers and educational reformers in nineteenth century Finland, such as Johan V. Snellman (1806-1881), belong to this tradition (see: Päivänsalo 1971). Thus, there is tradition of educational philosophy that both emphasizes universals of education and points out its role as an agent of change. In many countries, the present paradigm of education (both as a field of science and as socio-political practice) is largely based on the results of the influence exercised by this tradition.

Despite the universalist and proactive nature of the nineteenth century educational reforms, it needs to be pointed out that they all had a strongly nationalistic undertone and can therefore be viewed as a response to the newly arisen patriotic sentiments of that era. It was the consolidation of national identity and the harnessing of educational means to its service that, in many countries, was conducive to the emergence of literacy and general learning among the masses of the populace. Within a relatively brief period of time (virtually overnight, in the historical scale of things), these new educational systems grew into firmly established institutions of society and their dynamic and goal-oriented character began to mellow down into the routines of socio-political practice. Due to rapid changes in the world paradigm, by mid twentieth century, these educational systems could no longer be reasonably ascribed as progressive: in the face of the accelerating global interdependence and growing international and intercultural influence from outside, these nationalized systems of education began to show signs of aging and inability to cope with these increasing challenges. They became entangled with an ongoing process of being amended and reformed, rapidly and incoherently, on the basis of

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reactionary considerations and *ad hoc* solutions. This process still goes on.

As a result of this process of reactive reform, the original justification and rationale of the universalist and proactive tradition harnessed back in the nineteenth century seem, now, to have expired. The rhetoric of that tradition are no longer kept aloft, nor is its idealism, after so much doctoring and patching, any longer really recognizable in the present practice of education. As pointed out in Section 2.3.5., this is not due to the impracticability of those ideals — indeed, they *were* achieved and the society *did* change in their direction; it is rather due to the fact that these ideals have simply grown *insufficient* as humanity's experience has expanded and embraces now an additional global dimension.

In any case, few attempts to such universalism and proactiveness have been made after the lapse of the nineteenth century collective idealism. Those attempts that have been made have failed to produce a collective resonance and a general response on the part of the majority of the scholars. It must, moreover, be remembered that it is not only the development of the field of education that can be described in the aforementioned manner. Indeed, social fabric as a whole has undergone such a transformation. This is reflected in the entire breadth of social and behavioural philosophy and is seen in their present atomistic assortment.

Today, schools of philosophical thought represent a spectrum of very different, often conflicting, world-views and perspectives on human reality. These schools of thought are rooted in the various traditions of the twentieth century. The behaviourism of Skinner (e.g.: 1953) and Pavlov (e.g.: 1927), the needs hierarchy of Maslow (e.g.: 1954; 1968), the pragmatism and learner-centred approach of Dewey (e.g.: 1916; 1920; 1963 [1938]), and the social constructivism of Vygotsky (e.g.: 1962; 1978) as well as cognitive constructivism of Piaget (e.g.: 1970a; 1970b; 1975) come readily to mind. While many of these may seem far apart, they have some logical connection that can be traced along their chronological time-line — a process of philosophical evolution, if you like. How do these varied approaches represent “a process of philosophical evolution”? Here is my interpretation of the story.

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We start by *positivism* — the scientific approach demanding that any view that is adopted must be based on ‘positive knowledge’, on empirically verifiable facts. Thus, positivism regards metaphysical questions as unanswerable and, therefore, irrelevant. Whilst Francis Bacon, George Berkeley, and David Hume implicitly advanced the tenets of positivism, it was Auguste Comte who developed the coherent doctrine. *Logical positivism*, which began in the early twentieth century, is often considered a direct outgrowth of nineteenth century positivism, attempting to apply the precision of mathematics and the natural sciences into the field of philosophy and human sciences. The movement derived from the so-called “Vienna Circle” with Ludvig Wittgenstein’s (1988 [1922]) *Tractatus Logico Philosophicus* as one of its doctrinal core elements. Wittgenstein argued that the object of philosophy was the logical clarification of thought — philosophy was activity, not theory. More generally, logical positivists held that metaphysical propositions are devoid of significance, and moral or value statements are irrelevant, for psychology. They took to its logical conclusion the correspondence principle: a theoretical statement has meaning *only* if it can be expressed through (or reduced to) some observation statements; these, in turn, can be verified only by direct observations. While the influence of the movement (as a movement) ended around 1940, its conceptual effects are still felt in the field of present-day philosophy and human sciences. (See: Ayer 1959; Bryant 1985; Kolakowski 1968; 1972.)

We then arrive at *behaviourism*. While a distinct philosophical construct, behaviourism can be considered the ‘offspring of positivism’ in that it seeks to gain knowledge about behaviour based squarely on measurable phenomena. Where positivism was satisfied with demanding empirical measurability as a basis of knowledge, behaviourism went one step further and claimed that such empiricism is intrinsic to human reality, i.e. measurable facts are *all* there is to human reality, or at least human behaviour (cf. nominalism). Behaviourism, thus, explains human (and animal) behaviour entirely in terms of observable and measurable responses to environmental stimuli. Introduced in 1913 by John B. Watson, the behaviourist school of psychology rejected the exploration of mental processes as unscientific and maintained that all but a few emotions were conditioned by habit. Its most extreme interpretations now having receded and a vast number of critical counter-movements having appeared and been established since its conception, the behaviourist view on human reality still holds a strong

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influence on behavioural and educational sciences today — if not directly, at least indirectly. (See: Skinner 1953; Watson 1930.)

With the materialist-naturalist approach established by the behaviourist school, the stage was set for Dewey's (e.g.: 1916; 1920; 1963 [1938]) *instrumentalism* and *pragmatism* — an approach drawing on a utilitarian and pragmatic philosophy. Instrumentalism holds the various forms of human activity to be instruments devised by humans to solve complex individual and social problems. Truth, instrumentalists insist, has no transcendental or eternal reality and emerges almost exclusively from experience.

Latest by the mid twentieth century the prevailing line of reeducationistic, analytical psychological thought had managed to provoke the counter effect of *cognitive psychology*. Cognitive psychology sought to go back to the essentials of examining internal mental processes such as problem solving, memory and language. It insisted that psychological phenomena could not be properly understood simply by merely identifying and analysing their elementary parts, and maintained that, in psychology, the whole is different from and more than the sum of the parts. The interest of cognitive psychologists is in how problems are understood, diagnosed, and solved — the focus is on the mental processes that mediate between stimulus and response. Cognitive theory involves algorithms and heuristics as well as insight in these mental processes. Thus, cognitive psychology has been instrumental in examining artificial intelligence in computers and its capability of problem solving. (See: Pick et al. 1992; Sanford 1985; see also: Köhler 1969; Wertheimer 1959.)

The step from behaviourism to instrumentalism was logically a short and natural one. The counter reaction of cognitive psychology broke that one-track development and, while not dispensing with its useful methods, broadened the basis of behavioural science. This paved the way for the emergence of *constructivism*, which, while not a new idea (during the 1930s and 1940s it was a leading perspective in American educational circles), has been building up and growing out of cognitive and development psychology, particularly since the 1980s. The key notion in the constructivist theory is that learning is at its best when the learner is actively constructing his or her understanding. This learning paradigm involves the belief that (a) knowledge is constructed through

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a process of reflective abstraction, (b) cognitive structures within the learner facilitate the process of learning, (c) the cognitive structures in the learner are in a process of constant development, and (d) if the notion of constructivist learning is accepted, then the methods of learning and pedagogy must agree. The constructivist theory, moreover, falls within two schools: *cognitive constructivism* and *social constructivism*. The former draws on the development psychology of Jean Piaget (e.g.: 1970a; 1975) dating back to the 1920s. The latter has its roots in Lev Vygotsky's (e.g.: 1962; 1978) groundbreaking work that began in the 1930s. Cognitive constructivism focusses on the developmental phases of a child as it grows and matures until the ability for logical reasoning is achieved. Social constructivism (which is more often associated with the constructivist theory) emphasizes the influence and instrumentality of cultural and social contexts in the learning process.

How does the emergence of these schools of thought represent an “evolution of philosophical conceptions of human reality”, as stated earlier? The main delineating factor would be that this emergence is the outcome of a consistent tendency to take distance from the dogmatic religious views of the past — an attempt to find rational and coherent explanations for human behaviour and learning. Brent Wilson (1997) describes this within the broader context of the evolution of world-views. He notes that while in former times people believed that only the Divine can give us knowledge of the ‘real world’, the Renaissance brought the scientific method to the centre of investigation for knowledge and made it *the* means for uncovering ‘the truth’; he maintains that the modern view trusts science to expose ‘the world’, but the ideal view of truth, as an objective reality, is now practically rejected by the postmodernist and is replaced with a concept of truth which is bound to context and perspective and is therefore relative and dynamic. He sees the history of epistemology as a process from static and passive conception of knowledge to an adaptive and active one. This trend is clearly visible in the evolution of the schools of thought in the philosophy of social and behavioural science. Another feature that denotes the emergence of social and behavioural schools of thought as a “philosophical evolution” is that it shows a process where the scientific *method* gradually becomes accepted as a basis for *ontology and epistemology*. This is a central notion in our discussion and we shall return to it in Section 3.1.3.

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In addition to the actual schools of thought within social and behavioural science that have highly influenced educational philosophy there are, of course, general modernist and postmodernist schools of philosophy that work in the background.

Influential among postmodernist philosophies is *phenomenology*, initiated by Edmund Husserl (e.g.: 1981 [1913]; see also: Farber 1982 [1943]). He sought to construct a universal philosophical approach that had no presuppositions, focussing purely on phenomena and describing them. This reductionist approach insists that anything that is not immediately received by the consciousness has to be discarded. The method is neither the deductive method of logic nor the empirical method of science — it seeks to realise only the immediate object, the phenomenon, and to grasp its ideal meaning through an instant act of intuition or vision. Phenomenology can be characterized as a method of inquiry that describes phenomena through human experience. It emphasizes the problem of accessing the external world beyond our perceptions. While not necessarily denying the existence of that world, phenomenology postpones its discussion in favour of an almost exclusive focus on human experiences. Here “life world” (or “*lebenswelt*”, in German), becomes *the* central concept: a person’s inner world, that final frontier, the unexplored land that needs to be conquered, mapped and farmed (cf.: Sawicki 2001).

The emergence of phenomenology interacted also with twentieth century developments of *hermeneutics*. While a rather old school of thought concerned with the theory and practice of interpretation and biblical criticism, hermeneutics found new dimensions beginning from the opening year of the twentieth century. Originally, it was theologian Friedrich Schleiermacher (1768-1834) who focussed the hermeneutic thought on the necessary conditions for coming to an understanding of a text; already Schleiermacher started viewing many social activities — notably education — as hermeneutic processes (e.g.: Schleiermacher 1958 [1799]; 1973 [circa 1790-1830]; 1998 [circa 1790-1830]). It was, however Wilhelm Dilthey (1833-1911) who formulated the unique methods of hermeneutics, as apart from the methods of natural sciences, based on the conception that all human sciences should be viewed as hermeneutic undertakings (e.g.: Dilthey 1989 [1833]). Later the German philosopher, Martin Heidegger (1889-1976), who was first impressed by the phenomenology of Husserl and was also strongly

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influenced by the work of Søren Kierkegaard, developed the field towards a more existentialist outlook, to the extent that he is considered by some as the founder of that school of thought (although he, himself, rejected this association as well as Husserl's phenomenology). He focussed on the problem of being and its temporality; he had a deep concern for various aspects of human existence, particularly as related to the anguish of modern society and the individual's dilemma of his own temporality (e.g.: Heidegger 1962 [1927]; see also: Heidegger 1997 [1929]; 2000 [1959]). During the twentieth century, the field of hermeneutics has been developed further within the 'German tradition', with Hans-Georg Gadamer (1900-2002) in the forefront (e.g.: Gaddamer 1976; 1998 [1960]).

The influence of phenomenology and hermeneutics extended throughout Europe and had a particularly central role in the emergence of *existentialism*. The history of existentialism certainly dates back to the time before phenomenology. It was Søren Kierkegaard (1813-1855), arguably the father of existentialism, who elevated the virtue of what he called the "radical trust of faith" to such heights that he considered a subjective truth, attained with sincerity and intensity of the commitment, as the highest attainment of human understanding (e.g.: Kierkegaard 1939 [1851]; 1962 [1847]; 1966 [1841]). This paved the way for the idea of reality being *ontologically* subjective — that subjectivity is *the* relevant reality for human existence. Later Karl Jaspers (1883-1969) developed further the existentialist philosophical thinking (e.g.: Jaspers 1951 [1931]; 1955; 1967).

However, the culmination of existentialism took place after the establishment of phenomenological thought. It was Jean-Paul Sartre (1905-1980), strongly inspired by the work of Heidegger and, himself, the chief exponent of existentialism in modern times, who insisted that all values are within humankind, that nature exhibits no evidence of good and evil, and therefore, science cannot give us any notion of what we *should* do, only what we *can* do. As Sartre (1957, pp. 21-22) himself puts it: "Nowhere is it written that the Good exists, that we must be honest, that we must not lie; because the fact is that we are on a plane where there are only men. Dostoyevsky said that if God did not exist, everything would be possible. That is the very starting point of existentialism. Indeed, everything is permissible if God does not exist, and as a result man is forlorn, because neither within him nor without

does he find anything to cling to.” Thus, Sartre maintained that there is nothing to guide us in our decisions; human beings must acknowledge this as a fact and, instead of accepting the values of the surrounding culture and escaping from the responsibility of choosing, should create their own values out of nothing, *ex nihilo*. Sartre (1943, p. 90) summarizes the effects of this view as follows: “The being of human reality is suffering because it rises in the being as perpetually haunted by a totality which it is, without being able to be it ... Human reality therefore is by nature an unhappy consciousness with no possibility of surpassing its unhappy state.” The logical conclusion, as Cumming (1965, p. 363) puts it, is: “All human activities are equivalent and all are on the principle doomed to failure. Thus it amounts to the same thing whether one gets drunk alone or is a leader of nations.”

The foregoing passages have been a visitation upon the philosophy of social and behavioural sciences. This account, while sketchy, has demonstrated the patchy nature of prevailing Western world-views that are now becoming increasingly dominant also globally. Their pervasive, and often subconscious, influence on common views and understanding has a tremendous effect on people’s general outlook on society, life and the future. Academic scholars, their world-view and paradigms, their presumptions and ideas, are not exempt from this influence — hence, the incoherent foundation of human sciences.

### 3.1.3. *INCOMPATIBILITIES IN THEORIES OF HUMAN REALITY*

The foregoing discussion has shown that virtually all schools of thought in the history of human sciences and philosophy have indeed focussed on human universals. It is the conflicting approaches and paradoxical methods of these schools of thought in addressing these universals, and the human reality as a whole, that is at stake. In our attempt to understand existing conceptions of human reality, we have thus come to a point where the lack of coherence, the incompatibilities, in these conceptions can be both recognized and addressed. Just what are some of these incompatibilities?

In the previous section, we mentioned that the evolution of social and behavioural thought exhibited a process where scientific *method* transmuted into a basis for *ontology* and *epistemology*. Positivism, which

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was originally and primarily a *method* for assessing knowledge, gave vent to behaviourism and cognitive psychology, which took the demand for empirically verifiable knowledge to be identical with the claim that *all* knowledge *is* empirically verifiable and that there could be no other kind of knowledge — at least, not meaningful or relevant knowledge. From here, it was only a small step to asserting that reality is purely material, pure empiricism. This view then lent itself to the ontological view on human reality. Thus, the *method* had transmuted into a *perspective on human reality*, i.e. it had become a postulation at the core of human sciences. In other words, “methodological naturalism” was confused with “metaphysical naturalism” and requirements of method were taken as requirements of ontology. In the words of Norman Lillegard (2001):

“Important parts of biology might be Augustinian, as for example when it is claimed that a common genetic code must strongly confirm the theory of common ancestry. Most of physics on the other hand appears to be Duhemian. The French physicist Duhem was a methodological naturalist, but not a metaphysical one. So, it might be argued, parts of science may need to be methodologically naturalistic, but none need be metaphysically naturalistic. And when various kinds of Augustinian science arise, they can be challenged from outside science on philosophical or other grounds. It is arguable that the social sciences are more often than not, Augustinian.”

In *positivism*, the view that metaphysical questions are unanswerable and, thus, irrelevant — while not logically necessitating a purely materialistic view — poses an immediate reductionist limitation on viewing human reality. Coupled with the demand of Wittgensteinian *logical positivism*, that abstract speculation is nonsensical and that moral values are purely emotive, this would add up to considering human reality — including mind and thought, value and morals — as essentially material. This argument was taken further by the logical offspring of positivism, *behaviourism*, which further insisted that only measurable facts are true elements of human reality and explained behaviour in terms of measurable response stimuli. The *instrumentalist* and *pragmatist* school of thought put less emphasis on reductionist ontologies *per se*; yet, its utilitarian philosophy did underline an almost purely experiential nature to human reality.

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The counteraction produced by *cognitive psychology* painted a view of humanity as something essentially more than the sum of its immediately observable elements. It focussed on psychological phenomena such as problem solving or memory or language, ascribing something essentially more complex inherent within the human 'organism' and making the relationship between stimulus and response less straightforward. While principally materialistic in its approach, cognitive psychology thus leaves the door open for a variety of views on human reality by understanding its complexity. *Constructivism*, on the other hand, made use of this understanding of complexity by introducing the idea of constructing knowledge through reflective abstraction.

From the foregoing two paragraphs, it can be gathered that positivism and behaviourism are articulately and insistently reductionistic or materialistic in their view of human reality. Cognitive psychology and constructivism, on the other hand, exhibit increasing vagueness and indifference and, finally, silence about their conception of human ontology. Instrumentalism and pragmatism seem to fall somewhere in the 'grey area' between these two standpoints. This would indicate that as we advance towards more recent times *the focus on human universals becomes gradually more ambiguous and marginalised in behavioural and educational sciences*. The reluctance to address such universals, as outlined in Section 2.1., becomes a characteristic feature in human sciences, until these universals become a mere curiosity for abstract minds, a philosophical sidetrack with little relevance to 'real' research. However, since all work in human sciences postulates some view of human reality, whether explicitly or implicitly, the perspectives on human reality entertained by human scientists become increasingly tacit and even subconscious.

Apart from particular schools of thought in human sciences, the influence of general modernist and postmodernist philosophies on world-view must also be considered, as suggested in the previous section. Here, the existentialism of Jean-Paul Sartre stands in its own right. In examining Sartre's views one faces a dilemma. On the one hand, much of what he asserts makes a lot of sense: indeed, nature *does* appear to exhibit no evidence of good and evil; science *is* apparently incapable of giving any notion of values and moral, of what we should do; we *have* an inescapable freedom of choice concerning our beliefs,

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values, and actions; one *should* take personal responsibility of the values and moral one adopts. On the other hand, he seems to jump to conclusions that are in no way necessarily derivable from those basic observations: Why insist that we have no essential reality at all? Why must we create our world-view out of complete personal emptiness? Why to claim that there is nothing to guide us in our decisions? Why to argue that learning from those around us would automatically be an escape from responsibility?

It is these latter conclusions that logically lead to Sartre's cynical view of human life as an "unhappy consciousness" in which the only thing one can be certain of is the anxiety brought by the ultimate uncertainty of all things. However, it is also these very conclusions that are not logically coherent (of course, coherence is precisely what Sartre believed to be lacking from reality, but then, all discussion would be futile anyway). If "everything is permissible", as Sartre (1957, p-21) puts it, and "man is forlorn, because neither within him nor without does he find anything to cling to", then why talk about responsibility? What is the point in being "responsible" in one's decisions, if our choices make no difference in relation to reality? Is not the demand of "responsibility" a value judgement in itself? Is the experience of countless societies during millennia to be dismissed as pointless struggle against the vanity of human life? Is the purposeful life-attitude expressed and exercised by the overwhelming majority of humankind to be discarded merely on the justification of the historical traumas and pathological frustrations of a small but overwhelming section of humankind, the Western minority (cf.: P. Izadi 1996)?

Of course, one could argue that Sartre represents only the extreme of existentialism and that other schools within that philosophy would imply less drastic and more optimistic approaches. Be that as it may, Sartre has managed to take the argument to its logical conclusion, and therefore, if one is faithful to the basic tenets of existentialism, one should concur with Sartre's conclusions. The prolific effect of his philosophy is, perhaps, subtle but it is no less influential: while many would not agree with the totality of his ideas, an existentialist outlook is among the most ingrained influences at work within present-day Western mentality. (See: Stevenson 1974.)

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The foregoing incompatibilities, discrepancies, vagueness, and uncertainty have brought the evolution of human sciences to a point where universal ontological premises, very understandably, are avoided to the last. If not openly dismissed as irrelevant and nonsensical, they are unconsciously avoided and intuitively regarded as useless philosophy or metaphysical abstractions. Whether representing behaviourism, cognitive psychology, constructivism, phenomenology, hermeneutics, existentialism — or simply ‘humanism’ — there are very few scholars within pedagogical science, and indeed within most human sciences, that would agree on one or the other ontological premise regarding human nature. Consequently, most research in education is essentially descriptive, and of the smaller number of non-descriptive studies, only very few deal with *universal* concepts. This is to say that pedagogical research is mainly concerned with surveying educational situations, cases, models, or specific phenomena — not developing the *theory of education* as a whole.

#### 3.1.4. THE RECEIVED CONCEPTION ON HUMAN REALITY

Campbell (1981, pp. 3-4) observes the incoherence of human sciences as follows: “In our own day the nature of society is a problem to which an entire science, that of sociology, addresses itself, but it is an issue which spills over into all the social sciences, including history, and is inseparable from some of the major concerns of philosophy. There is therefore a multiplicity of different and rather uncoordinated sources to look to for leads into the understanding of social life. But, this saturation of attention has not produced an established theory of society. For all the wealth of accumulated data concerning particular societies in different periods and cultures there are still radical disagreements about which sort of social phenomena are fundamental relationships.”

So, what are fundamental social relationships? What is the view on human reality received through the totality of social and behavioural philosophy? Are we a *tabula rasa*, a la Locke; do we have an inherent moral potential, a la Plato; are we a mere extension of biological evolution, a materialistic response system, a la Skinner; or just a patchy and incoherent conglomeration containing all and none of these descriptions, an “unhappy consciousness”, a la Sartre? The concept of

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human reality is *the* fundamental universal at the core of any human science. Therefore, these questions return us to the discussion of the three ontological stances on universals discussed in Section 1.2., namely *realism* (that universals are objectively real and that their ontology is independent of our epistemological knowledge of them), *nominalism* (that universals are real only as ‘names’ or ‘titles’ assigned to our linguistic objects), and *conceptualism* (that universals belong to a mental or psychological domain and are “mental devices” that produce descriptions or definitions of a given domain of reality).

Human reality is either purely material, or it has some immaterial or abstract aspect. The fact that we have a consciousness of self and that we think — *cogito, ergo sum* — suggests the latter. A naturalist interpretation would be inclined towards the nominalist view — explaining consciousness as an epiphenomenon of chemical activities in the brain, as an illusion of some sort. Modern constructivism would probably find a conceptualist notion more convenient — ascribing human consciousness to a psychological domain. The former, while highly limited in its concept, is at least internally coherent. The latter, however, leaves the actual question unanswered: ascribing human consciousness to a psychological domain does not solve the nature of its ontology, because that “psychological domain” is just another name for our consciousness. Both of these interpretations would certainly justify Sartre’s cynical view of human consciousness. The realist view, on the other hand, appears to evoke very little response from among human scientists. The realist view — that human consciousness would, indeed, have an independent reality beyond the purely physical and biological domain — seems to resonate too closely with the concepts of ‘soul’ or ‘spirit’ and, therefore, recall the rather justified apprehensions that human scientists entertain against metaphysical and theological hair-splitting.

It must be noted, moreover, that the scholars of the field seldom consciously identify their thinking or their schools of thought with one or the other of the three ontological stances. The above description seeks to show that their views on human reality, nonetheless, do fall within the general scope of these ontologies. This means that *the received conception of human sciences concerning human reality is inclined towards nominalism and conceptualism, and avoids realism*. The very fact that this usually takes place unconsciously stands at the core of our discussion —

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that scholars in the field of social and behavioural science, and particularly educational science, are often unaware of the assumptions they make about human reality. It is this feature that resulted from taking methodological requirements for ontological premises, confusing “methodological naturalism” with “metaphysical naturalism”, as mentioned in the previous section.

Most concepts in social theory arise from situational or historical (i.e. non-universal, changing) observations and, consequently, they seek no law-of-nature type generalist principles — i.e. they do not describe reality in *general* but in *particular*. In the overwhelming majority of humanistic research and philosophy today, the overall assumptions concerning the human or social reality arise on an *ad hoc* or case-by-case basis per each study. Even then, these assumptions are seldom articulated but are often implied only indirectly. Thus, the ontological foundation of human sciences is still far from being established.

As a result of this situation, the systematic study of human and educational universals is at the level of “reductionistic discourse”, as indicated in the title of this work. The effect is that human sciences are incapable of taking a stand on the *goals and contents* of education, of society, and of human life; that is left to politics. This would be justified if, factually, there were no scientifically explorable criteria for goals and contents — i.e. if the nominalist or conceptualist views are true and the realist view incorrect. That, however, is a claim that is not based on systematic study but on historical coincidence. The realist view has never been given a proper chance to be thoroughly and dispassionately studied. Is human consciousness, indeed, just an epiphenomenon of chemical activity in the brain; is human society, really, a mere extension of animal herd behaviour? The civilizational outcomes of human consciousness, the overwhelming abundance of the immaterial culture of human civilization throughout ages and in all regions of the world provide rather massive empirical evidence not to be dismissed as mere side-effects of biological activity. In fact, to rationalize about human reality and write treatises about human consciousness, and simultaneously limit its definition as mere electrochemical processes, is a logical paradox. Peter Russell (1983, p. 55) nicely describes this paradox in his physicist’s mind:

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“The reductionist approach argues that consciousness can be explained in terms of neural events in the brain, and life, in terms of organic chemistry. Taken to its logical conclusion, this argument ends up in a trap of its own making. Consciousness, it is said, is ‘nothing but’ the cumulative effect of a complex interwoven web of 10 billion nerve cells. A nerve cell is nothing but a huge conglomeration of macromolecules; a macromolecule is nothing but a few million atoms strung together; and an atom is nothing but a nucleus surrounded by a cloud of spinning electrons, which in turn are nothing but eigenvalues in a probability function called the wave equation. What is ‘an eigenvalue in a probability function called the wave equation’? Nothing but a model created by the conscious processes of the human mind to give meaning to certain experimental results in physics. The argument has come a full circle, for is not the human mind and its many faculties, including creativity and a sense of meaning, nothing but the workings of a few billion brain cells?”

The issue on human reality cannot be indefinitely avoided by social and behavioural sciences — it is too fundamental. If the standpoint on human reality is not properly addressed and if some unified understanding on its fundamental quality is not reached, human sciences will find it hard to demonstrate their credibility and become recognized as ‘true sciences’. Lillegard (2001) asserts: “... the principles of folk psychology seem to be irreducibly teleological and mentalistic. So, it is understandable that those who want to pursue a ‘science of human beings’ would suggest giving up those principles completely, and looking for new, genuinely causal principles. ... It looks then as though social scientists may be facing the following dilemma: either give up the claim that the social sciences are sciences, *or* give up folk psychology. ... The inability to think of nature as simply matter, as ‘physical’ in a modern sense, and the tendency to import into nature irrelevant ‘purposes and goals’ such as only minds of some sort can have, was precisely what precluded the development of genuine science in the ancient world (or so the story goes). The ancients saw mind, or something mind-like, operating everywhere. Moderns would like to see it operating nowhere. So you can see that intentionality (i.e. believing, thinking etc.) needs to be excluded from science as we understand it in the modern era.” It is this pursuance of non-universality that has led to the dichotomy between reductionism vs. holism and made them almost synonyms for ‘scientific’ vs. ‘religious’ (or systematic and critical vs. vague and uncritical).

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### 3.2. ATTEMPTING TO BREAK NEW THEORETICAL GROUNDS

This section begins our venture to actually address human universals as a credible basis for the science of education. We shall first touch upon the fact that holistic discussions of universals *do* exist in the field of educational philosophy. Then, we will entertain some epistemic reflections on the nature of scientific belief and discuss the conceptualization of universals. General Systems Theory is then harnessed, and applied to the study of educational universals, facilitating our conceptualization and definition of certain key-concepts.

#### 3.2.1. *EFFORTS OF EDUCATIONAL PHILOSOPHY ON HOLISM AND UNIVERSALS*

In Section 1.3., it was admitted that, along the history of the philosophy of education, there have been numbers of scholars that have explored, and are exploring, the fundamental questions of human reality and its education. Such works can be found both in the domain of theory and application.

Foremost among such scholars are the foundational philosophers of education, including such prominent philosophers as Jean-Jaques Rousseau (1712-1778), Immanuel Kant (1724-1804), Johann Gottlieb Fichte (1762-1814), Friedrich Schleiermacher (1768-1834), Georg Wilhelm Hegel (1770-1831), and Johann Friedrich Herbart (1776-1841). Their work represents a plethora of in-depth thinking that relates to a variety of philosophical and social issues — not only education. Their heritage does not sum up and *converge* into any generally accepted view of education, much less human reality. They are not seen as protagonists of an holistic theory of education or society or human reality (although some of them did pursue such aspirations). To the extent these authors are studied and referred to, they are treated as historical cases of educational theory — i.e. their work is not considered to formulate the accepted postulation of educational theory, as a whole, to which the science of education should axiomatically relate itself.

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Yet, the influence of these prolific thinkers is undeniable. While it does not boil down to generalistic universals — approximations of human education — their work represents certain universal underpinnings. In fact, it would not be incorrect to maintain that their thinking addresses education as a fundamental, perhaps *the* fundamental, humanizing process that is reflected in the entire spectrum of human activity — a process that works both within the individual and in the society, a basic human function. Most of the significant works of these thinkers touch upon this issue of the influence of education, or education as a social force — at times tacitly but, mostly, quite directly (e.g.: Rousseau 1911 [1753]; 1950 [1762]; Kant 1975 [1800]; 1985 [1786]; Fichte 1982 [1794]; 1987 [1800]; Schleiermacher; 1958 [1799]; 1973 [circa 1790-1830]; 1998 [circa 1790-1830]; Hegel 1953 [circa 1820]; 1967 [1821]; 1977a [1802]; 1977b [1807]; Herbart 1897 [circa 1800-1840]).

What is important in all these instances is that these foundational theorists did not view education merely as a reproductive mechanism that transfers to the future the achievements of the past; they also considered education to be a *proactive* force that could be used as a means for reaching for future transformations. As pointed out in Section 1.4., protagonists of education unleashed the idea, beginning from the Enlightenment and culminating in the nineteenth century, that a radical transformation in the society was possible and that certain idealistic goals can be systematically pursued and attained through harnessing the power of education. Finally, they *did* usher in tangible changes in the fabric of society — changes the effect of which are still felt.

Such education-driven transformations have all been targeted to the flourishing of national identity and the prosperity of a national civilisation; this process of transformation has been an element of the evolution of almost every country where national integrity has been consolidated and the citizens' national identity thrives. Such educational processes started in the nineteenth century, mostly in Western countries, and spread to other parts of the world latest by mid twentieth century. I consider such processes as “efforts of educational philosophy on holism and universals”, because the ideals propagated by the foundational philosophers of education, while seemingly patchy on the level of articulation, have had some universal appeal to human reality

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and have struck a universal chord in human aspirations in that they found implementation and sustained practicability in the educational work of the protagonists of national awakening.

This process took place also in Finland, beginning from the mid nineteenth century up to the latter half of the twentieth century. Thinkers and philosophers of that period found it finally possible to address a Finnish identity and mentality for the whole nation — something that had not been earlier within the reach of the generality of the populace. Although arriving at no consensus, these educators of the nation addressed directly human universals (e.g.: Snellman 1863; 1898; Hollo 1952 [1927]; 1959 [1927]; Kaila 1938; Salomaa 1943; Ahlman 1953; Harva 1958; 1963). Given the influence of educational thinkers, on the one hand, and the variety of their work and the spectrum of schools of thought present there, on the other, a brief summary of the representatives of educational philosophy and theory during the past one-and-a-half century in this country may be appropriate here.

Perhaps, most prominent and best known among these philosophers was Johan V. Snellman (1806-1881) who, along with many of his contemporaries, had strong roots in the thinking of Hegel. Another influential Hegelian thinker in Finland was Axel A. Laurell (1801-1852), who still had some theological rooting in the former traditions of education. It was during the professorship of Zacharias J. Clevén (1820-1900) and Johan J. F. Perander (1838-1885) that the theological tradition had retreated in favour of the Hegelian thought. However, in Germany, a Herbartian school of thought had been gaining momentum; Waldemar Ruin (1857-1938) was, perhaps, the thinker who initiated the Finnish academia into this tradition. His apprentice and colleague, Mikael Soininen (1860-1924), actually established the Herbartian influence. In the decades preceding the Second World War, Zachris Castrén (1868-1938) was the main theorist and promoter of civic education; he viewed education, however, as mainly a pragmatic subject which only aimed at teaching to students the practical skills needed in working life, although he did emphasize also the importance of scientific thinking. Later, Juho A. Hollo (1885-1967) started a new strand; he refused to succumb to the widespread Herbartian notion of education and sought, instead, to understand the phenomenon of education by combining and harmonizing the various elements of both

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the speculative and empirical schools of thought. In the same vein, and perhaps more comprehensively, Eino Kaila's (1890-1958) work was characterized by an attempt to search for unifying and dynamic principles behind psychology, philosophy, and quantum mechanics. Jalmari E. Salomaa (1891-1960) was well versed in philosophy and psychology and was also an educationalist; he wrote on the general theory of education, but he is perhaps best known as a pioneer of IQ testing in Finland. Erik Ahlman (1892-1952), on the other hand, addressed the field of education through both practical and philosophical, even metaphysical, questions; he was convinced that a sound theoretical foundation was necessary for education, and he called for proper focus on values, ethics, and cultural philosophy in education. Among the educational philosophers who viewed education from a broad philosophical perspective was also Urpo Harva (1910-1994) who emphasized the role of civilizational advancement and philosophical thought in education and, thus, considered that the civilizing process was an integral part of the theory of education.

Also today, from time to time, there are efforts to address the issue of educational universals. For instance, contemporary researchers like Tapio Puolimatka (e.g.: 1989) and Pauli Siljander (e.g.: 2000; 2002) have been among the protagonist of in-depth discussions on educational universals. Moreover, recent works such as Göran Björk's (2001) and Jan Sjöberg's (2002) dissertations show that the discussion of philosophical problems of education is kept alive by individual researchers and looms in the background of the educational field. Moreover, from time to time, there have been attempts to put together some universalist explanation of human behaviour. For instance, Fishbein & Ajzen (1975) advance their idea of the causal relationship between beliefs, attitudes, intentions, and behaviour. It is an interesting theory in that, while it introduces *causality* into the workings of human reality, it manages to avoid *linearity* within that causality — i.e. its causality is ontological, not chronological, in nature. Yet, such attempts remain tributaries in the mainstream of behavioural research and have little influence on the overall development of educational theory.

While often falling within the boundaries of traditions of educational thought, the quest for universals has, in recent decades, broadened the perspective of educational research and paved the way for a richer and more holistic investigation into the phenomenon of

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education. Surprisingly, the outcomes are most visibly present in the domain of educational application. There, certain thinkers — such as Martin Buber (e.g.: 1967), Paulo Freire (e.g.: 1985), Jürgen Habermas (e.g.: 1976), Jack Mezirow (e.g.: 1991) and Peter Senge (e.g.: 1990) — have done pioneering work in addressing real educational needs while standing on a philosophical foundation. It seems that, where true developmental human needs have been addressed on the level of practice and application, their theoretical understanding, too, has been refurbished.

One of such instances is *action research*. According to Argyris et al. (1985, p. 36), an action researcher is an interventionist who seeks both to promote learning in the client system and to contribute to general knowledge. Although action research has many varieties and forms (see: Haft & Kordes, 1984), some guiding principles of action research can be identified (Argyris et al. 1985, pp. 8-9): (a) action research involves experiments on real issues in social systems; (b) action research involves iterative cycles of identifying a problem, planning, acting, and evaluating; (c) the intended change, typically, involves re-education; (d) action research challenges the *status quo* from a perspective of cooperative and consultative social values; and (e) action research is intended to contribute simultaneously to basic knowledge in social science and to social action in every-day-life. High standards of theory building are not to be sacrificed, nor is the relation to practice to be lost. Development is a factor of validity in action research (see: Grönfors 1982, p. 122): essential changes must be shown to have taken place and significant goals to have been achieved in order for any action research project to be declared valid. (See also: Elliot 1985, pp. 235-262; Baker 1984, pp. 89-90.)

Also other very similar and closely related trends in the field of education — such as *learning organization*, a term coined by Peter Senge (e.g.: 1990; Senge et al. 1994) — have appeared during the past few decades. Common to these trends seems to be an aspiration to reorient, by means of renewal of everyday practice, the community's social life (see: Foster 1976). They seek, through cooperative consultation, not aggressive opposition, to forcefully break down obsolete routines of various present-day communities (work, political, civic, etc.) and to utilize human diversity as an invaluable social resource, and to reveal personal and collective capacities dormant in those communities. They

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accept “interdependence as a cardinal value” and seek to “replace competitive with cooperative relations” (Trist 1976, pp. 235-236).

Thus, while these new modes of educational implementation seem pragmatic *in appearance*, they are, in fact, philosophical *in foundation*. They may, or may not, identify their philosophical basis with one or another school of thought, but they share a subtle, and as yet inarticulate, foundational undertone that somehow seems to address human reality directly and appeal to certain *universal* qualities in the essence of humanity. This observation is supported by the fact that there is abundant empirical evidence for the functionality of many of these new trends in the vast diversity of human culture and experience. For instance, both action research and learning organization, if implemented in a culturally sensitive manner, appear to be capable of highly successful operations in a variety of organizational, social and cultural setups worldwide — setups as far removed from each other as, for example, a small village in India vs. a large supranational corporation, or an international non-governmental organization for civic change vs. the political organization of municipal administration in a Scandinavian town. The fact that these approaches can successfully function in all these diverse contexts is indicative of their universal human relevance (see also Section 5.2.).

The abovementioned undertones are still subtle and tacit — they need to be studied and articulated. In fact, some scholars have begun to contemplate on the more philosophical aspect of these undertones while retaining the useful applicability of these approaches. For example, a recent study (see: Tuomi 2001) in Jyväskylä, Finland, is simultaneously a report of a development project through the action research method, on the one hand, and a discussion of the universal characteristics of human reality and its moral developmental needs in our present paradigm, on the other. Similar trends can be detected in other works as well (e.g.: Launonen 2000). What is important in these instances is, as Power (1982, 5-7) puts it, that “[f]ew educational philosophers are content merely to state their case and put trust in its inner logic and natural appeal for adoption”, and that educational philosophers would rather “want to be influential and to have their plans paid heed”. They, one and all, seem to agree that “left uneducated, men are ‘the most savage of earthly creatures’” (Power 1982, p. 6).

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Generally, it can be said that the majority (although not all) of the philosophical work that has been done in the direction of educational universals, during the past few decades, is based on the broad German tradition (which is well represented in Finland). This tradition addresses universals from a conceptualist point of departure and can be seen within the broader context of postmodernism. For instance, in phenomenology and hermeneutics there are a number of thinkers that have focussed on human and educational universals (e.g.: Uljens 1998; 2002). In the same vein, the popular and widespread pragmatism of Dewey (e.g.: 1963 [1938]) and constructivism of Vygotsky (e.g.: 1978) address human universals from a relativistic point of view. More broadly, the work of postmodernist philosophers, in fields not directly connected with education, relates back to the interests of the science of education. For instance, conceptualizations within the philosophy of mind (e.g.: Chalmers 1996) or the philosophical thoughts of Richard Rorty (e.g.: 1991) and John R. Sarle (e.g.: 1995) intercept educational thought with the universals of a postmodernist world-view. Very few scholars remain who address universals from a realist perspective (see e.g.: Puolimatka 1989; Niiniluoto 1999).

It seems that the twentieth century represents a paradox in the development of educational theory and philosophy in that, on the one hand, it witnessed the flourishing of a broad spectrum of schools of thought and, on the other, this abundance of views never conspired in favour of a general theory of education based on an holistic view of human reality. The only universal that seems to be endorsed by the majority of educationalists is the postmodernist and pragmatist notion that universalist approximations of human reality and education, while perhaps interesting, are neither attainable nor relevant (cf.: Uljens 2002). This may be attributed either to the possibility that this is indeed how things actually are, or to the fact that we are only at the beginning of the evolution of human sciences and, therefore, we have been unable to attain to properly relevant universals that would provide meaningful points of departure for our science. Thus, many earlier efforts on a realist view on human and educational universals appear (and *are*) naïve in that they are *primitive*; they are the first fumbling attempts to scientifically understand ourselves — an effort which must necessarily include, in the beginning, numerous incorrect or limited or twisted outcomes. However, given the relatively brief period (a couple of centuries, at best) that this process has been going on, *and* given the

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complexity and problematic nature of the task (after all, we are trying to understand ourselves, not just an external world), it would be unreasonable to give up the possibility of an holistic realist understanding of human reality, in general, and education, in particular. For the same reason, it would be indicative of justified humility to opt for the possibility that we have not, yet, exhausted the potential of studying the human universals from a realist point of view — and not to insist that such attempts are bound to be futile. As humankind is forced to increasing intermingling and applies the accumulating intercultural experience to its understanding of itself, our thoughts may mature so that more apt and universally plausible educational universals can emerge — if they are given a chance and are not dismissed out of hand.

### 3.2.2. *SCIENTIFIC BELIEF VS. DOGMATIC BELIEF: EPISTEMIC REFLECTIONS*

Let us now return to the term “scientific method” discussed in Section 1.4. This method of acquisition of knowledge is often referred to as only the *natural scientific* method and, as pointed out earlier, is easily mistaken for the positivistic approach. It must be remembered, however, that the main point was a call for *vision* as “a compass for scientific progress”, and vision with a “universal appeal to the human mind”. It claimed that in today’s paradigm of global transformation, the role of education as an “agent of change” and of the pedagogical science as a “holistic frame of reference” should not be underestimated; these, in turn, need to give due attention to the study of educational universals. On the other hand, the point of departure in our argumentation has been that such universals do not lend themselves to meaningful processes unless there are means to systematically and methodically study them.

This call for *vision and holism*, on the one hand, and *systematic and methodical means*, on the other, brings us to a problematic dichotomy. Today, the terms ‘reductionism’ and ‘holism’ are, unfortunately, often taken almost as synonyms for ‘scientific’ vs. ‘religious’, respectively — the former implying a systematic and critical acquisition of knowledge with the application of clear logical rules; the latter implying a vague and uncritical formation of doctrines with an authoritarian approach to

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knowledge. In our context, however, such an interpretation is far from the one intended. Indeed, almost the opposite is meant.

The dichotomy of scientific belief vs. dogmatic belief is, of course, a very old philosophical dilemma. It needs to be pointed out that it is not *religious faith* as such that is equated here with dogmatic belief — only the *dogmatic expressions* of religious faith can be thus characterized. In fact, all the great religions of the world have, at the time of their appearance, imparted new creative vision to the world, helping to emancipate people from the highly dogmatized and stagnant belief systems of their respective era and culture, opening the horizons of narrow-minded contemporary world-views, and reviving the intellectual lives of people. In fact, scientific belief (as defined below) can be found within the religious domain as much as dogmatic belief (as defined below) can be found in the academic domain.

To put it simply, by “dogmatic belief” (or, more provocatively, “dogmatic superstition”) we mean: (a) conviction in particular views without solid rational grounds and adequate factual justification, on the one hand, and (b) doctrinal belief in an incoherent and atomistic collection of tenets, on the other — in short: *unfounded and unconnected of beliefs*. Such beliefs, in fact, qualify as forms of blind faith or superstition in that they preclude the necessity of reason and justification as an essential element in the human belief system. Dogmatic belief is, therefore, prone to becoming an arbitrary set of atomistic doctrines.

Scientific knowledge is also a belief system. Its main difference with dogmatic belief, however, is that it is very careful in choosing its particular ‘tenets’ — using critical criteria, well-thought-out justifications and even attempting to falsify its own assumptions — i.e. the scientific belief system *tests* its claims before adopting them. Moreover, the scientific approach does not suffice itself with putting forward merely particular claims; rather, it seeks to *link* and *connect* the various ‘truths’ it has found, relate them to one another (itself a part of the testing process), and formulate them into *a coherent whole*. Therefore, scientific belief — i.e. adopted postulations, the patterns of scientific ‘doctrines’ — is not (or, at least, is not supposed to be) an arbitrary and atomistic list of statements.

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The problem of the justifiability of beliefs has been abundantly addressed by the exponents of philosophy of science. From the times of Socrates and Plato, to medieval Franciscans, to Renaissance and the Age of Enlightenment, all the way to present-day rationalism, such epistemic contemplations have been at the core of intellectual investigation and scientific knowledge. Perhaps one of the most zealous lines of such thought is, today, *critical rationalism*. The arguments of Karl Popper, for instance, come readily to mind with his exposition of falsifiability as *the* central criterion for any adopted theorem (illustrated by the following example: if there is a single white crow, then the statement “all crows are black” is false; or more precisely: while no amount of observation of black crows verifies the statement “all crows are black”, one authenticated observation of a white crow falsifies it). And for Popper, falsifiability is the hallmark of science (see: Popper 1992; see also: Palonen 1974).

The issue of falsifiability is highly applicable when we deal with stating generalizations on *empirically observable phenomenon* and is, therefore, central in the positivistic tradition of science. The whole conception of science presented above is conventionally considered as positivistic. Caution, however, is needed not to merge this concept of knowledge with the static and deterministic world-views and mechanistic approaches that often go along with the term “positivism”. Here, positivism simply means the pursuit of “positive knowledge” — i.e. knowledge that is *verifiable* (cf. Section 1.2.).

However, returning to our main concern, the issue of *universals*, we will notice that the justification of statements on universals is hardly straightforward, if the main criterion remains falsification, since the falsifiability of universals can be done only indirectly through the observable phenomenon derived from those universals, not the universals themselves. This will bring us back to our original topic of dogmatic vs. scientific belief: falsifiability gives a powerful tool to avoid dogmatic tenets and hold to scientific knowledge *when applied to empirically observable phenomena*, but it is of little immediate help *in postulating universals* — particularly if the realist view of universals is endorsed (see Section 1.2.). If, for the sake of argument, we pose that the realist position on universals *is* correct — that abstract objects (such as ‘largeness’ or ‘beauty’ or ‘justice’ or ‘consciousness’ or ‘meaning’) are real and exist in a realm independent of human thought — then their

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empirical study can take place only indirectly (if at all). It is, perhaps, this very fact that has prompted the dominance of the conceptualist view on universals.

Then, how to avoid dogmatic belief in assumed universals, and how to keep such postulation grounded on scientific foundations? To claim that this would be impossible and that such postulation is somehow intrinsically dogmatic or superstitious, is to maintain that *only* empirically verifiable objects are real, i.e. reality is purely materialistic. Avoiding dogmatism and superstition by confining knowledge to such nominalism would be tantamount to *giving up an open mind* — the very symptom produced by dogmatism and superstition that we seek to avoid.

This, however, need not be the case. Keeping an open and unbiased mind requires, in addition to methods of verification, an *holistic vision*. At the outset of this section “dogmatic belief” was defined as a “conviction in particular views without solid rational grounds and adequate factual justification” as well as a “doctrinal belief in an incoherent and atomistic collection of tenets”. This means that, if postulation on universals avoids these pitfalls and is not characterized by such features, it does not qualify as dogmatic belief. We sustained that “scientific knowledge”, on the other hand, “*tests* its claims before adopting them” and “seeks to *link* and *connect* the various ‘truths’ it has found ... and formulate them into *a coherent whole*”. This is precisely the definition of “holistic vision”. Is it not, we may ask, possible to study and postulate universals *without* falling prey to dogmatic belief and *with* keeping to scientific criteria!

During the past fifty years or so, this dichotomy of holistic vision vs. dogmatic belief has become a target of discussion in systemic approaches. It can be said that systemists argue that *science without holistic vision is dogmatic*; in other words, scientific belief demands holistic vision (e.g.: Bertalanffy et al. 1951). This point is clearly presented by Fritjoff Capra, who challenges the Cartesian view of the universe as a reductionistic and mechanical clockwork, and calls for an holistic approach to reality that sees *systemic interconnectedness* as the prime quality in creation (see: Capra 1983; 1985; Capra & Steenbergen 1985; Descartes 1970 [1629-1649]). This dilemma stems from an ongoing

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paradigm shift in our entire scientific world-view — a dilemma which Capra calls the “crisis of perception”.

This crisis of perception is what General Systems Theory seeks to address (see Sections 3.2.4. and 3.2.5.) and it is closely linked with the way universals are treated. It is the latest phase of the seemingly eternal dilemma of the justifiability of belief and the objectivity of knowledge, and a polemical challenge across all fields of sciences — not the least, the science of education. If there, indeed, *are* any educational universals, the science of education cannot rightfully *ignore* them and may have to consider their *philosophical feasibility* as bases for the paradigmatic postulation of the field.

### 3.2.3. THE SCIENTIFIC METHOD AND THE QUEST FOR UNIVERSALS

Let us return now to the conceptualization of universals. We are back with the dilemma that Lillegard (2001) articulates: “The ancients saw mind, or something mind-like, operating everywhere. Moderns would like to see it operating nowhere.” We are also back with the dichotomy of reductionism vs. holism, which, in academic fora, has often come to imply ‘scientific’ (i.e. critical, independent, verifiable) vs. ‘religious’ (i.e. dogmatic, authoritarian, unverified). The problem is particularly acute when dealing with universals. Since universals are immaterial, they easily lend themselves to *metaphysical speculations*.

It is precisely this dilemma of the ‘metaphysical’ or ‘teleological’ that makes scientists uncomfortable: they, justifiably, would like to avoid being entangled in incoherent doctrinal debates about metaphysical beliefs. However, the very concept of metaphysics must be observed here more keenly. If by “metaphysical” we indicate all sorts of ontological and epistemological abstractions, whether *philosophically and logically sound theorems* or simply *dogmatic and superstitious beliefs*, we are left with a conflicting image of the metaphysical: certainly “philosophically and logically sound theorems” cannot be put on par with “dogmatic and superstitious beliefs”.

It is the absence of this differentiation that leads some scientists to avoid metaphysical and teleological assumptions altogether. Ascribing reality to abstract things such as universals is indeed ascribing reality to

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a metaphysical domain, *but* it certainly does not constitute dogmatism or superstition *if* the theorems stand the test of critical and logical thinking and are not in conflict with observable facts. Thus, it is not metaphysical and teleological assumptions, in themselves, that constitute an ‘unscientific’ domain but rather their dogmatic and superstitious pursuit. This is perhaps one of the main reasons for the historical conflict between science and religion (see Sections 2.1.4. and 3.2.2.).

Therefore, in order to avoid dogmatism (the very object of this thesis), the classical problem of justifiability and falsifiability becomes even more central when applied to the issue of universals. In Section 1.2., we differentiated between the realist, nominalist, and conceptualist views of universals. Our argument above indicates that at least there is no obvious scientific reason that would falsify the realist view. Realism maintains that consciousness, for instance, *is* an objectively existing reality, while the nominalist view is purely materialistic in that it insists on consciousness being either reducible to, or identical with, the neurophysiology of the brain (i.e. a by-product of biological evolution), and conceptualism deals with consciousness as a more-or-less independent mental domain with its own rules and structure. None of these can automatically be dismissed out of hand as scientifically unjustified.

A brief review of how universals have been historically treated is appropriate here. Plato (circa 427-347 B.C.) was, perhaps, the first and most consistent realist. He argued that universals are real objects, immaterial forms that exist in their own ideal realm. He maintained that universals could only be known by the intellect, and not the senses. For him, the particulars are mere manifestations of the universals. Aristotle (384-322 B.C.), while maintaining a realist position, criticized Plato’s strict separation of universals from particulars. He believed that universals are to be found as “shared attributes” in the particulars, in individual objects. Augustine (354-430), on the other hand, disagreed with Aristotle in that universals could be grasped only through experience; for Augustine, humans are unique in their ability to grasp universals as *a priori* truths. Aquinas (1225-74), on the other hand, sided with Aristotle and regarded universals as essences which, while they must exist in the contingent world, may be arrived at without a supposed existence. Aristotle and Aquinas have been criticized for the

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inadequacy of their explanation of how universals connect with particulars, with observable objects. (Fieser & Dowden, 2001.)

English Franciscan scholastic philosopher, William of Occam (circa 1285-1349), is the one who first proposed the alternative approach called nominalism. He maintained that universals have no real or independent existence except in a “nominal” sense, i.e. in our mind and language; they are words that we apply to a collection of things. Occam was influential in the area of logic and his principle of parsimony, known as *Occam's Razor*, is perhaps his best known legacy: *if something can be achieved with fewer assumptions, any additions are vain*; in other words: *plurality is never to be posited without need*. This rule requires that any complication be justified, e.g. by providing increased explanatory power. This is, in fact, Occam's strongest argument against realism and in favour of nominalism: do not postulate two realms of existence when one will do. (Fieser & Dowden, 2001; see also: Langendoen & Postal 1984, pp. 26, 44-47.)

In the period of Enlightenment, Locke (1632-1704) proposed that universals are neither ideal realities nor nominalistic concepts; instead, he argued, they are images in the human mind. Hume (1711-1776) and Berkeley (1685-1753), objecting to Locke's idea of mental images, concurred that universals are only particulars which represented other particulars with familiar aspects and that, when we link certain objects with particular words enough times, classes of things seem to develop. Thus, Locke started a strain of thought that lead to the *conceptualist* view of universals. From Hume's and Berkeley's responses, one can gather that there are different, even conflicting, variants of the conceptualist view some of which may resemble the nominalist approach. Wittgenstein (1889-1951), for instance, believed that search for an exhaustive list of conditions defining a universal is futile because such conditions do not exist; he proposed universals would be conceptualized through a flexible set of conditions that can be arrived at by studying the use of language and how words come to have a common meaning. (Fieser & Dowden, 2001.)

The foregoing review shows that, chronologically, universals have first been treated from a realist point of view, followed by the introduction of nominalist approaches which, in turn, gave way to the rather incoherent bulk of conceptualist views. This historical develop-

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ment has a striking similarity with the evolution of concepts of human reality in social and behavioural sciences, as described in Sections 3.1.2. and 3.1.3.: the outcome in both cases is a rather incoherent conglomeration of ideas, a “philosophical pluralism”, if you like.

Is not the pursuit of coherence, however, one of the main criteria in the realm of science? Unless, of course, we succumb to the Sartrean notion that the world, as a whole, makes no sense at all. In that case, science should definitely be divided into isolated disciplines, each with their own set of very limited rules and regularities; this, not due to practical reasons of manageability, but due to the *ontological* reason that reality would be structured in such an incoherent manner. This gets very close to our notion of atomistic dogma. Another alternative would be to maintain that the *physical reality* is coherent and can be studied from a universalist standpoint, making possible aspirations for a Grand Unified Theory (cf.: Hawking 1989), but that the *human reality* follows no coherent set of conditions and, therefore, cannot be studied from a unified point of view. This latter position does actually pose an interesting world-view: Is reality actually into two domains, a coherent and an incoherent one? That would certainly introduce a new kind of dualism.

Neither the nominalist nor the conceptualist views of universals give a solution to this dilemma. Universals, if limited to simple realities, such as colour or taste or shape or size, seem somewhat satisfactorily described from a conceptualist or even nominalist standpoint. When taking into account more profound universals, however, such as natural laws or consciousness or meaning or purpose, these standpoints become utterly inadequate. Are, for instance, laws of nature to be dismissed as mere conceptualist constructs of the human mind? Certainly, our *theories* (i.e. approximations) on these laws can be thus ascribed. But can their ever-increasing *correlation* with the observed phenomena be also characterized in this manner? The same applies to similar universals related to human reality: What is volition? What is thought or consciousness?

It is here that both the conceptualist and definitely the nominalist views of universals turn out to be inadequate; and it is here that Popper’s demand of falsifiability steps in. If there is even a single instance that contradicts a theorem, that theorem must be abandoned

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or reformulated. The explanatory power of conceptualism and nominalism fails to give an adequate account of both the essence and manifestation of such profound universals. The advocates of these schools of thought, therefore, have taken the road of reformulating and re-reformulating their stances, thus, devising complex mental structures to make up for the shortcomings of the original theory. However, another way to get rid of these logically *unnecessary complexities* is to abandon the conceptualist and nominalist view and to reconsider the possibilities of the realist one. Paradoxically, it is Occam's Razor — the parsimony of the nominalist, William of Occam — that would indeed demand this abandonment, because the adoption of the realist view of universals would solve these discrepancies and complexities. Moreover, the original objection of Occam against the dualism demanded by Platonistic realism is also solvable (our claim on holism would require such a solution). Our conceptualization (Sections 3.2.5. and 3.2.6.) and postulation (Section 3.3.) will show that, within a systemic conceptual framework, no such dualism is needed and that, in fact, a hierarchical view of the ontological qualities of reality will maintain holism while asserting a realist view.

I, therefore, argue that conceptualization of universals via realism is, indeed, in accordance with the scientific method. This approach will, in fact, make possible “scientific belief” as described in Section 3.2.2. Immaterial elements of human reality, including thought and consciousness, are considered thus objectively existing realities, not delusions caused by physical activities nor a mere by-product of biological evolution (cf.: P. Russell 1983, p. 55). As a reminder, let it be noted that, while this conception of science is conventionally considered as positivistic, in this discussion, the static and deterministic world-view as well as the accompanying mechanistic approaches, often implied by the positivist or naturalist tradition, are categorically *not* endorsed. What we seek here is a system of *coherent and universal ontological premises* regarding human reality, human society and human education — a system that can, nevertheless, maintain a vast latitude for the variety and diversity of methodology and approach, already existing in the field of social and behavioural science.

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### 3.2.4. *GENERAL SYSTEMS THEORY: PROMISING PHILOSOPHICAL AND THEORETICAL TRENDS*

In Section 1.4., it was argued that the scientific method, which is often seen only as the *natural scientific* method, is applicable also to the science of education. While the types of universals addressed, the ontological approximations produced, the empirical approaches implemented may vary greatly, yet, there can exist an *epistemological monism* among all sciences in respect to the process that leads to further understanding about reality — there can exist a broad *methodological monism* of scientific exploration.

Moreover, this possibility is today enhanced by a more general shift in perception. New theories within natural sciences — in theoretical physics, in cosmology and astronomy, in molecular biology and genetics, etc. — have reshaped our understanding of the physical reality and, along with it, our expectations of how reality works. The ensuing changes in human perception reach beyond the particular fields of science and shake the foundations of traditional world-views. No longer is the view of a deterministic universe running like a clockwork, the presumed separation between the observer and the observed, or between mind and matter, taken for granted. The surge of philosophical and ideological innovations in the wake of mind-stirring scientific advances is highly diversified and, at times, contains dubious and unfounded elements. Many feel that the incoherence of the conglomeration of emerging ideas can jeopardize scientific thinking and popularize philosophical thought in manners counter effective to the sound investigation of reality. Yet, this surge of ideas represents a *global crisis of perception* that serves to reshape ingrained patterns of thinking, thus paving the way for new, more coherent and more comprehensive, world-views.

Along these lines, a set of philosophical standpoints have emerged that help reshape our philosophical perspective into an *holistic world-view*. Prominent among these are the ontological implications of General Systems Theory and, its ally, Chaos Theory (e.g.: Prigogine & Stengers 1984; Gleick 1987). Systems theory was originally founded in mathematical theory and computational science with the notion of “system” indicating sets and their elements, relations between the set’s elements, subsystems with input-output and feedback relations etc. The

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application of these conceptual tools to natural and other real-world phenomena, by certain scholars, introduced further evolutionary concepts — such as system-environment boundary, process, differentiation, state or mode, hierarchy, goal-directedness, information and energy flow. This yielded in philosophical implications about how reality, as a whole, could be understood through sound theory. These theoretic constructs are today used increasingly in the conceptualization and understanding of both natural and human reality. Such notions we generally identify here as *systems theoretic*. Our purpose here is not to prove that General Systems Theory is a coherent and scientifically plausible construct — that is the task of general systems theorists as well as logicians and mathematicians; in other words, systems theory is not an *hypothesis* we seek to prove. Rather, it is a *postulate* we find relevant to the philosophy of science (including the science of education) — a credible point of departure that addresses the epistemological nature of reality *per se*, providing thus elements of basic world-view.

General Systems Theory was first advanced in the 1940s by biologist Ludwig von Bertalanffy (1901-1972). His extensive works in this field (e.g.: Bertalanffy 1950; 1960; 1967; 1969; 1988 [1968]), while readily inviting a technology-oriented response (e.g.: Ashby 1956), quickly caught the attention of progressive minds amongst futures-oriented social and human theorists (e.g.: Laszlo 1972; 1987; 1996a; 1996b; Capra 1983; 1985; 1996), and became a notable trend within the futurist community, remaining so until today. Bertalanffy's initiative can be seen as a reaction against reductionism, in pursuance of some level of unity in science, of holism.

Systems theory, rather than reducing a given entity to the qualities of its constituent elements, shifts the focus to the relationships of the elements and, more importantly, to their connection with the whole of which they are parts. That whole, on the other hand, is considered greater than the sum of those elements. In systems theory, therefore, the whole (the system) is regarded to have unique qualities of its own, beyond the qualities of the ingredient parts. The essential unifying effect of General Systems Theory is that *the same conceptual ideas and principles underline very different domains of reality* and, hence, different fields of study and disciplines (physics, biology, technology, sociology, education etc.). In the words of Bertalanffy (1988 [1968], p. 32): "... there exist models, principles, and laws that apply to generalized

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systems or their subclasses, irrespective of their particular kind, the nature of their component elements, and the relations or 'forces' between them. It seems legitimate to ask for a theory ... of universal principle applying to systems in general. ... we postulate a new discipline called *General Systems Theory*. Its subject matter is the formulation and derivation of those principles which are valid for 'systems' in general." Also, systems theory considers all systems to be *open*, which means that, in the last analysis, all systems are but subsystems of one vast System we call reality or creation — or, as Prigogine & Stengers (1984, p. 59) put it, "the only true dynamic system is the universe as a whole".

The representation and articulation of systems theory in various fields is diverse and, on the level of application, seems to form no overall platform. In a certain sense, it is in the opposite state than the human sciences: it has a firm philosophical foundation, with accepted and articulate ontological universals, but its implementation and uses vary greatly, from field to field and from context to context. Its areas of application are as diverse as can be, including mathematical modelling, information theory, communications technology, futures forecasting, strategic planning, ecology, management, family psychotherapy, organizational development, theory of history, global problems, world order, developmental strategies, chaotic systems management, computer modelling, artificial intelligence, neural networks etc. (See: Klir 1992.)

### 3.2.5. BASIC SYSTEMS THEORETIC PRINCIPLES AND CONCEPTS

Since General Systems Theory is a relatively young ontological theory, its philosophical and practical implications and tenets are still rather fluid — systems theory has, as yet, no firmly established doctrine. Its underlying postulate, however, is that *reality as a whole is governed by certain universal principles that apply to all kinds of systems* and that *reality is, in the last analysis, one holistic entity*. Moreover, and consistently with the pursuit of holism, systems theory represents the ontological standpoint that *all systems are synergic; they are more than the sum of their constituent elements*. This refutes reductionism as an exhaustive means for obtaining understanding of a given phenomena. Systems theory can be described as the *transdisciplinary* study of how phenomena

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are organized in a Platonistic sense — independent of their physical substance or type, their spatial or temporal qualities.

Let us now examine some of the basic systems theoretic propositions that, despite the diversity and fluidity of systemic approaches, and while not necessarily articulated in this particular manner, can be considered to form the theoretical backbone of General Systems Theory.

First, we need to identify the various classes of objects to which the notion of “system” can be ascribed. Kenneth Boulding (1956, pp. 200-205; see also: 1978: pp. 29-30) suggests a hierarchical classification of systems, based on the added complexity and additional qualities that each subsequent level possesses compared to the lower levels: (a) *structures or frames*: static systems (e.g. structures of crystal, the anatomy of the cell); (b) *clockworks*: systems with deterministic motion describing stability or equilibrium (e.g. the solar system, clocks, machines); (c) *control mechanisms*: systems with feedback control in a closed loop (e.g. homoeostatic mechanisms in organisms, thermostats); (d) *open systems*: structurally self-supporting systems (e.g. cells, flames); (e) *lower organisms*: systems of organized entities with functional elements, ‘planned’ growth and reproduction (e.g. plants); (f) *animals*: systems with central directing mechanism or brains that control the overall behaviour, including the ability to learn (e.g. mammals, birds); (g) *humans*: self-consciousness and knowing systems with symbolical languages (human beings); (h) *socio-cultural systems*: systems that follow and transfer values and assign conscious roles (e.g. families, dart clubs, nations); (i) *transcendental systems*: ‘what is necessarily beyond knowing’ (e.g. higher purposes of existence, the idea of the Creator). While this classification proposed by Boulding can be seen as being somewhat artificial or arbitrary, it, nevertheless, represents the idea of a hierarchically organized reality where each higher level of existence includes qualities that are not present on the lower levels. This idea has been presented also by other systems theorists in various forms, usually including similar classifications as Boulding has presented. For the purposes of this discussion, it is sufficient to articulate the underlying systemic principles as follows:

- S0 *The principle of systemic hierarchy*: There is a systemic hierarchical structure of reality, so that systems exist on various levels of this hierarchy; each higher order level includes, in addition to the qualities of all lower order levels, additional qualities

unique to its own level; systems on a higher order level order include also more abstract qualities than those on a lower level.

- S0<sup>a</sup> *The principle of hierarchical natures:* The systemic hierarchy of reality indicates at least the following arch type hierarchical domains: (a) structural or inanimate systems — material domain (e.g. solar systems, mineral crystals, liquids); (b) organic or living systems — living domain (e.g. microbes, plants); (c) reflexive or self-monitoring systems — sensing domain (e.g. insects, vertebrates); (d) thinking or self-conscious systems — intelligent domain (e.g. human beings); (e) ideal systems — transcendental domain (e.g. ethical functions of existence, higher purposes of creation).

It should be noted here that, due to the fact that systemic concepts are not all fixed, one may encounter in the writings of systems theorists different terms meaning the same thing or the same concept referring to different issues. For instance, the term “natural systems”, while usually referring to physical systems, can designate either any *physical* system or just *living* physical systems or, on the other hand, *non-artificial* systems.

Prigogine & Stengers (1984, pp. 131-176), referring to “natural systems” as non-artificial physical systems, argue that natural systems can be in three types of states: (1) the state of *thermodynamic equilibrium*, (2) the state of *stationary thermodynamic stability* (near-equilibrium), and (3) the state of *thermodynamic instability* (far-from-equilibrium). In the first state (thermodynamic equilibrium), energy and matter flows have eliminated thermal and concentration differences and where the system is in a state of equilibrium (“there is no time”) — the potential energy is at its minimum, allowing the entropy of the system to be at its maximum with zero entropy production. The second state (stationary thermodynamic stability) differs only slightly from the first one: forces of thermodynamic change are weak, the system is open and in interchange with its environment, it has a tendency towards equilibrium immediately when the exchange flows that upheld the structure seize; the system is in a state of a stationary non-equilibrium where the change of entropy in the system is zero, i.e. negative entropy production (resulting from the system-environment exchange) is equal to the positive entropy production (resulting from the system’s internal processes); such a system increases the entropy of its environment. In

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the third state (thermodynamic instability), the system still seeks to regain equilibrium and minimal potential energy but the contrary forces are too strong and the system begins to exhibit non-linear interactions and a strongly differentiated internal structure, the stability of the stationary state is no longer guaranteed; thus, internal or external fluctuations may cause the system to go into a new dynamic state of crisis or into a turning point, called *bifurcation*, which can produce new structures making possible the transition of the system towards a new level order. (Cf.: Mannermaa 1991, pp. 235-238.)

A system that is in the state of equilibrium or stationary non-equilibrium is *autopoietic*: it can maintain its internal structure and order and can counteract entropy. In the state of bifurcation, however, “the steady state can no longer be maintained, and autopoiesis is replaced by a period of critical stability” (Laszlo 1987, p. 104). Moreover, bifurcation does not automatically produce a constructive turning point in the system’s development. The transition requires both a sufficient flow of energy and matter (metabolism) as well as a critical increase in the system’s ability to undergo processes of negative entropy or ‘negentropy’ (Luhman 1992, p. 283), or processes that counter the natural tendency towards entropy. Otherwise, the issuing bifurcation and the accompanying chaos may cause the system to give in to the increasing entropy and a breakdown, instead of a breakthrough, can occur. The motor for this transition is the systems tendency to regain equilibrium and minimal potential energy.

It is paradoxical that for a constructive turning point to take place — i.e. for the system to acquire a higher and more sophisticated level of order, which indicates a *decrease* in entropy — an initial *increase* in entropy is required. Order evolves from a transitory period of chaos. Fritjoff Capra (1996, p. 167) explains that bifurcation “is a point of instability at which new forms of order may spontaneously emerge, resulting in development and evolution”. He further points out that, while “states of higher order ... may emerge” at bifurcation points, “this does not contradict the second law of thermodynamics” because of the fact that “[t]he total entropy of the system keeps increasing, but this increase in entropy is not a uniform increase in disorder” — simply put: “order and disorder are always created simultaneously” (Capra 1996, p. 184). These principles can be generalized and summarized as follows:

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- S1 *The principle of system's three states:* Open systems can be in three types of states: (a) the state equilibrium — the system's internal differences have been evened out and eliminated and there is minimal potential energy and the maximal entropy that this allows; (b) the state of stationary non-equilibrium — the system is in open exchange with its environment but is near to and tends towards equilibrium and, while there is less entropy, the overall change in the system's entropy is zero but it increases the entropy of its environment; (c) the state of instability — the system behaves in a non-linear manner, in pursuit of regaining its equilibrium and minimal potential energy, and internal and external fluctuations can easily alter its stability and throw it into a dynamic crisis or bifurcation.
- S1<sup>a</sup> *The principle of autopoiesis and bifurcation:* A system in the state of equilibrium or stationary non-equilibrium is autopoietic in that it can maintain its internal structure and minimal potential energy; but when an unstable system, in pursuit of regaining its equilibrium, comes to a bifurcation it can undergo a transformation, a turning point, achieving new order and autopoiesis out of transitional chaos and entropy; the new order is, initially, less complex than its predecessor; the transition to a new order is not automatic and needs to be fed by a sufficient metabolism as well as a critical level of non-entropic processes; otherwise the ensuing bifurcation and the accompanying chaos result in the system giving in to entropy — a breakdown instead of a breakthrough; the transition motor is the system's tendency to regain equilibrium and minimal potential energy.

Here, “transition to a new order” does not necessarily mean transition to a *higher* order but simply a qualitative and thorough structural change. That it *can* mean transition to a higher order is a matter that will be discussed shortly (see systemic principles S3<sup>a</sup>, S4<sup>a</sup>, S5 and S5<sup>a</sup>).

As stated earlier, General Systems Theory is articulately concerned with holism and the pursuit of an holistic view of reality. Moreover, it tends to see the *unifying* aspects systems — qualities that make a system vaster than mere sums of its parts and non-reducible to its constituent elements. This is also seen in the manner the theory views the relation of the system (as a whole) with its diversified parts, particularly when undergoing bifurcation and experiencing a turning point. According to Ervin Laszlo (1987, p. 31) a system that goes through bifurcation and

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achieves a constructive breakthrough can emerge “with significant unity, autonomy, and ordered structure” but, in order for the system to attain proper stability and “be capable of persisting in more than one steady state” (i.e. redundance), there must be “sufficient diversity in the components and sufficient complexity in their structure”. More generally, it can be stated:

- S2 *The principle of systemic unity*: Systems emerge towards greater unity among constituent elements; these elements can exhibit holistic qualities of the system — qualities that are not reducible to the attributes of individual elements.
- S2<sup>a</sup> *The principle of unity in diversity*: In order for the holistic qualities of the system to emerge and for the system to achieve stability and redundancy, a great level of diversity of the constituent elements and complexity of structures is needed.

The principle of autopoiesis and bifurcation implies, in a certain sense, a breach in time symmetry and in determinism. According to Ilya Prigogine (1985a, p. 116-117), in classical science there is “symmetry with respect to time” in that “present determines both the past and the future”. He continues that “in dissipative systems, this symmetry of the internal time is broken”, that “the past and the present are there, but the future is not”, because in the real and complex world “the future of the objects is no longer determined”. Prigogine (1985b, p. 4) also suggests that autopoietic systems evolve through “an evolutionary process of *creative discovery* where both random and deterministic processes play vital roles”. This means that, at bifurcation points “the system can ‘choose’ ... between several possible paths, or states”, depending on “the system’s history and on various external conditions and can never be predicted” (Capra 1996, p. 177). Thus, at these points of instability “an element of indeterminacy enters into the theory” and “system’s behaviour is inherently unpredictable”. Laszlo (1987, p. 4) points out that “the future of any thing or being now in existence is not uniquely determined by its past”. He continues that the future of a system “is determined, rather, by its present”.

Moreover, despite the “indeterminacy” of systems in bifurcation, there are certain tendencies that bring some measure of *qualitative* predictability, on the macro level. The concept of *strange attractors*,

originally a mathematical model, has been used to visualize this process where certain elements or qualities of a system work as a gravitational pull that defies entropy and orients the system towards one or another pattern of stable order (see: Gleick 1987; Capra 1996; cf. also: Briggs & Peat 1989). Such concepts emphasize the *macrodeterministic qualitative* features of the system rather than precise quantitative variables; nature is full of such “attractors” which give a main direction (macrodeterminism) but leave single cases and situation widely divergent (non-determinism).

Now the differentiation proposed by Georg Henrik von Wright’s (1988) regarding *change*, *development* and *progress* becomes relevant. Development is a special kind of change — it is a change that involves diversification, complexification, and specialization. For now, we shall focus on the topic of change vs. development (we shall return to development vs. progress in a short while; see principles S5 and S5<sup>a</sup>). Up until this point, we have examined bifurcation and transformation only in terms of *change*, not *development*. In other words, the implied transition has not necessitated a transformation to a higher or more sophisticated order, only to a new or different order. In *living* systems, however, this transformation, more often than not, involves a qualitative development to a more sophisticated level where “new structures of higher order and complexity may emerge” (Capra 1996, p. 187). This is an element of certain *developmental macrodeterminism*. This is what we call *evolution*. Laszlo (1987, p. 35) describes evolutionary processes to create “systems on multiple hierarchical levels” and concludes that “evolution moves from the simpler to the more complex type of system, and from the lower to the higher level of organization”. According to Laszlo (1987, p. 4), evolution “is the maker of the future: at each step along the way it writes the scenario of its own continued unfolding”. The *evolutionary motor* is the aforementioned tendency of systems to seek equilibrium and minimal potential energy.

In general, then, there is an articulate macrodeterministic tone to systemic principles in that, while rejecting the mechanistic and one-to-one determinism of classical science, they acknowledge the existence of trend and direction in the history and evolution of systems, particularly of living systems. Thus, we can say:

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- S3 *The principle of non-determinism in living systems:* The development of living systems is non-deterministic in that they evolve through complex interactions and turning points where the details of their future is not fully determined by their past and is, therefore, open; this is particularly apparent in periods of bifurcation.
- S3<sup>a</sup> *The principle of macrodeterminism in evolution:* Living systems evolve in a macrodeterministic mode where, while particular events of their development cannot be predicted, a general directionality and orientation can be detected in the course of their history — the evolution of living systems exhibits a trend towards higher complexity and more sophisticated order, defying entropy.

How do *living* systems differ from other types of natural systems? Fritjoff Capra (1996) explicates that life exists when three structures, or three processes, are simultaneously present: (a) a *dissipative structure* through which matter and energy continually flows and which, regardless of this flow, maintains its structural nature (such as whirlpools or flames); (b) an *autopoietic structure*, an internal pattern of self-organization, that consists of organically interrelated components, an holistic organism, that enable reproduction and transformation; (c) a *cognitive process* that helps the system to respond to and change its environment, a process unique to living systems that enables them to interact with other systems and to evolve and become more sophisticated — in other words, the process of evolution. Briefly put:

- S4 *The principle of conditions of life:* Life or living systems exhibit three processes: (a) the process of metabolic exchange maintaining the system's structural coherence; (b) the process of internal self-organization enabling reproduction and transformation; (c) the process of a system's interaction with its environment causing evolution and environmental change.
- S4<sup>a</sup> *The principle of evolution in life:* Qualitative evolution, as apart from other forms of transformation, is a unique quality of living systems and marks the presence of life.

The connection between evolution and life is a critical feature of systems theory: systems that exhibit the qualities of life also exhibit the quality of evolution. It means that they do not only change randomly but that their change follows some orientation or development. Again,

von Wright's (1988) definition of *change*, *development*, and *progress* is of credence. As stated earlier, this definition regards development as a special kind of change that involves diversification, complexification, and specialization — in other words: the macro deterministic sophistication referred to earlier. Progress, on the other hand, is a particular type of development that is related to *human* advancement and, while its objectivity or non-objectivity can be argued upon (see hypotheses H8 in Section 3.4.2.), it is closely related to the social reality and, thus, to societal systems. Indeed, there is a small step from living systems to *social* or *societal* systems, for they too are living systems. In this sense, the term “living systems” can refer to certain abstract systems that are closely related to the (human) society, such as the values system or the belief system. This, in turn, would suggest that, in addition to social systems, certain *mental systems* could also be considered as living systems, or at least closely resembling them. Thus, not all “living systems” need necessarily to be “natural systems”, in the physical sense of the word.

The macrodeterminism of systems theory has never been more articulate than in the case of human systems and their evolution or *history*. According to Laszlo (1987, p. 92): “The pattern indicated in the evolutionary hypothesis is progressive but not linear. It resembles a fluctuating graph with many local peaks and valleys but with an ascending tendency. The state from which, and that toward which, it ascends can be best elucidated by comparing the earliest known stage of historical development with the latest stage. The progression from Palaeolithic to modern times is highly uneven, with countless forward leaps and sudden regressions, yet it exhibits an overall direction. The structure of Stone Age tribes is considerably less complex than the structure of modern nation-states.” And further on (ibid. p. 98): “The evolutionary vision perceives history's arrow of time flying along the axis: hunting-gathering — agrarian-pastoral — agricultural — preindustrial — industrial — postindustrial society. The flight of the arrow may be interrupted at any point; it may be temporarily halted at any point. But it may not ... be fully and steadily reversed.” Hence “[t]here is a sense to the terms *progress* and *development* in history.”

As already confirmed by the principle of autopoiesis and bifurcation (S1<sup>a</sup>), human society is “a self evolving system in its own right, capable of settling into alternative steady states following critical

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perturbations” and, therefore, “[t]hrough autopoiesis and bifurcations, society maintains itself in its particular milieu and, if viable, evolves alternative structures and organizational forms in the course of time” (Laszlo 1987, pp. 89). Thus, the autopoietic development of social systems includes periods of stable development where the process is somewhat predictable, and of turning points (or chaotic periods) the occurring of which can be, to some degree, predictable, but which themselves and their consequences are unpredictable, creating the possibility of breakthrough to new alternatives of stable development *or* of breakdown of the social system (Mannermaa 1991, pp. 243). We can summarize these principles as follows:

- S5 *The principle of historical progress*: Social systems undergo a progressive but non-linear evolution, a socio-cultural history, where the process may fluctuate but has an ascending tendency towards greater unity and higher or more refined order.
- S5<sup>a</sup> *The principle of ‘crisis and victory’*: The evolution of social systems proceeds through a process of ‘crisis and victory’ where periods of stable development are followed by critical turning points — moments of crisis and chaos with an inherent opportunity for evolutionary breakthrough but, also, with a threat of possible breakdown.

The empirical evidence of history *does* support the macrodeterministic theorem, but the principles outlined here only *describe* the processes and mechanisms involved, they do not *explain* the reason and causality of macrodeterminism and historical progressiveness. This orientation demands a credible philosophical or scientific explanation; otherwise, the macrodeterministic principle would remain an elusive idea coupled with wishful thinking and mysticism.

This reintroduces the concept of *telos* (or purpose or direction) into the philosophy of science. General Systems Theory reiterates Lillegard’s (2001) observation that, while in ancient times people “saw mind, or something mind-like, operating everywhere”, modern scientific thinking “would like to see it operating nowhere”. Although the issue is discussed, at times, in philosophical fora, the possibility of purpose or directiveness in the universe is usually seen as a burden to scientific credibility. Ludwig von Bertalanffy (1988 [1968], p. 45) maintains that, “notions of teleology and directiveness appeared to be outside the scope

of science". He asserts, however, that "you cannot conceive of a living organism, not to speak of behavior and human society, without taking into account what variously and rather loosely is called adaptiveness, purposiveness, goal-seeking and the like".

Bertalanffy (ibid.) further continues: "In the world view which was born of the classical physics of the nineteenth century, the aimless play of atoms, governed by the inexorable laws of causality, produced all phenomena in the world, inanimate, living, and mental. No room was left for any directiveness, order, or telos. The world of the organisms appeared a product of chance, accumulated by the senseless play of random mutations and selection; the mental world as a curious and rather inconsequential epiphenomenon of material events."

General Systems Theory sees the concept of telos as something worth of credence and as a powerful philosophical tool for conceptualization, while the ethereal character of the teleological theorem is admitted (but again, all natural laws are essentially immaterial, and human approximations of them are abstract). The teleological principle introduces the possibility of some inherent purposefulness — a *potentiality* perhaps — in the process of evolution, thus explaining its macrodeterministic directionality. What emerges as central in the teleological theorem is the *evolution of consciousness*. The development of consciousness seems to be the story line that runs like a thread throughout the course of biological evolution and human history. Ervin Laszlo (1987, p. 10) sums this up as follows: "The new [evolutionary] paradigm marks the coming of a new era in scientific thinking: an era in which evolution, expressed in human beings and in human societies, is becoming conscious of itself". These ideas are descriptive of both living systems, in general, and social systems, in particular — in short, *evolutionary systems*. Thus, we conclude with teleological systemic principles:

- S6 *The principle of teleological evolution:* Macrodeterminism in evolutionary systems can be attributed to a teleological purposefulness inherent in the ontological nature of evolution.
- S6<sup>a</sup> *The principle of emerging consciousness:* The teleological directionality of evolutionary systems is most strikingly present in the evolution of consciousness — in the telos of the
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phenomenon of consciousness, a consistently emerging trait in the course of biological evolution and human history.

I must admit that the principle of teleological evolution is still quite vague. It would require further elucidation and explication. Just how *is* this “purposefulness inherent” in the evolutionary process? The term “inherent” does point out to the “potentiality” referred to earlier. Perhaps the concept of *potential* is central to this discussion. We shall not take it further here, however, but will return to it later in connection with the formulation of postulates (see postulates P3<sup>a</sup>-P3<sup>c</sup> in Section 3.3.2.).

Be that as it may, the idea of telos and universal functions or purposes is one of the critical stumbling blocks of postmodernism. Commenting on postmodernism, David Harvey (1989, p. 44) draws attention to “its total acceptance of the ephemerality, fragmentation, discontinuity, and the chaotic” and complains of its lack of effort to “try to transcend it, counteract it, or even define the ‘eternal and immutable’ elements that might lie within it”. Instead, Harvey asserts that postmodernism “swims, even wallows, in the fragmentary and the chaotic currents of change as if that is all there is”. Then Harvey (*ibid.* p. 52) poses the question that, indeed, has divided contemporary thinkers — that of whether humans can even hope to act coherently in the world: “But if . . . we cannot aspire to any unified representation of the world, or picture it as a totality full of connections and differentiations rather than as perpetually shifting fragments, then how can we possibly aspire to act coherently with respect to the world? The simple postmodernist answer is that since coherent representation and action are either repressive or illusionary (and therefore doomed to be self-dissolving and self-defeating), we should not even try to engage in some global project.”

### 3.2.6. *LATITUDES AND LIMITATIONS IN THE USAGE OF SYSTEMIC CONCEPTS*

As pointed out earlier, the principles of General Systems Theory, while accepted by the generality of systems theorists, have not been canonized into a formal doctrine, nor have the relevant concepts been fixed to a particular vocabulary. There are, of course, many terms that

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are in common use among systems theorists, but the emerging nomenclature is, as yet, closer to 'professional jargon' than to an academically constituted terminology. Nonetheless, the principles and concepts involved are not inaccurate; they denote particular meanings and depict a particular theory. The fact that the scholars of the field may express these principles and concepts in varying terms does not diminish the coherence of the theory — it only points out the dynamic state of a new and emergent field of knowledge.

This having been said, let us briefly summarize, for ease of reference, the systemic principles outlined in the foregoing pages, before going on to examine the latitudes and limitations in the usage of systemic concepts. Principles of General Systems Theory include:

- S0 *The principle of systemic hierarchy:* Reality has a hierarchical structure where each higher level includes the qualities of lower levels as well as additional qualities of its own.
  - S0<sup>a</sup> *The principle of hierarchical natures:* The systemic hierarchy includes the following arch types: (a) material domain, (b) living domain, (c) sensing domain, (d) intelligent domain, (e) transcendental domain.
  - S1 *The principle of system's three states:* Open systems can be in the three states of (a) equilibrium, (b) stationary non-equilibrium, and (c) instability — a non-linear situation of possible bifurcation, crisis in pursuit of a new order of equilibrium and minimal energy potential.
  - S1<sup>a</sup> *The principle of autopoiesis and bifurcation:* A system in bifurcation can undergo a breakthrough into a new stable order out of transitional chaos, but it can also give in to entropy and experience a breakdown.
  - S2 *The principle of systemic unity:* Systems emerge towards greater unity among constituent elements, exhibiting holistic qualities that are not reducible to the attributes of individual elements.
  - S2<sup>a</sup> *The principle of unity in diversity:* A high level of diversity of elements and structures is needed for the holistic qualities of the system to emerge and for the system to achieve stability and redundancy.
  - S3 *The principle of non-determinism in living systems:* The development of living systems is non-deterministic; the details of
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- their future is not fully determined by their past — particularly during bifurcation.
- S3<sup>a</sup> *The principle of macrodeterminism in evolution:* Living systems evolve macrodeterministically with a general historical orientation — a trend towards higher complexity and more sophisticated order.
- S4 *The principle of conditions of life:* Living systems exhibit (a) metabolic maintenance of internal structures, (b) self-organized transformation and reproduction, (c) evolution in interaction with their environment.
- S4<sup>a</sup> *The principle of evolution in life:* Qualitative evolution, as apart from other forms of transformation, is a unique quality of living systems and marks the presence of life.
- S5 *The principle of historical progress:* Social systems undergo a progressive but non-linear evolution where the process may fluctuate but has an ascending tendency towards greater unity and more refined order.
- S5<sup>a</sup> *The principle of 'crisis and victory':* Social evolution goes through periods of stable development and critical turning points that enable evolutionary breakthrough but also include the threat of breakdown.
- S6 *The principle of teleological evolution:* Macrodeterminism in evolutionary systems can be attributed to a teleological purposefulness inherent in the ontological nature of evolution.
- S6<sup>a</sup> *The principle of emerging consciousness:* The teleology of evolutionary systems is most strikingly present in the evolution of consciousness, a consistently emerging trait in the course of evolution and history.

Now we shall expand on some of the concepts that have been used here. We have referred to various kinds of systems. These include physical systems, living systems, social systems, mental systems, evolutionary systems etc. As the principles of systemic hierarchy (S0) and hierarchical domains (S0<sup>a</sup>) indicate, reality has a structural hierarchy and systems on a higher level include both unique qualities of their own and the qualities of lower levels. Thus, our reference to physical and living systems corresponds to the material and living domains, respectively. Social and mental systems, on the other hand, correspond to the intelligent and, perhaps, also to the transcendental domain.

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*Evolutionary* systems refer to all living, social and mental systems that exhibit both life and additional other advanced qualities.

Since the concept of *evolution* is central to our discussion, a word concerning the latitudes and limitations of its meaning is appropriate. This concept is popularly connected with the person of Charles Darwin (1809-1882), but it would be reasonable to maintain that he was not the one who theorized on evolution as a *universal principle of progress* manifested in a vast range of phenomena. In fact, it is in the writings of Herbert Spencer (1820–1903) that the endorsement of the universality of the evolutionary principle is seen: *The Principles of Psychology* (1855), *First Principles* (1862), *Principles of Biology* (1864), *The Principles of Sociology* (1882), *The Principles of Ethics* (1892) — these show that he addressed a vast variety of domains of knowledge from an evolutionary point of view (see: Peel 1971). Spencer's application of this principle was, however, a utilitarian one, especially in the arena of morality and ethics (for a further discussion of the evolution of values and objectivity in ethics, see: P. Izadi 1994; see also: Puolimatka 1989). Overall, Spencer's thinking served to bring the concept of evolution within the grasp of the general reading public.

The view of evolution presented here is one that takes the principle of teleological evolution into account. Causality is usually referred to as a *chronological* relationship between cause and effect. In the systemic context, however, another type of causality can be identified: *essential* causality which, instead of defining input-output interdependencies, tells us about *primary* and *secondary* existence — i.e. what is the relative dependence and independence of realities (e.g. natural laws being independent of natural phenomena, but not vice versa). Thus, our view of evolution seeks to see this essential causality at work (in addition to chronological causality).

Then there is the problem of autopoiesis vs. macrodeterminism: it may appear to some that macrodeterminism rules out autopoiesis in that the predefined course of evolution, marked by macrodeterminism, leaves no room for autopoietic choices of the system. This problem is solvable: macrodeterminism determines only *the scope or range of alternatives* into which a system can *potentially* evolve, but it does not limit deterministically these alternatives into a one-track path to future; even the *path* along the macrodeterministic development is not, itself,

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macrodeterministic and will have unpredictable ups and downs, breakthroughs and breakdowns. Thus, the notion of macrodeterminism is not contradictory to autopoiesis; it only maintains that systems are not *indefinitely* autopoietic, but within a certain scope defined by their potential. Not all universalism indicates strict determinism; the world is not *either* fully deterministic (predetermined) *or* fully autopoietic (based on self-regulation or free will). We can safely assume, I argue, that both qualities can quite well coexist, without logically conflicting with each other (see also postulates P3<sup>a</sup>-P3<sup>c</sup> in Section 3.3.2., and hypothesis H7 in Section 3.4.2.).

Another issue, which is not directly connected to systemic principles but is relevant in this context, is that the history of epistemology seems to move from a static and passive view of knowledge towards a more adaptive and active one. One could object that, by taking a realist position on universals, we are neglecting the constructivist nature of human cognition and acquisition of knowledge. After all, an objectivist view (which also General Systems Theory represents) considers reality to be independent of the knower (Jonassen 1991, p. 28), while the constructivist view argues that the knower interprets and constructs a *viable* reality based on his experiences and interactions with his environment (Glaserfeld 1995, p. 7). On an epistemological continuum, objectivism and constructivism appear to represent opposite extremes (see also: Töttö 1992).

Again, ontology and epistemology seem to be getting confused. It needs to be acknowledged here that the view presented in our conceptualization insists that, on the one hand, reality is essentially *one* (holism) and that different domains of reality do not actually contradict each other but that, on the other hand, contradictions arise from the limited capacity of the human mind and its inherent failure to grasp any absolute truth — i.e. reality is always logical and coherent but that coherence may not be apparent to us. Thus, striving to realize the logic of things is an inseparable aspect of any observation, but that observation can, at best, only be *relatively* objective. Reality is presumably objective, our knowledge of it is subjective — i.e. the Platonistic assertion that ontology is independent of epistemology. This is why the paradigm of natural scientific epistemology (see Section 1.2.) involves making *approximations* of what can be *assumed* to be universally true; this is also why such approximations are never claimed to be

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objectively true; rather, they are considered to be proposed plausible estimations of a reality the objective nature of which is ultimately unknowable, in the absolute sense.

This epistemological paradigm holds also for the principles of General Systems Theory. Evaluating the credibility of these *systemic* approximations by sampling the observable reality is, however, a much vaster task in systems theory than in other fields, because systems theory relates to so many different domains of reality and encompasses such a comprehensive spectrum of phenomena. The application of systems theory to particular fields of science (e.g. the science of education) narrows down, of course, this vastness and makes the study of systems theory a manageable task. In any case, the concept of *ontological approximation* is highly relevant and apt for systems theoretic thinking and does *not* represent a positivistic notion.

Thus, “viable” knowledge is not something dogmatically given by an authority, nor a purely personal perspective of truth, nor merely a contextually relevant view. More broadly perceived, one could say that human knowledge (both scientific and colloquial) is the *point of contact or interface between our consciousness and reality*. Such knowledge is attained, for instance, through a process of social interaction and consultation, resulting in a synthesis of the complex aspects and relationships of each context (see: Lacher & Rathmayr 1984, p. 256; Pirttilä-Backman 1990, pp. 20-21; Voutilainen et al. 1990, pp. 22-24).

Hence, our systems theoretic mode of conceptualization retains that science without holistic vision is dogmatic, but it also acknowledges the *instrumental* value of reductionistic thinking. In fact, the systemic approach is a particular form of holism that incorporates the instrumental strengths of reductionistic science. It reiterates Capra’s (1983) criticism of the Cartesian world-view, mindful of the ongoing paradigm shift, the “crisis of perception”, which is not taking place only in the field of science but, indeed, in the consciousness of humankind as a whole (e.g.: King & Schneider 1991; Laszlo 1989; Mesarovic & Pestel 1974; Toffler 1974; P. Russell 1983). General Systems Theory contributes to this paradigm shift by making a non-dogmatic, credible effort to understand reality as governed by one set of ‘meta-laws’ — laws of reality that provide the ontological foundation for *all* sciences.

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Thus, our main focus of interest remains on the *applicability of General Systems Theory to the science of education*.

In pursuit of “coherent and universal ontological premises regarding human reality” (see Section 3.2.3.), we must investigate the *world-view* against which the question can be studied. World-view is at the core of philosophical discussion. How the world is and how human beings exist in it? What are basic causalities, how do things affect each other? Our foregoing discussions of holistic vs. reductionistic world-views might induce an unsuspecting reader to think that we suggest a complete division between *all* aspects of these world-views. While aware of the polarity of their basic premises, systems theory provides a conceptual framework that can accommodate mental and practical processes typical to either of them without surrendering its basically holistic and realist stance.

The holistic approach is adopted here as the overall postulate, but on the other hand, it is maintained that any application of this postulate must recognize that a reductionistic analysis of a phenomenon or system reveals the *structure and diversity* of its facets and elements. By showing that the properties of the whole become greatly diversified when manifested in its parts, reductionistic analysis serves to clarify the structures and relations of the elements within an holistic model. Therefore, the usage of both approaches can be considered as complementary *methods of thinking* — both are serviceable to a realist theoretical framework. The reductionistic approach is like moving on the ground in a forest and examining the richness of its flora and fauna, but having no vision of the dimensions and reality of the whole forest; the holistic approach is like flying over that forest and observing it as a whole and studying its qualities as one organic entity, but missing the characteristics of its details. In scientific investigation, the former inquires into specific questions answerable through available data, the latter requires a more intuitive insight into the basic principles behind the issues. The one is concerned with the qualities of details, while the other draws the attention to the attributes of the whole. Both are necessary and complementary; both focus on observing the logic inherent in reality, but they are concerned with different aspects of it. As Kant (1929 [1787]), has put it: “Concepts without observation are empty; observation without concepts is blind”. Just to clarify the differences and complementarities of holistic and reductionistic

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approaches, let us have a look at some ontological and epistemological concepts from the point of view of these two approaches:

**Conception of reality.** The reductionistic approach recognizes that reality is formed of parts, of separate elements, that reality has a definite *fragmental* quality. The holistic approach realizes the *synergic* nature of reality, i.e. despite its reductionistic elements, the whole is not merely the sum of its parts, but rather forms attributes and properties of its own, a 'life' which is beyond the conglomeration of the 'lives' of its constituent elements and vaster than their sum.

**Relation of parts and the whole.** Both the reductionistic and the holistic approaches expose a conception of interdependencies between various aspects of reality. Reductionistic thinking suggests that the whole is a representative *sum-result* of its constituent parts, that complex entities can be explained through their simpler elements. Holistic thinking indicates that the relation of the whole and its parts is *interdependence*, that while the parts are fully dependent on the synergic context provided by the whole, the whole needs the parts to become substantial and expresses its qualities in the diversified attributes of the parts.

**Notion of causality.** In a reductionistic frame of reference, causality is usually referred to as a *chronological* relationship between cause and effect. In holistic terms, however, another type of causality is introduced: *essential* causalities which, instead of defining input-output interdependencies, tell us about *primary* and *secondary* existence — i.e. what is the relative dependence and independence of realities (e.g. natural laws being independent of natural phenomena, but not vice versa).

**Focus of logic.** The two approaches imply also two different manners of how they focus on observing the logic within reality — grasping the rationality inherent in reality. Here, "logic" does not refer to a human quality, as is often implied in colloquial language, but rather to an intrinsic feature of existence — the feature that makes possible the derivation of theories and philosophies (in fact, a universal). The reductionistic and the holistic approaches apply this realization of logic differently. The reductionistic approach seeks

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to find the logical connections of the parts; the holistic approach attempts to reveal the logic, the oneness, in the features of the whole; the one produces *internal consistency*, the other provides *universal coherence*.

***Human rationality.*** The power of the human mind has many faculties such as the ability of analysis and deduction, the intuitive power of holistic perception and inductive generalization, the reflective creativity to form new conceptions, and the imaginative talent of applying ideas and potential to realistic and pragmatic plans. These human faculties apply, on the one hand, the reductionistic approach to utilize *analytic* thinking and deduction and, on the other, the holistic approach to apply *reflective* attention and intuition.

Although the two approaches are complementary in *method*, the following must be noted: (a) since the basic ontological assumptions of holism correspond to a realist view and those of reductionism relate better to a nominalist or conceptualist stance, the foundational *world-views* behind the two approaches are irreconcilable and mutually exclusive; (b) even those aspects of the two approaches that appear complementary do so due to the fact that a systems theoretic holistic perspective is capable of incorporating reductionist procedures as modes of investigation, while the reductionist world-view cannot logically accommodate holistic approaches. For instance, a purely holistic view logically *includes* reductionistic relationships between a system's constituent elements, while a purely reductionistic view logically *excludes* holistic qualities of the system.

### 3.2.7. GENERAL SYSTEMS THEORY & THE SCIENCE OF EDUCATION: MAIN HYPOTHESIS

As proposed in the Prologue, educational science and futures studies share one common feature with the science of medicine: “they seek to *produce effective practice for real-life improvements* and they need to be *backed up by proper and credible theoretical thought*”; moreover, they are targeted towards *future* in pursuing *proactiveness* (not merely *reactiveness*). However, while medicine can clearly identify relatively objective criteria for physical health (the betterment of the biological aspect of

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human reality), education has presently no way of identifying relatively objective criteria for good education (the betterment of the social, intellectual, emotional and spiritual aspects of human reality).

The field of futures studies, on the other hand, while struggling with similar problems in terms of relatively objective criteria, is much less bound by the fetters of academic prudence: it is a new field with a lot of criticism to deal with and with a diverse and cross-scientific following — mostly, people who are concerned more about the value of their work than the academic status of their careers. For the majority of futurists, pursuing an holistic systems approach, where disciplinarity is not the focus, comes quite naturally. It may even be claimed that disciplinarity *per se* is in crisis due to the paradigm shift from reductionism to holism, and that futurists are at the crossroads of this shift. The works of outstanding figures within the futurist community, already mentioned earlier, testify to this fact; others include: Wendell Bell (e.g.: 1996); James Dator (e.g.: 1979), Johan Galtung (e.g.: 1984; 1997), Sohail Inayatullah (e.g.: 2000), Eleonora Masini (e.g.: 1993), Ziauddin Sardar (e.g.: 1985; 1998), Richard Slaughter (e.g.: 1995; 1996; 1999). These and numerous others from around the world, today, continue this work across their original disciplines and in ongoing interaction with each other.

Such efforts have shown the asset of General Systems Theory in that it provides a set of scientific principles that can be used as rather accurate conceptual tools over a broad spectrum of phenomena. While, as shown in Sections 1.2. and 2.1.1., we have rejected positivistic or 'exact' sciences in almost all fields of science, this does not mean that their theoretical construction or conceptualization should be vague or inexact. Accuracy in theoretical concepts and constructs is a prerequisite for avoiding dogmatic belief, as opposed to scientific belief (see Section 3.2.2.). General Systems Theory addresses reality as a whole, and thus, extends the possibility of such accuracy to reach human sciences as well. Ludwig von Bertalanffy (1988 [1968], p. 38) maintains that systemic principles promote a "general tendency towards integration in the various sciences, natural and social" and that, by "[d]eveloping unifying principles running 'vertically' through the universe of the individual sciences", systems theory can become "an important means for aiming at exact theory in the nonphysical fields of science". Thus, systems theory points to scientific principles that can provide the context for a

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“meta-theory of the science of education” (see Section 2.4.3. and 3.1.1.). Therefore, a systems theoretic approach is at the core of our concern for greater attention to the “universals” of education over its “particulars”; it also corresponds to the need of formulating ontological approximations of these universals, using the approach of natural scientific epistemology.

As pointed out in Section 3.2.4., the purpose here is not to prove the scientific credibility of General Systems Theory (which is the task of general systems theorists as well as logicians and mathematicians). Systems theory is not an *hypothesis* we seek to prove, but a *postulate* we consider relevant for the science of education. Hence, systemic principles are taken as postulates (see Section 3.3.), but the claim of their relevance to the science of education is the hypothesis. In Section 2.4.4., we defined our first step in pursuing a scientific method for studying educational universals as follows: to examine the applicability of General Systems Theory to the study of educational universals. Thus, the *relevance of General Systems Theory to the science of education* is our assumption and focus of study, our main hypothesis. Let us, then, articulate the *main hypothesis* of this thesis:

*If the science of education is to focus on educational universals, systemic principles are applicable to, and General Systems Theory is fundamentally relevant for, the further development of the science of education.*

There are a number of human scientists who have made use of systems theory. Among the most noted and renowned of these scientists is Niklas Luhmann who has done extensive work in applying systems theory to social science (see e.g.: Luhmann 1984; 1989; 1992). Also, several educationalists, particularly in recent years, who have made use of systemic principles in understanding educational processes and, more importantly, the role of education in human evolution (e.g. Hart 2001). Moreover, for instance, within the Swedish tradition of pedagogical science in Finland, recent works of educationalists have increasingly applied systems thinking to particular educational interests and studies ( e.g.: Lenzen 1997; Lindfors 1992; Malmberg 1995).

Individual and sporadic attempts having, thus, been made on using systems theory in particular interests, the way seems to be paved

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for a more comprehensive examination of the relevance of General Systems to the science of education, as a whole — using systemic reasoning to achieve holism within the entire field of educational science.

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### 3.3. ATTEMPT ON POSTULATES: THE SYSTEMIC NATURE OF EVOLUTION

It is now finally time to embark on the actual postulation of this thesis. As mentioned in Section 2.4.4., this postulation seeks to recapitulate systemic principles for depicting the ontological character of reality. Thus, it is not a set of statements on *human reality* or *education* but on *reality as a whole*. Later, in Section 3.4., hypotheses on education will be based on these postulates.

#### 3.3.1. META-POSTULATE AND SYSTEMS THEORETIC POSTULATION

It has been the presupposition of the foregoing discussions that the scientific approach, often attributed only to natural sciences, has indeed a broader appeal than just the domain of natural sciences; that this paradigm can also be at the core of the science of education and relevant to the study of educational universals. It was noted that, while the types of universals or the ontological approximations or the empirical approaches that are involved in various sciences are inevitably vastly diversified, yet, there can exist an *epistemological monism* among all sciences in respect to the manner in which they seek knowledge about reality. Thus, our foremost presumption, our meta-postulate (as formulated in Section 2.4.4.), is:

*P0 The general epistemological paradigm of science and its method of exploring universals, currently used by natural sciences, are relevant and applicable also to the paradigm of the science of education — they can provide substantial advances in the exploration of the phenomenon of education.*

To try out this point of departure, and based on the main hypothesis that General Systems Theory is relevant to this task (see Section 3.4.1.), fundamental postulates on the ontological nature of reality, as a whole, can be advanced. As stated earlier, however, systems theory is a newcomer to the philosophy of science and its tenets and implications are still somewhat fluid — it is not yet an established branch of philosophy and, thus, its concepts and terminology are not

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fixed. It is, therefore, useful to be reminded of the broad lines that characterize systems theoretic thinking: that *all systems are synergic, they are more than the sum of their constituent elements* and that *there are principles and conditions that apply to a vast range of very different systems*.

As pointed out in Section 3.2.5., emergent systemic principles and concepts have, as yet, no academically constituted terminology, no canonized formulation; still, these principles and concepts denote accurate meanings and involve a logical construct. Our postulation will seek to recapitulate the aforementioned systemic principles<sup>1</sup> so that this logical construct is retained, and possible ‘gaps’ filled in, within a coherent conceptual framework.

### **3.3.2. POSTULATES: PROPOSING SYSTEMIC STATEMENTS ON REALITY**

Systems theory implies a hierarchically organized ontology. The principle of *systemic hierarchy* (S0) says that reality has a hierarchical structure where each higher level includes the qualities of lower levels as well as additional qualities of its own. The principle of *hierarchical natures* (S0<sup>a</sup>), on the other hand, suggests the hierarchical existence of various domains (such as material, living, sensing, intelligent, and transcendental). Where do the additional qualities on higher hierarchical levels originate? Perhaps, systems vary in their degree of *practical ability* to express their *possible qualities*. Thus, the indicated hierarchy and additional qualities on higher levels can be better understood, if we assume that systems have *two ontological capacities*: an *ideal* capacity and a *contingent* capacity. These two ontological capacities offer complementary viewpoints for observing and understanding a given system — the one, from the viewpoint of the system’s *contingent limitations*, the other, from the viewpoint of the system’s *ideal possibilities*. This ‘systemic dualism’ can be depicted in the form of the following postulates:

P1<sup>a</sup> *Ideal ontological capacity*: Systems manifest changeless attributes, principles, and laws — universals that are timeless and abstract (e.g. natural laws).

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<sup>1</sup> From now on, throughout Chapter 3, references to “systemic principles” will refer to the numbers of the principles of General Systems Theory (S#), as outlined in Section 3.2.5.

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- P1<sup>b</sup> *Contingent ontological capacity*: Systems exhibit changing attributes, circumstantialities, and occurrences — particulars that are dynamic and can transform (e.g. natural phenomena).
- P1<sup>c</sup> *Ideal capacity reflected in the contingent attributes*: The ideal capacity of a system can be manifested in contingent attributes on various levels and in countless different manners — a system's contingent attributes reflect its ideal capacity.

The approach can also render irrelevant the original objection by Occam (see Section 3.2.3.) against the dualism of the ideal world vs. the contingent world, demanded by Platonistic realism. Whilst the two proposed “capacities” seem to correspond to the “dualism” criticized by Occam, in reality they do *not* refer to two separate worlds, but rather, to two qualitative ontological aspects of one holistic reality. This definition is quite different from classical Platonism which views reality as divided into two separate domains: an ideal and a contingent. Here, the two domains are not separated ontologically but are seen as aspects of one reality.

Further on, while the principle of *system's three states* (S1) emphasizes the openness of systems, the principle of *systemic unity* (S2) points out that systems emerge towards greater unity among constituent elements and exhibit holistic and non-reducible qualities. Based on these systemic principles, the following postulates can be proposed:

- P2<sup>a</sup> *Unity*: All systems are open and interact with each other and, therefore, all systems can be seen, in the final analysis, as subsystems of a meta-system, i.e. reality as a whole — thus, reality is one.
- P2<sup>b</sup> *Synergy*: All systems have synergic attributes that cannot be reduced to the sum of the qualities of their elements.

As a short sidetrack, let it be noted that these postulates yield an interesting systems theoretic notion about the concept of *benefit*: in the last analysis, the benefit of all systems converge and correlate, and in the long run, the benefit of the part depends upon the advantage of the whole. We shall briefly touch upon this topic later in our hypotheses (see hypothesis H3 in Section 3.4.2.).

Now, let us reiterate some of the evolutionary systemic principles. The principle of *macrodeterminism in evolution* (S3<sup>a</sup>) suggests that living systems evolve with a general historical orientation — a trend towards higher complexity and more sophisticated order. The difficult part of this principle is not the idea of complexity; this is confirmed also by the principle of *unity in diversity* (S2<sup>a</sup>) with its demand for a high level of diversity of elements and structures in order for the holistic qualities of the system to emerge. The difficult part is the idea of historical orientation, which according to the principle of *teleological evolution* (S6), can be attributed to a purposefulness inherent in the ontological nature of evolution. However, as observed in Section 3.2.5., the principle of teleological evolution is quite vague: it does not explicate the manner in which “purposefulness” is “inherent” in evolution. It is the concept of *potential* that is central to this discussion. “*Potential*” is, in fact, another word for a system’s ideal capacity (see Postulate P1<sup>a</sup>) — the pool of possibilities inherent in the system: all its possible ‘destinies’, if you like. The macrodeterministic evolutionary process, the historical orientation it manifests, can be viewed as the system’s progressive ability to reveal its ideal capacity in contingent attributes (see Postulate P1<sup>c</sup>). As to the evolutionary conditions that denote these progressive abilities, the principles of *system’s three states* (S1), of *autopoiesis and bifurcation* (S1<sup>a</sup>) and of ‘*crisis and victory*’ (S5<sup>a</sup>) are relevant, explaining that higher complexity and a more sophisticated order is, most dramatically, achieved when the system goes through occasional periods of bifurcation, historical situations of crisis and turning point, that facilitate possible evolutionary breakthrough but, also, include the threat of breakdown. Our evolutionary postulates can, then, be defined as follows:

- P3<sup>a</sup> *Macrodeterministic principle*: Evolutionary systems have an ideal macrodeterministic potential that determines the scope of alternative possibilities which a system can realize.
- P3<sup>b</sup> *Progressiveness principle*: A system’s potential is not manifested at once but unfolds progressively, in an evolutionary process, from modest beginnings towards the full realization of any particular possibility within the potential.
- P3<sup>c</sup> *Complexity principle*: Increased complexity in a system leads to increased possibilities and can facilitate a fuller expression of the system’s potential, depending on existing circumstances and choices.
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P3<sup>d</sup> *Bifurcation principle*: Increased complexity and more sophisticated order in a system can be most dramatically achieved through occasional periods of instability or bifurcation — a turning point, a crisis and transitional chaos, that facilitates evolutionary breakthrough but, also, includes the threat of breakdown.

Thus, evolutionary entities are systems that each has a potential — the system's ideal capacity and the pool of macrodeterministic possibilities inherent in this capacity. Evolution towards such potential, while readily observable in both biological and social evolution, is a peculiar notion that defies both probability and entropy — or, as Niklas Luhmann (1992, p. 283) puts it: “We can distinguish three different ways of connecting different phases, stages, or epochs in social history. The first uses the idea of progress. The second describes history in structural terms as increasing differentiation and complexity. The third describes history and, in particular, evolution as increasing improbability, for instance, considering the concept of thermodynamic ‘neg-entropy’, that is, negative entropy ... To some extent these three ways of understanding represent different expressions of the same idea.”

Now, as mentioned in Section 3.2.6., the idea of macrodeterministic potential may seem to rule out autopoiesis. A strictly Platonistic definition of a system's potential would signalize, rather deterministically, a single ‘ideal’ state that the system's potential to express. Here, however, the intention is quite different: a *macrodeterministic* potential allows countless possibilities of evolving further and, yet, is not *arbitrarily free* in that it denotes the *range of alternative possibilities* out of which any particular one can actually come true and be realized, depending on existing circumstances and choices that are made. For instance, an apple seed has only the potential to grow into an apple tree, not e.g. a pine tree, but there are countless alternatives into which kind of an apple tree it can grow, depending on the nourishment it receives or the soil it is planted in or the conditions it is exposed to (more complex systems — say, the system of the human race — can, of course, have a much vaster potential latitude than the apple seed of our example). Thus, a system's macrodeterministic potential determines the scope or range of alternatives into which that system *can* evolve, but it does not limit deterministically those possibilities into a one-track path; even that *path* is non-deterministic and has unpredictable ups and

downs, breakthroughs and breakdowns. Therefore, the notion of systemic potential is not contradictory to the autopoiesis.

Let us return from this sidetrack to our postulation. In identifying the relationships between systems or between the sub-systems of a system, first, the principle of *evolution in life* (S4<sup>a</sup>) must be remembered — that evolution is a unique quality of living systems; and second, the principle of *conditions of life* (S4) must be kept in mind — that living systems exhibit metabolic feedback, self-organization, reproduction, and interaction with their environment. Then there is the principle of *unity in diversity* (S2<sup>a</sup>), which connects the diversity of elements and structures to the emergence of the holistic qualities of the system and the achievement of stability within the system. On the one hand, these principles emphasize that a diversified and complex network of relationships exists within the system, as well as between the system and other systems; on the other hand, they show that this diversity is an inseparable aspect of organic unity. Moreover, the principle of ‘*crisis and victory*’ (S5<sup>a</sup>) would suggest that critical turning points of possible evolutionary breakthrough and threatening breakdown are, in fact, manifested in a process of success and failure that originates from the strengthening or weakening effect of the feedback received from the environment and other systems. The following postulates recapitulate this unity in diversity expressed in the dialectics of success and failure, the process of co-evolution:

- P4<sup>a</sup> *Unity in diversity*: Systems exhibit shared potential and collective attributes (unity) that are nonetheless expressed in endlessly different variations according to varying individual capacities and conditional situations (diversity).
- P4<sup>b</sup> *Positive-negative feedback*: Systems evolve and manifest their potential and mutual unity progressively, through a process of success and failure, the strengthening or weakening effect of the feedback received from their environment (parent system) and other entities (sister systems).

The principle of unity in diversity (postulate P4<sup>a</sup>) is easily seen, for instance, in the quality of ecological interdependence, which is seen in the entire ecosystem (unity) and manifested in the countless manners in which living things depend on each other (diversity). In fact, this

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example also illustrates the principle of positive-negative feedback (postulate P4<sup>b</sup>).

### 3.3.3. SUMMARY OF POSTULATES

The foregoing postulates can be put together into four clusters that help to summarize the main ideas contained in them. This clustering was evident in the discussion and numbering of the postulates. The numbering here refers to the one above.

- P1 *The two aspects of one reality:* Reality incorporates two ontological capacities: the ideal capacity (changeless attributes and principles, i.e. universals), and the contingent capacity (changing attributes and circumstantialities, i.e. particulars) — a system's contingent attributes reflect its ideal capacity.
  - P2 *The unity of reality:* All systems are open and can be seen as subsystems of the entire reality, and each system is non-reducible to its constituent elements.
  - P3 *The evolutionary principle:* Systems can have an ideal macrodeterministic potential which unfolds progressively (from a negligible outset towards full fruition) and is fed by increasing complexity which, in turn, is issued in by occasional bifurcations that facilitate evolutionary breakthrough while, also, including the threat of breakdown.
  - P4 *The co-evolutionary context of unity in diversity:* Systems co-evolve within the context of shared potential expressed in individual and situational variety; this facilitates a feedback relationship with their parent and sister systems causing a dialectic of success and failure.
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### 3.4. ATTEMPT ON HYPOTHESES: THE SYSTEMIC NATURE OF EDUCATION

Now we can advance the hypotheses of this research. As pointed out in Section 2.4.4.), the aim is to propose universal hypotheses on education, based on the systems theoretic postulates. The hypotheses will elucidate the general phenomenon of education and they will also allow latitude for accommodating the existing variety of particular methodology and approaches present in social and behavioural science.

#### 3.4.1. MAIN HYPOTHESIS AND HYPOTHESIZING BASED ON POSTULATES

While our meta-postulate (see Section 2.4.4.) has been that the general epistemological paradigm of science in exploring universals is relevant also to the science of education, our assumption, throughout Chapter 3, has been that a systems theoretical framework can provide the conceptual tool for this purpose. The idea is that General Systems Theory can work as a meta-theoretical, comprehensive, interdisciplinary context for the science of education. A “meta-theory of the science of education” (see Sections 2.4.3. and 3.1.1.) must address the ontology of education and of human reality in order to refurbish the context of educational theory. Our primary and most generic assumption, our main hypothesis (as articulated in Section 3.2.7), then, is:

*H0 If the science of education is to focus on educational universals, systemic principles are applicable to, and General Systems Theory is fundamentally relevant for, the further development of the science of education.*

Hence, the overall objective continues to be trying out the applicability of systems theory to the science of education. Our postulation pictured an holistic world-view and, therefore, did not include statements bearing directly on education and human reality; this is the task of the hypotheses. Thus, if the main hypothesis is true, then certain systems theoretic claims about education must also be true

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— theorems that are deduced by expressing systemic postulates and principles<sup>1</sup> in terms of the *phenomenon of education*.

### 3.4.2. HYPOTHESES:

#### DERIVING SYSTEMIC STATEMENTS ABOUT EDUCATION

Since the systemic postulates emphasized an holistic and evolutionary perspective, the hypotheses must also exhibit this orientation. Notably, the hypotheses will address education as a *generic function existing in reality* (a generic universal), on the one hand, and as a *specific function expressed in human existence* (a human universal), on the other.

First, there is an ontological choice to be made. What is education? The principle of *evolution in life* (S4<sup>a</sup>) suggests that qualitative evolution is a unique quality of living systems. This indicates the quality of *development*, as apart from other forms of transformation. On the other hand, von Wright's (1988) differentiation of *change* (or transformation), *development* and *progress* (see Section 2.2.1.) — defining development as a special kind of change that involves diversification, complexification and specialization — seems to resonate with the historical experience we have of the results of education. One could say: *education is the input that provokes and stimulates development* (if not necessarily progress) in evolutionary systems. This does not necessarily indicate *deliberate* input, but can include all types of natural and other mechanisms of feedback etc. that provide such input. Moreover, postulate P1<sup>c</sup>, that a system's contingent attributes reflect its ideal capacity, implies that the ability to *be educated* is a universal capacity of evolutionary systems. In broadest terms, then, we can hypothesize the definition of education as follows:

H1 *Universal education*: Education is an ideal capacity (a universal, similar to natural laws) of evolutionary systems (biological, ecological, social, mental, moral etc.) — the capacity to evolve through input that provokes and stimulates their development.

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<sup>1</sup> From now on, throughout Chapter 3, references to “postulates” will refer to our postulation (P#), as outlined in Section 3.3.2., while “systemic principles” will continue to refer the numbers of the principles of General Systems Theory (S#), as outlined in Section 3.2.5.

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Thus, education is characteristic to *evolutionary* systems. Now, if evolutionary systems, indeed, have a macrodeterministic potential (postulate P3<sup>a</sup>), and if this potential unfolds only progressively (postulate P3<sup>b</sup>), we can propose an hypothesis about the evolutionary nature of education:

H2 *Evolutionary education:* Evolutionary systems have a macrodeterministic potential that becomes manifested only gradually in an ‘educational’ process that transforms the system.

The process that “transforms the system” does not come about all by itself and is dependent on the input of parent and sister systems. Since systems exhibit collective potential expressed in endless individual variations (postulate P4<sup>a</sup>), and since systems manifest their potential progressively in interaction with their parent system and sister systems (postulate P4<sup>b</sup>), we can appreciate the effect of feedback and positive-negative interaction as well as the synergic aspect of the educational process. This bears also on the principle, pointed out in Section 3.3.2., that the benefit of the part depends upon the advantage of the whole. We can now hypothesize the following:

H3 *Education through unity in diversity:* The potential of evolutionary systems can, most comprehensively and coherently, be realized within the potential of their parent system, within a context of unity in diversity — i.e. the mutuality of the part and the whole, unity of purpose in the diversity of application, collective benefit through the richness of individuality.

H4 *Education through positive-negative feedback:* Evolutionary systems receive, from their parent and sister systems, positive or negative feedback regarding their emerging transformations and, thus, evolve and ‘learn’ their way towards their potential through success and failure.

The necessity to realize the interdependence and mutuality of the parts and the whole (hypothesis H3) is evident in the ecological reality. Moreover, an example of ‘natural’ learning through feedback (hypothesis H4) is the success and failure of emerging mutational transformations in biological entities — a process that actually facilitates the entire biological evolution, the genetical ‘learning’ of the species.

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The preceding hypotheses depict the basic qualities of education as a universal principle — education “as a *generic function existing in reality* (a generic universal)”. The following statement summarizes hypotheses H1-H4:

*Education is the holistic process of interaction and transformation that guides a system's evolution towards the realization of its potential.*

But these hypotheses say nothing about the role of education as a uniquely human function — education “as a *specific function expressed in human existence* (a human universal)”. How can we distinguish education as a form of evolving peculiar to humans? In line with postulate P3<sup>c</sup>, stating that increased complexity can facilitate a fuller expression of potential, in more developed systems the potential of becoming educated manifests additional features and qualities that were not present on less evolved levels. Thus, systems with basic *consciousness*, with *senses* and *memory* (such as animals), and those capable of *self-consciousness* and *purposeful thinking* (such as humans), exhibit the phenomenon of education with additional qualities that are not discernible in systems that lack this consciousness (such as plants). This issue is particularly enhanced by the systemic principle of *emerging consciousness* (S6<sup>a</sup>) — that the telos of evolution is most strikingly present in the emergence of consciousness, a consistent trait in the course of evolution and history. Just what are some of these additional qualities that the evolution of consciousness brings in to the process of education?

In general, the educational feedback, described in hypothesis H4, has only an immediate effect: it gives an instant input, on a case-by-case basis, contributing to the success or failure of a particular feature in the system. In *sensing* and *memorizing* systems, like animals and humans, there are also ‘delayed’ effects of the positive-negative feedback: the system remembers the feedback and can behave, at a *later* point, in accordance with the feedback it received during *earlier* experiences, without need to renew a similar feedback input. In other words: the system can be *conditioned*. The hypothesis is then:

H5 *Education through conditioning*: In memorizing systems, positive-negative feedback experiences influence also future situations so that, the system can learn to behave in accor-

dance with the feedback received earlier (without the renewed input of the feedback).

We are still not dealing with the type of educational processes that would be typically human, because conditioning is common to both humans and animals — in fact, it is *the* main educational avenue for animals. Humans are *self-conscious* and *purposeful* systems. In such beings, the educational positive-negative feedback process is not only autopoietic or ‘natural’, but can also come through deliberate input (from an educator). The hypothesis is:

H6 *Education through conscious feedback:* The positive-negative feedback process of education is universal and autopoietic but, in self-conscious and purposeful beings, it can also be intentional — i.e. education can include educators (also intentional self-education).

This deliberate positive-negative feedback is known in common language as “reward and punishment”. It certainly seems that we have managed to make a full circle, coming back to basic behaviourism! Where are the uniquely non-materialistic and holistic interpretations of human reality? Firstly, hypotheses H5 and H6 are not our ‘final’ conclusions, but merely one observable aspect of the process of education. Secondly, they are derived here from a systemic set of ontological assumptions, not reductionistic observations. Thirdly, we are only now coming to the uniquely human essentialities of the concept of education. Let us proceed.

Education through intentional feedback is something peculiar to human beings. It is the existence of such education that makes possible the adoption of educational goals and objectives; it is such education that awakens consciousness of consequences and orients intentions. And such education can be applied both to individuals and to societies — both are “self-conscious and purposeful” systems (cf.: Prigogine 1976). It must, moreover, be remembered that such education does not come only *externally* but also, very significantly, *internally* by the one being educated — i.e. through intentional *self*-education.

Within our systemic frame of reference, the behaviouristic theorems of “conditioning” (hypotheses H5) and “reward and punishment” (hypotheses H6) can find a broader and more futuristic

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interpretation: an hypothesis on education as a mode of *conscious and purposeful evolution* can be derived:

H7 *Education as an agent of change*: It is possible to systematically influence the future of individuals and societies through the choice of educational goals and models — education can be a manageable change agent, a strategic tool, for conscious and purposeful evolution, for building the future through conscious individual and collective decision-making.

Here the emphasis is on *manageability*. There is nothing very special about the observation that education influences the future, but it is crucially significant that, through relevant educational decision-making, the future course can be consciously manipulated and managed — at least to some degree (and within the limits of the potential of the system). This hypothesis is, perhaps, the best and most extreme indication that autopoiesis and macrodeterminism are, indeed, reconcilable and mutually supportive (see Sections 3.2.6. and 3.3.2.): without a macrodeterministic potential the autopoietic choices of the system would profit nothing because they would not yield the further unfoldment of its evolution.

Interesting as these hypotheses may be, they still do not address the highly problematic issue of educational goals and, ergo, human values — perhaps, *the* most fundamental issue when speaking of education as a uniquely *human* activity. Our argumentation would become mere curiosity, and also dangerously prone to misuse for the justification of selfish ends, if there was no hypothesis bearing on the nature of educational goals and values that *should* be adopted. This is the issue that is easily felt to be out of the scope of scientific theorizing — a matter for normative choices and policy. Therefore, most theories avoid the issue. Are educational goals and values mere matters of preferences? Are they normative issues that can be put into no objective context? Is there no unbiased point of reference for human values and moral development? Ethically, these are the most important questions; but they are also theoretically the most interesting questions (in my subjective opinion).

Let us see whether our systems theoretic frame of reference can provide us with leeway to theorize on this issue. If education is, indeed,

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an ideal capacity of evolutionary systems which is similar to natural laws (hypothesis H1), and if evolutionary systems have a unique macrodeterministic potential manifested gradually in an educational process (hypothesis H2), then it would follow that there must be some universal, law-of-nature type, principles that are relevant to the realization of that potential. Then, these principles would delineate the type of education goals and values that are conducive to the unfoldment of the system's potential. This implies an hypothesis that would justify a certain kind of 'moral objectivism':

H8 *Objective education:* There are universal principles and ideals that are critically relevant to the realization of the potential of a given human system and its educational paradigm and, thus, bear directly on appropriate educational goals and values to be adopted.

This means that educational goals and human values have, in fact, a relatively objective point of reference or criterion — i.e. those requirements that are necessary to *the realization of the potential inherent within human reality*. While a full knowledge of these requirements, in the pure Platonic sense, is humanly unreachable, relatively objective knowledge of them *can* be attained (in congruity with our notion of human knowledge outlined in Section 3.2.6.). There are universal principles that are at the core of meeting these requirements, and such principles point to what we may call 'universal values' with some objective foundation (cf.: Ganguli et al. 1981, pp. 198-203; Kohlberg 1981, pp. 412).

Moreover, the notion of the realization of human potential as the standard for universal values is not, as it may first appear, an individualistic and egotistic one: hypothesis H3 precludes this by asserting that individuals can best realize their potential "within the potential of their parent system", and by emphasizing "the mutuality of the part and the whole". Indeed, this would suggest that the most primary value of all, intrinsic in the structure of reality, is *unity* itself. In this era of all-encompassing pluralism, the vacuum left by unawareness of unifying values is making thoughtful spectators increasingly alarmed and aware of this need (e.g.: UNESCO 1965, p. 60, Canadian Commission for UNESCO 1990, pp. 33-34; Harman 1988; Puolimatka 1989; Launonen 2000). The principle of potential being revealed through education — of the essential nobility and collective reality of that

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potential, of conscious educational efforts of human beings to bring it into fruition — is not unknown to the spiritual legacy of humankind. In the words of Bahá'u'lláh (1817-1892), written over a century ago: “*Regard man as a mine rich in gems of inestimable value. Education can, alone, cause it to reveal its treasures, and enable mankind to benefit therefrom.*” (Bahá'u'lláh 1952 [circa 1880], p. 260.)

### 3.4.3. SUMMARY OF HYPOTHESES

The preceding hypotheses will now be restated in a brief form, as a summary and for ease of reference. The hypotheses are systemic theorems on the phenomenon of education as a *generic universal* (a general evolutionary principle of existence) and education as a *human universal* (a form of evolving peculiar to humans). The numbering refers to that of the hypotheses.

H1-2 *Universal evolutionary education*: Education is a universal function manifest in evolutionary systems, a process of transformation through which a system's potential becomes manifested.

H3-4 *Education through unity in diversity*: The potential of evolutionary systems can be most fully realized in the context of reciprocity between the system and its parent and sister systems, between collectivity and individuality; positive-negative feedback from parent and sister systems facilitates a process of ‘learning’ towards the realization of the system's potential.

H1-4 *Education is the holistic process of interaction and transformation that guides a system's evolution towards the realization of its potential.*

H5-7 *Education as an agent of change through conscious feedback*: Memorizing systems can utilize the positive-negative feedback experiences also in future situations, while conscious systems can produce intentional and goal-oriented feedback (including self-education); conscious choice of educational goals and models affects the future and is a manageable tool for purposeful evolution.

- H8 *Objective education:* There are universal principles and ideals that are critically relevant to the realization of the potential of a given human system and its educational paradigm and, thus, bear directly on appropriate educational goals to be adopted.
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### 3.5. SUMMARY & ARTICULATION OF THE ATTEMPT (ON THEORY)

1. An holistic vision and focus on universals does not constitute 'dogmatic belief' but, on the contrary, is a prerequisite for comprehensive and justifiable 'scientific belief'; *science without holistic vision is dogmatic*, i.e. scientific belief demands a coherent perspective of the whole.
  2. The theoretical attempt seeks to demonstrate the philosophical feasibility of educational universals and to focus the science of education on these universals through a meta-theoretic study of the *applicability of General Systems Theory to the science of education*; a meta-theory of the science of education would also include a coherent and justifiable *ontological view on human reality*, as the central universal in the educational context.
  3. While there are numerous individual scholars who seek to address human universals and pursuing some holistic understanding of human reality, the existing tradition of the philosophy of social and behavioural sciences does not constitute a coherent entity; the ontological foundation of human sciences is not yet established, and therefore, universal ontological premises on human reality are unable to emerge.
  4. Occam's Razor calls for the abandonment of a nominalist and conceptualist view of universals and justifies the conceptualization of universals via systemic approximations of reality; General Systems Theory, essentially, pursues holism while avoiding reductionism and atomism — its principles underline very different domains of reality (in fact, reality as a whole), and it provides a context where human universals can be addressed in an holistic and cross-scientific manner.
  5. As modes of thinking, the reductionistic and the holistic approaches are complementary but, as foundations for world-view, they are mutually exclusive and the holistic approach is endorsed here; the approach also includes the notion that, while reality is
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presumed to be objectively real and free of contradiction, *human knowledge* of reality is always somewhat subjective and can reach only for relative objectivity (ontology is independent of epistemology).

6. Systemic postulates on reality: (P0) *the general epistemological paradigm of science and its method of exploring universals, currently used by natural sciences, are relevant and applicable also to the paradigm of the science of education*; (P1) reality incorporates two ontological capacities: the ideal capacity (changeless attributes and principles, i.e. universals), and the contingent capacity (changing attributes and circumstantialities, i.e. particulars) — a system's contingent attributes reflect its ideal capacity; (P2) all systems are open and can be seen as subsystems of the entire reality, and each system is non-reducible to its constituent elements; (P3) systems can have an ideal macrodeterministic potential which unfolds progressively (from a negligible outset towards full fruition) and is fed by increasing complexity which, in turn, is issued in by occasional bifurcations that facilitate evolutionary breakthrough while, also, including the threat of breakdown; (P4) systems co-evolve within the context of shared potential expressed in individual and situational variety; this facilitates a feedback relationship with their parent and sister systems causing a dialectic of success and failure.
  
  7. Systemic hypotheses on education: (H0) *if the science of education is to focus on educational universals, systemic principles are applicable to, and General Systems Theory is fundamentally relevant for, the further development of the science of education*; (H 1-2) education is a universal function manifest in evolutionary systems, the holistic process of interaction and transformation that guides a system's evolution towards the realization of its potential; (H 5-6) self-conscious and purposeful systems can produce intentional and goal-oriented feedback (including self-education); (H7) conscious choice of educational goals and models affects the future and is a manageable tool for purposeful evolution; (H8) there are universal principles and ideals that are critically relevant to the realization of the potential of a given human system and its educational paradigm and, thus, bear directly on appropriate educational goals to be adopted.
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**Articulation of the Attempt (on theory):** The purpose of the attempt on theory is to be *the first step in focussing the science of education on educational universals*; this step is taken through hypotheses that reposition the science of education in a systems theoretical philosophical context, with systemic ontological postulates at its core.

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## Chapter 4

# THE ATTEMPT (ON APPLICATION)

The purpose of this chapter is to put the proposed meta-theoretic assumptions to a tentative test. If the science of education had, indeed, as its foundational basis such postulations on reality, how would this facilitate research work in that field? The only way to study this question is to *try* to make such research; in other words: to *assume* the forgoing meta-theoretic proposals as the existing tradition of education, and see what kind of research *can* be done from such points of departure. This is what we shall seek to do now — to *apply* the meta-theoretic proposition to a tentative research scheme as a ‘test run’ to those propositions. While the preceding chapter was our “attempt on theory”, this chapter is our “attempt on application”.

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#### 4.1. THE ATTEMPT ON RESEARCH METHOD: HOW TO STUDY META-THEORY?

This is an unusual and awkward situation for a researcher. I am in a position that the existing points of departure cannot, directly, facilitate an empirical research because I am not studying the validity of hypotheses that address some particular aspect of education but education *per se*, the meta-theory of the entire field of science. How to study a meta-theory?

As proposed in Section 2.4.4., we can try to design a *speculative test* for the proposed hypotheses: since these hypotheses seek to relate to a systems theoretic core for the science of education, we could speculate on the possible direction that educational theory and research *could* take *if* such suppositions were, in fact, the accepted core of the science of education. Such speculation is the aim of this “attempt on research method”.

##### 4.1.1. THE PROBLEM OF SCOPE AND MANAGEABILITY

If the idea is to speculate with the possible implications of a systems theoretically based science of education, we must devise some form of a setup to play with this idea — to give such a paradigm a ‘test run’, in a manner of speaking. Thus, we are facing the situation where we want to do some *empirical work* (the ‘test run’) with highly *ontological issues* (a systems theoretically based science of education). While in principle this is possible, to do proper empirical research on such a topic would be an impossible task for a single dissertation. Indeed, the only empirical evidence that I can think of for the validity of such hypotheses would be the *test of time* — that they would, as the accepted foundation of educational science and as used by the generality of the scholarly community, prove to be coherent and consistent and productive over a long period of time.

However, I have claimed that the natural scientific epistemological approach is applicable to the science of education and that General Systems Theory is relevant to such an approach: it would be reasonable

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to try out this idea in *some* tangible manner — to give an *example* of a meaningful research setup based on the proposed points of departure. It may be claimed that even this venture is too vast and out of the scope of a single dissertation. Be that as it may, I feel responsible to provide some tangible experience of what I am proposing.

I, certainly, do *not* claim to be conducting proper research on the basis of the proposed meta-postulate, only a ‘test run’. Moreover, I am quite aware of the internal inadequacies that the limitations of time and resources will inevitably impose on any empirical study that my possibilities will allow. Given the tentative nature of the empirical portion, however, and the fact that it is intended to provide a preliminary experience of what is meant, these inadequacies must be allowed and do not constitute a critical defect of the whole study. Indeed, I challenge others *and* myself to conduct, later on, real empirical research on the basis of the proposed suppositions, with properly constituted designs, methods, and resources.

The hypotheses of this research, put forth in Section 3.4., are justifiably very abstract and very comprehensive. Empirical research on such hypotheses is either impossible or out of the scope of this study. Moreover, I hold no presumptuous claim for my hypotheses to be *the* conclusive meta-theoretic foundation for the science of education — merely a first attempt, an opening of discourse on the topic.

We are, thus, left with the dilemma of finding some empirical data to test tentatively the *functionality* of the proposed hypotheses, i.e. to study their usefulness as theoretical tools. The main problem is that of scope and manageability. Given the breadth of these hypotheses, the various types of research and study that could potentially emerge from the proposed meta-theoretical foundation are certainly beyond the limits of one person’s imagination. We need to find a research scheme that, on the one hand, would relate directly to the hypotheses and, on the other, would be manageable in scope so as to fit within the scope of this research.

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#### 4.1.2. A RECURSIVE RESEARCH METHOD FOR ATYPICAL NEEDS

It is, perhaps, possible to obtain some *tentative and indirect* empirical evidence about the validity of, at least, the aggregate of our hypotheses: the hypotheses deal with the philosophical basis of the whole science of education — i.e. the implicit premises upon which the various educational theories can be based; if these hypotheses would, as a test, be considered *as the established philosophical premises, the existing tradition, of the science of education*, then educational theories would be generally based on these premises; in other words, educational theories would build their hypotheses on this basis (i.e. the hypotheses of this research). *These* theories, in turn, could come under normal empirical study.

With this hypothetical assumption in mind, we could conduct, as a theoretical test, *one* such research. The results of that research could help to indicate, although not directly, *the usability or non-usability of our original (meta-theoretic) hypotheses*. Such results would be indicative of the general applicability or non-applicability of a systems theoretic approach to the science of education. Thus, we need a recursive method: we will create *tentative testing hypotheses that use as their postulates the original hypotheses of this research*. Such a method would propose, on the basis of these ‘new’ postulates, some recursive hypotheses for testing the original ones. Then an empirical study is needed to examine the plausibility of the recursive hypotheses. After recapitulating the results of that study on the original hypotheses, those results must be related to our main concern of the meta-theory of the science of education, building “a theoretical framework within which the paradigm of the science of education can be addressed and developed” (see Section 2.4.3.).

#### 4.1.3. SUMMARY OF RESEARCH METHOD

The recursive method for studying the validity of the hypotheses of this research is an indirect approach. The method will study *recursive hypotheses*. An empirical research on the validity of such recursive hypotheses, then, would provide provisional *secondary* feedback on the original hypotheses of the research. The recursive research approach is as follows:

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1. Consider the hypotheses of this research as postulates.
  2. On the basis of these 'postulates', create recursively testing hypotheses.
  3. Design an empirical study to examine these recursive hypotheses.
  4. Draw, from the findings of this empirical study, conclusions on the recursive hypotheses.
  5. Recapitulate, from these results, conclusions on the original hypotheses.
  6. Relate the outcomes of the study to reconsider a meta-theoretical framework for the science of education.
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## 4.2. THE ATTEMPT ON RESEARCH DESIGN: A RECURSIVE EXPERIMENT

Now that we are down to conducting an empirical study, the question of manageability is again at hand. As described in Section 2.4.4., the aim is to design a *speculative test* for the plausibility of our systemic hypotheses as the core of the science of education. We need a research scheme that can “relate directly to the hypotheses” but, simultaneously, “be manageable in scope”. This is where some compromises must inevitably be made. Any topic that really relates directly enough to the hypotheses is broad. The choice of the topic itself will be, moreover, somewhat arbitrary.

### 4.2.1. RECURSIVE THEME AND RECURSIVE CONCEPTUALIZATION

What would be a good topic for recursive hypotheses using as their postulates the original hypotheses of the research? Considering the current relevance of educational reform, and after consideration of various options and my own interest, I have come up with the following:

*Conscious choice of educational paradigms as a systematic means for influencing the future of society.*

I readily acknowledge that the topic is very broad — in fact, broad enough that whole theories could be formulated in its description. Actually examining any such theories would require undertaking the enormous task of studying the effect of presently upheld values, models and goals on the future structure of society and the life of its members. This would require a decade-long research project with a fully supported research team.

Thus, the topic, while relating to the original hypotheses well enough, seems not to meet the manageability criterion. Since, however, our main purpose here is to test the applicability of General Systems Theory to the science of education, we seek only a *tentative* and *direction-giving* result on the recursive theme and we will, therefore, be satisfied

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with a couple of well-defined hypotheses and an equally tentative study of them — while still maintaining a systematic and thorough method of study. In this, I hope to keep with the manageability criterion, as well.

Before we embark on generating recursive hypotheses, a very brief recursive conceptualization is also needed (as in any research). Three concepts central to the formulation of those hypotheses need to be defined in more detail: *educational paradigm*, *condition of society*, and *unity in diversity*. These are key-concepts both in the recursive hypotheses and in the problematization of the empirical study, and we shall define them on the justification of the adopted recursive postulates:

*Educational paradigm* — by this we mean the conglomeration of the following elements: (a) the adhered to *world-view* and *values*, (b) the adopted educational *objectives* and *goals*, (c) the assigned educational *contents* and *subjects*, and (d) the applied educational *methods* and *tools*.

*Condition of society* — by this concept, on the other hand, we mean here the aggregate of the following aspects: (a) the prevailing *beliefs* and *norms*, (b) the adopted forms of *leadership* and *administration*, (c) the assigned social *functions* and *roles*, and (d) the prevalent modes of *activity* and *interaction*.

*Unity in diversity* — while discussed as a universal during our postulation and the formulation of hypotheses (Sections 3.3. and 3.4.), we further define unity in diversity within the social reality as follows: a unity in fundamental goals and values that becomes realized in the multitude diversity of cultural norms, individual character, and situational circumstances; in other words: *unity of purpose in the diversity of action*.

The concept of unity in diversity is, perhaps, the most elusive of the three concepts. A few additional words on its application to the social reality are, perhaps, appropriate: unity in diversity is an integral aspect of reality and readily observable within the ordinary scope of our daily experience (cf. the unity of the natural laws expressed in the diversity of natural phenomena). The received impression of abstractness or elusiveness is more due to our lack of experience of it in social

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contexts: the *social* and *political* application of unity in diversity is rather alien to our historical experience and knowledge. The concept is easily prone to misinterpretation. Just to avoid misunderstandings: while the principle of unity in diversity implies universality in essentials and variety in application, it does *not* contain any notion of cultural or socio-political uniformity. Its very emphasis on diversity on the level of application excludes the idea of totalitarian systems and assigns the requirement of uniformity only to such matters that are collective or universal *by nature*.

#### 4.2.2. RECURSIVE HYPOTHESES: EDUCATION AS AN AGENT OF FUTURES CHANGE

The recursive research theme being “Conscious choice of educational paradigms as a systematic means for influencing the future of society”, our task now is to generate recursive hypotheses about educational paradigms as a systematic means for influencing the future of social conditions. We need, first, to *formulate the recursive hypotheses*, and second, to *infer possible recursive sub-hypotheses* — our postulates being the original hypotheses of this research.<sup>1</sup>

While discussing the plausibility of assuming universals as real objects, it was noted, in Section 2.3., that such universals could be formulated also concerning the *effect of systematic education*, including: (a) there is both a stochastic process and a systematic process that can yield educational outcomes; (b) systematic education that is in congruence with human and historical reality becomes a future-orienting mechanism; (c) educational objectives that are in contradiction with human and historical reality make education unsustainable; (d) education for national citizenship falls within the conditions of human and historical reality and is, thus, sustainable; (e) education for national citizenship addresses incompletely human reality and limits the potential scope of education. These notions, while not originally formulated to serve as hypotheses, inspire thinking in terms of our recursive hypotheses.

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<sup>1</sup> From now on, throughout Chapter 4, references to “postulates” will refer to the numbers of original hypotheses (H#), and references to “hypotheses” will refer to the numbers of recursive hypotheses (h#); if there is a need to refer to the original postulates, these will be identified as “original postulates” with the corresponding number (P#).

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Our main hypothesis (as indicated by the recursive theme) can be derived directly from postulate H7: “It is possible to systematically influence the future of individuals and societies through the choice of educational goals and models — education can be a manageable change agent ...”. The hypothesis, then, is:

- h0 *Choice of educational paradigms as a strategic futures tool:* The future condition of a society will depend on the strategic choice of educational paradigms adopted within the present condition of that society.

From this hypothesis, a deduced hypothesis immediately follows that the present state of a society reflects the educational choices made earlier in the history of that society:

- h0<sup>a</sup> *Historically strategic effect of chosen educational paradigms:* The present condition of the society depends on the strategic choice of the educational paradigms adopted within an earlier condition of the society.

Moreover postulates H2, H3 and H8 (see: Section 3.4.2.) claim that “evolutionary systems have a macrodeterministic potential” and that this potential is “most comprehensively and coherently realized within the potential of their parent system, within a context of unity in diversity”, and further, that “there are universal principles and ideals that are critically relevant to the realization of the potential” and “bear directly on appropriate educational goals and values to be adopted”. On the basis of these postulates, a further hypothesis is justified:

- h1 *Stability and sustainability of educational success based on unity in diversity:* Educational efforts that aim at effecting the future of the society, and are somehow focussed on the principle of unity in diversity, emerge as successful and leave sustainable traits in the society.

This hypothesis also lends itself to a deduced hypothesis that some of the sustained features in the society — features that have survived until the present time — are traits of educational endeavours based on unity in diversity:

- h1<sup>a</sup> *Traceability of earlier education based on unity in diversity:* Educational efforts that aim at creating or preserving certain
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features in the society, and are somehow focussed on the principle of unity in diversity, leave traits that can be detected within the present condition of the society.

These hypotheses need to be opened up to a more practical level of problematization in order to become conceptually manageable and empirically researchable. This is the aim of the next section.

#### 4.2.3. RECURSIVE RESEARCH QUESTIONS AND PROBLEMATIZATION

Now an empirical study must be designed to examine the validity of the recursive hypotheses. For this purpose, we need more tangibly problematised and empirically researchable concepts to work on.

Above, it was shown that if  $h_0$  is true, then  $h_0^a$  must also be true, and that if  $h_1$  is true, then  $h_1^a$  must be true too. This was justified due to a *deduction*:  $h_0$  and  $h_1$  are more generic while  $h_0^a$  and  $h_1^a$  are, respectively, more applied historical implications of the former. However, the deduction can also be reversed into an *induction*: if  $h_0^a$  and  $h_1^a$  are true, then  $h_0$  and  $h_1$  are also necessarily true. Such a reversal of deduction into induction is, by no means, automatically justified. In our case, however, it is valid because of the generally accepted scientific method assuming that *the laws of nature are universal — they are the same in the past and in the future*. In other words: if a regularity is found at present, it can be assumed to hold also in the future, and therefore, *historical validity can be extrapolated to future predictability*.

In practical terms, this means that we may *focus on studying only the validity of  $h_0^a$  and  $h_1^a$* , and since these are somewhat more readily accessible within the existing empirical reality, we can derive from these latter hypotheses the empirical problematization of the study.

The first step in this problematization is arriving at appropriate research questions (problems) for the recursive study. The three concepts (educational paradigm, condition of society, unity in diversity) discussed in the previous section can be used here as thinking aids: being the key-concepts of the recursive study they serve as the focus for our recursive research questions. Thus, hypotheses  $h_0^a$  and  $h_1^a$  can be,

tentatively, tested by *answering the following four questions in at least two comparative societies*:

- q0<sup>a</sup> What is the present condition of the society?
- q0<sup>b</sup> What were the educational paradigms adopted within an earlier condition of the society?
- q1<sup>a</sup> Which traits can be detected in the present condition of the society that manifest the principle of unity in diversity?
- q1<sup>b</sup> Which educational efforts, within an earlier condition of the society, were aimed at preserving or creating specific features in the society *and* were focussed on the principle of unity in diversity?

The rules of interpreting the research results against our recursive hypotheses are quite straightforward. The hypotheses are true, simply if the following interpretation rules hold:

- r1<sup>a</sup> *Earlier education based on unity in diversity is traceable in today's society (hypothesis h1<sup>a</sup>), if earlier educational efforts that aimed at specific features in the society and were focussed on the principle of unity in diversity (question q1<sup>b</sup>) correlate with some present traits in the society that manifest the principle of unity in diversity (question q1<sup>a</sup>).*
  - r1 *Educational success based on the principle of unity in diversity is stable and sustainable (hypothesis h1), if earlier education based on the principle of unity in diversity is traceable in today's society (hypothesis h1<sup>a</sup>), i.e. rule r1<sup>a</sup> holds.*
  - r0<sup>a</sup> *Educational paradigms chosen earlier have an historically strategic effect today (hypothesis h0<sup>a</sup>), if earlier educational paradigms (question q0<sup>a</sup>) correlate with the present condition of society (question q0<sup>b</sup>).*
  - r0<sup>b</sup> *Educational paradigms chosen earlier have an historically strategic effect today (hypothesis h0<sup>a</sup>), if earlier education based on the principle of unity in diversity is traceable in today's society (hypothesis h1<sup>a</sup>), i.e. rule r1<sup>a</sup> holds — even when earlier educational paradigms (question q0<sup>a</sup>) do not otherwise*
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generally correlate with the present condition of society (question  $q0^b$ ), i.e. rule  $r0^a$  would not hold.

- $r0$  *Choice of educational paradigms is a strategic futures tool (hypothesis  $b0$ ), if educational paradigms chosen earlier have an historical strategic effect today (hypothesis  $h0^a$ ), i.e. either rule  $r0^a$  or rule  $r0^b$  holds.*

These same interpretation rules can also be formulated in a much more concise logical format, as follows:

- $r1^a$  *Hypothesis  $b1^a$  is true, if results on  $q1^a$  and  $q1^b$  correlate.*  
 $r1$  *Hypothesis  $b1$  is true, if hypothesis  $h1^a$  is true.*  
 $r0^a$  *Hypothesis  $b0^a$  is true, if results on  $q0^a$  and  $q0^b$  correlate.*  
 $r0^b$  *Hypothesis  $b0^a$  is true, if hypothesis  $h1^a$  is true ( $r1^a$ ) — even when results on  $q0^a$  and  $q0^b$  do not otherwise generally correlate ( $r0^a$ ).*  
 $r0$  *Hypothesis  $b0$  is true, if hypothesis  $h0^a$  is true ( $r0^a$  or  $r0^b$ ).*

A distinction could be made between the *professed* paradigm and the *practised* paradigm of education — i.e. between the values, models and goals that are consciously (either openly or secretly) chosen and professed by a society vs. those that are actually (either knowingly or unknowingly) adhered to and practised by that society and its members. Such a distinction, however, is a very difficult one to ascertain and, certainly, out of the scope of this study. We will, therefore, be satisfied with the study of the *professed* paradigm of education and assume that *there is sufficient correlation between the professed and the practised paradigm* to make the distinction unnecessary within the interests of this research. Let it be remembered that the intention is *not* to make a thorough research on these hypotheses; they are *not* the main issues of this study. We are only using these *recursive* hypotheses for a tentative test of the *applicability of General Systems Theory to the whole science of education* — i.e. investigating whether systems theoretic premises are meaningful and useful in educational research.

In order to examine research questions  $q0^a$ - $q1^b$ , there is a need to identify certain *descriptive features* through which “educational paradigm” and “condition of society” and the presence of the principle of “unity in diversity” may be observed and identified through data obtained from the field. Such descriptive features must be based on the definition of

the key-concepts as provided in the previous section. Since *unity in diversity* permeates our entire conceptual framework, it will not have a separate set of descriptive features but will be incorporated within the features designated to *educational paradigm* and *condition of society*; i.e. it will be included as a basic criterion within both sets of descriptive features.

Descriptive features for the *educational paradigm* including the criterion of *unity in diversity* (questions q0<sup>b</sup> and q1<sup>b</sup>):

- f1<sup>a</sup> The adhered to *world-view* and *norms*.
- f1<sup>b</sup> The adopted educational *objectives* and *goals*.
- f1<sup>c</sup> The task of education regarding *socio-cultural preservation*.
- f1<sup>d</sup> The task of education regarding *socio-cultural progression*.
- f1<sup>e</sup> The task of education regarding *socio-cultural integration*.
- f1<sup>f</sup> The assigned educational *contents* and *subjects*.
- f1<sup>g</sup> The applied educational *methods* and *tools*.

Descriptive features for the *condition of society* including the criterion of *unity in diversity* (questions q0<sup>a</sup> and q1<sup>a</sup>):

- f2<sup>a</sup> The prevailing *beliefs* and *values*.
- f2<sup>b</sup> The adopted forms of *leadership* and *administration*.
- f2<sup>c</sup> The assigned social *functions* and *roles*.
- f2<sup>d</sup> The prevalent modes of social *activity* and *interaction*.
- f2<sup>e</sup> Evidences of *social purpose and commitment*.
- f2<sup>f</sup> Evidences of diversity as a *collective social resource*.
- f2<sup>g</sup> Evidences of diversity of *practice* in collective values/goals.

Of course, the descriptive features presented above are not unambiguous in the sense that all the members of a society would follow a single pattern. However — consistent with the original postulates P2<sup>b</sup> and P4<sup>a</sup>, that all systems are non-reducible to their constituent elements and that systems co-evolve within the context of shared potential expressed in individual and situational variety — we can assume that there are aspects to the descriptive features that *are descriptive of the whole target society* and can, despite the variety of individual members and subgroups, be considered as *synergic patterns* in a society (cf.: Diesing 1971, p. 139).

#### 4.2.4. SUMMARY OF RECURSIVE SCHEME

This recursive research scheme was already prefigured in Section 2.4.4. The scheme may appear complex, but it does, in fact, fit rather simply into the overall scheme of this research. Below, the key-elements of the recursive research scheme are summarized.

##### Recursive theme:

*Conscious choice of educational paradigms as a systematic means for influencing the future of society.*

##### Recursive key-concepts:

*Educational paradigm:* (a) world-view and values, (b) educational objectives and goals, (c) educational contents and subjects, (d) educational methods and tools.

*Condition of society:* (a) beliefs and norms, (b) forms of leadership and administration, (c) social functions and roles, (d) mode of activity and interaction.

*Unity in diversity:* unity in fundamental goals and ideals in the diversity of cultural norms, individual character, and situational circumstances; unity of purpose in the diversity of action.

##### Recursive hypotheses:

- h0 *Choice of educational paradigms as a strategic futures tool:* The future condition of a society will depend on the strategic choice of educational paradigms adopted within the present condition of that society.
  - h0<sup>a</sup> *Historically strategic effect of chosen educational paradigms:* The present condition of the society depends on the strategic choice of the educational paradigms adopted within an earlier condition of the society.
  - h1 *Stability and sustainability of educational success based on unity in diversity:* Educational efforts that aim at effecting the future of the society, and are somehow focussed on the principle of unity in diversity, emerge as successful and leave sustainable traits in the society.
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$h1^a$  *Traceability of earlier education based on unity in diversity:* Educational efforts that aim at creating or preserving certain features in the society, and are somehow focussed on the principle of unity in diversity, leave traits that can be detected within the present condition of the society.

### Research questions:

- $q0^a$  What is the present condition of the society?
- $q0^b$  What were the educational paradigms adopted within an earlier condition of the society?
- $q1^a$  Which traits can be detected in the present condition of the society that manifest the principle of unity in diversity?
- $q1^b$  Which educational efforts, within an earlier condition of the society, were aimed at preserving or creating specific features in the society *and* were focussed on the principle of unity in diversity?

### Interpretation rules:

- $r1^a$  *Hypothesis  $h1^a$  is true*, if results on  $q1^a$  and  $q1^b$  correlate.
- $r1$  *Hypothesis  $h1$  is true*, if hypothesis  $h1^a$  is true.
- $r0^a$  *Hypothesis  $h0^a$  is true*, if results on  $q0^a$  and  $q0^b$  correlate.
- $r0^b$  *Hypothesis  $h0^a$  is true*, if hypothesis  $h1^a$  is true ( $r1^a$ ) — even when results on  $q0^a$  and  $q0^b$  do not otherwise generally correlate ( $r0^a$ ).
- $r0$  *Hypothesis  $h0$  is true*, if hypothesis  $h0^a$  is true ( $r0^a$  or  $r0^b$ ).
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### 4.3. THE ATTEMPT ON DATA ACQUISITION: INQUIRY IN THE FIELD

Now that the basic structure of the recursive research scheme is outlined, it must be translated into an actual process of empirical study — a tentative study for examining the empirical implications of our speculative test. Thus, we need to embark on the process of data acquisition, which will provide us with the information needed for answering the research questions and assessing our recursive hypotheses.

#### 4.3.1. DATA SOURCES: DISTINCT EDUCATIONAL CONTEXTS

In order to answer the research questions, we need to scan the educational paradigm of some past period, in a given society, and the condition of that society today. In terms of historical period, *two generations* in the past must suffice. It is clear that two-generations is a rather short span of time for conclusive proof, but access to earlier information would require too arduous a task within the scale of this study and is not required by the tentative nature of recursive scheme.

At least two such societies need to be studied to provide a point of comparison, as well as redundancy for reliability. The chosen societies need to be such as would have possessed, some forty or fifty years ago (two generations), some *established paradigm* of education. Such established paradigms are, at present, best perceivable in *national cultures*, because they are still isolated enough to have distinctly peculiar features; they are like giant laboratories testing different educational paradigms. So, the empirical research must be conducted in at least two distinct national societies and for an historical period of two generations. We will examine the educational paradigms in two nations that must be different enough from each other to form distinct characteristics (and provide redundancy for reliability).

The choice of particular nations is of course limited by my personal possibilities to conduct a study among these nations; they need to be somewhat readily accessible. In this case, the *Finnish* and the *Russian* cultural and political contexts seem plausible. These two cultures have

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very different historical backgrounds and their mentalities and systems of thought have also remarkable differences; yet, forty or fifty years ago, they both had distinct educational paradigms aimed at very conscious outcomes in the society. Moreover, our treatment of historical educational cases in Chapter 2 dealt usefully with the background of both the Finnish educational context (Section 2.3.5.: Education for National Citizenship) and the Russian educational context (Section 2.3.4.: Education for Communist Utopia). Let that discussion suffice as the background knowledge for our study.

#### 4.3.2. METHOD OF DATA ACQUISITION: *ATYPICAL GROUP INTERVIEW*

The descriptive features developed in the previous main section must be the point of departure for our data acquisition. Those features are, for the most part, rather abstract and still difficult to be studied empirically. It is important to note here that, normally, “empirical” would mean observable real-world facts (some sort of ‘hard evidence’). To be *truly* empirically studied, our recursive research would demand a thorough and systematic investigation of historical and current facts through a vast variety of data sources — including scientific reviews of the present and history, relevant documents throughout the period under survey, interviews and questionnaires with key-persons and experts, on-spot observations and ethnographic survey of existing social relationships, scrutiny of abrupt events and changes in the target society during the period under study etc. Such a thorough study would probably produce *direct empirical data*.

If the recursive hypotheses were our *de facto* topic of research, such an arduous task of data acquisition would be justified. But that is obviously completely out of scale in our context and, as stated earlier, it would require a decade-long research project with a fully supported research team. We are again in for some practical compromises! To examine the descriptive features outlined earlier, we will be satisfied with *indirect empirical data*. This means that we have to rely on *the empirical experience and knowledge of others*. In fact, we are making a very drastic compromise here: for the purposes of this research (which is a theoretical test), we will content ourselves with *group interviews* as the only systematic source of data.

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The data input on the *educational paradigm* should be obtained from those who were well involved in the systematic educational work of two generations (some forty or fifty years) ago: teachers, education administrators, education designers, educational scholars etc. In this group, veteran teachers or administrators are, of course, in key-position because their experience represents the *de facto* educational paradigm, the one that was actualized in real-life situations. On the other hand, educational designers or scholars are also important to draw a picture of what was *thought* to be the educational paradigm; such designers or scholars may well be younger people with research knowledge of the past.

As to the data on the *condition of society*, the source persons need to be as representative of the present-day society as possible: ordinary citizens (working people, unemployed people, younger people, older people etc.), on the one hand, and a few specialists with keen socio-political insight (media representatives, political analysts, sociologists etc.), on the other. It is important, however, that specialists vs. 'ordinary citizens' remain both represented in a good balance so that both experience on *systematic social thought* and experience on *mundane social reality* is included. Moreover, since 'non-experts' may feel uneasy in speaking out in front of 'experts', the latter should remain in a minority. It is also important that the main age representation is that of the largest demographic groups (not too young, not too old) with relevant experience of modern society.

These group interviews for data acquisition are, however, atypical in that they seek to obtain the *consensus* opinion of the entire group, instead of the opinion of each participant individually. Thus, the data will be acquired by engaging in open discussion and going on until there is at least some consensus among the members of the group. The discussions are recorded and the actual answers to the indicator questions are filtered from this data. It must be noted, that by "filtering" is not meant an intangible interpretation of everything that has been said; rather, the consensus is consciously sought on a rather *articulate* level already during the interview itself. Moreover, when a question is posed to the group, the first comment or answer acts as a catalyst for a brief discussion of the question; if the generality of the interviewees seem to agree with the outcome, the next question is posed; otherwise, alternative answers are sought with a new round. In

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the case of the interviewees clearly disagreeing on a point, the reasons for this disagreement must be discussed (the exposure of such reasons can, in itself, reveal valuable information relevant to the research).

The interviews are to provide sufficient data on the descriptive features. Given the abstract nature of many of these features, a series of further clarifying and more tangible questions are needed that can be posed to the interviewees. These *indicator questions* are formulated so that they will serve as pointers for identifying the relevant data on descriptive features. The indicator questions are outlined in Appendix 1 (Index of Descriptive Indicator Questions). Each of these questions can be used to indicate a view of the descriptive features, and each question can be relevant for more than one of those features. Moreover, the questions are designed to provide sufficient redundancy: each descriptive feature is indicated by several indicator question from different points of view that overlap each other. This, too, is apparent in the list of questions presented under each of the descriptive features.

The actual *interview questions*, to be posed to the group of interviewees, are derived directly from these indicator questions. Some of the interview questions are, more or less, identical with the indicator questions, while others are put in more practical terms to facilitate smooth discussion. Thus, each interview is made up of several topics. Each interview topic begins with a *lead question*, which is posed as an introduction to the topic, and of further *clarifying questions* to help the interviewees to delve further into that topic. Appendix 2 (Index of Group Interview Questions) outlines these questions and describes the systematic method by which they are presented to the group of interviewees.

#### 4.3.3. FIELDWORK:

##### *INTERVIEW SITUATIONS AND THE INTERVIEWEES*

The recursive research scheme indicates a need for four interviews: two for each of the countries, Finland and Russia — one interview for scanning the educational paradigm of some two generations ago, and the other for observing the condition of the society today. Below is a description of the preparation, participants and circumstances of each of these four interviews. The names of the interviewees will not be

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mentioned here, but their backgrounds and other information relevant to this context will be provided. In addition, in accordance with the research plan, each group of interviewees included an educational scholar or a specialist (such as education researchers or designers, media representatives or political analysts) who have, presumably, more objective research knowledge of, and socio-political insight on, the matters discussed.

It must also be borne in mind that I had limited opportunities and possibilities at my disposal for gathering such groups of people for interview. I believe, however, that the outcome is satisfactory and that all the four groups are quite representative samples of the demographics sought in this research. Moreover, although the scope of the data gathered is rather narrow, it is broad enough that the consistencies found would not to be accounted for as 'accidental' patterns. These criteria constitute sufficient grounds for the purposes of this research.

In all four interviews, the questions were posed to the interviewees with the emphasis that, in addition to expressing what they themselves think, they should also say what they think is the *public understanding or general situation* concerning the presented issue. This was important in order to keep the minds of the interviewees focussed on society at large and not only on the interview situation, because in such group contexts there is sometimes the tendency to form a kind of 'temporary group identity' which tends to incline the views to one direction or the other. Moreover, the interviewees on educational paradigm had, occasionally, to be reminded that the period of time in question dates back some two generations — this in order to keep the time perspective focussed on, more or less, one and the same period of history (i.e. some two generations ago).

One more factor is that, due to my unfortunate lack of knowledge of the Russian language, the interviews in Russia had to be translated into English. This was done so that the interviewees spoke freely among each other in Russian while the interpreter translated everything simultaneously for me. On the interview tapes, the voice of the interpreter is more audible but also the actual discussion in Russian can be heard in the background so that the correspondence of the original and the translation can be ascertained.

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## Interviews in Finland

Initially my intention was to conduct both Finnish interviews in the city of Rovaniemi where I reside. After some thought and investigation, it became obvious, however, that due to the existing connections and acquaintances it was more expedient to hold the first interview (on the educational paradigm) in the city of Oulu where I went to school, while the second interview (on the condition of society) would be more practically conducted in Rovaniemi.

The topic of the first interview was the *educational paradigm in Finland some two generations ago*. The interview was held in the city of Oulu, at the City Library conference room on Monday, 22 May 2000. The interview lasted 3 hours and 15 minutes. The interviewees were: (1) a retired primary school teacher (female), (2) another retired primary school teacher (female), (3) a retired high school Swedish language teacher (female), (4) a retired high school Finnish language teacher (male), (5) a professor of education (female; the educational scholar).

Gathering this group was a result of weighing various possibilities. In the end it was found best to choose such people about whom there was some prior information, people whom I knew to some degree — this in order to ensure that the group would include sufficient knowledge on the educational paradigm and practices of the 50s or 60s (two generations ago). Thus, I ended up with several of my former (now retired) primary school and high school teachers as well as one professional acquaintance. I had not seen many of these teachers for over ten years and some of them, too, had not seen each other for many years. This made the interview situation personally interesting but also caused it to be longer than anticipated. The interview was conducted in a familiar and ‘chatty’ manner. Often answers and views were presented through concrete examples and real life stories.

The topic of the second interview was the *condition of society in Finland today*. The interview was held in the city of Rovaniemi, at the City Library conference room on Thursday 25 May 2000. The interview lasted 2 hours and 40 minutes. The interviewees were: (1) a young student of education (female); (2) a lower middle-aged youth worker (female), (3) an upper middle-aged unemployed restaurant keeper

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(male), an elderly retired army officer (male), (5) a professor of sociology (male; the socio-political specialist).

The members of this group were my private or work acquaintances but most of them did not know each other in advance. It was quite hard to find a group that would be diverse enough to represent the 'general public' but, in the end, it was a good representation of today's social diversity in Finland. In the beginning of the interview, the participants were introduced to each other only by name, not by occupation or background — this to prevent sentiments of social class and to create a feeling of equal spectators discussing modern life. The session lasted approximately as anticipated although the discussions went on in a calm and 'pondering' manner. Here too answers were often mingled with recounting real life experiences.

### Interviews in Russia

I have years of experience of working with the Russians and doing projects in Russia. Yet, when it came to a private research like this, it began to seem logistically almost impossible to organize the interviews. Fortunately, I have friends in different parts of the country. Contacts with some very helpful friends finally opened an opportunity to do both Russian interviews in the same city and over two successive days. The interviews were conducted in the city of Ryazan some two hundred kilometres South-East of Moscow. An interesting curiosity is that these helpful friends, although living now in Ryazan, are ethnic Buryats and come originally from the Lake Baikal region in Southern Siberia (near the Mongolian border). Let it also be mentioned here that my wife and I, together with one of our sons, took this trip to Russia as an opportunity to meet many of our friends in various parts of the country.

The topic of the first interview in Ryazan was the *condition of society in Russia today*. The interview was held in the residence of two friends (who also helped with the logistics of the interview) on Monday, 26 June 2000. The interview lasted 2 hours and 5 minutes. The interviewees were: (1) a young student of computer science (female), (2) a young student of English language and a member of the Buryat ethnic group (female), (3) a lower middle-aged first aid medic (male), (4) an upper middle-aged librarian (female), (5) an upper middle-aged housewife (female), (6) a journalist (male; the socio-political specialist).

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This group was collected by my friends in Russia, and thus, I had no prior acquaintance with most of the interviewees. Moreover, most of them did not know each other either. Based on my experience in Finland, I had provided my friends with particular instructions as how to collect a group that would be diverse enough to represent the 'general public'. The result was, in fact, a satisfactory mixture representative of diversity existing in modern Russia. Contrary to the respective interview in Finland, in the beginning of this interview, the participants were introduced to each other both by name and by occupation or background — this due to the fact that, culturally, it was more plausible to have a more thorough introduction for creating a more informal atmosphere (in this respect the two countries seem to differ clearly). The session lasted approximately as anticipated and the discussions went on in a reflective and calm atmosphere. A noteworthy point is that the interpreter who was also a member of the Buryat ethnic group was partly an interviewee due to her experience of being a member of a minority nationality. Being rather a direct person, her expressed opinion (after the interview) was that the other interviewees were, at times, somewhat too 'idealistic' in their representation of matters — probably in order to maintain a better image of their country.

The topic of the second interview in Ryazan was the *educational paradigm in Russia some two generations ago*. The interview was held in the Children's Library reading hall on Tuesday the 26 June 2000. The interview lasted 1 hour and 15 minutes. The interviewees were: (1) a senior university teacher of history (female), (2) a senior university teacher of French language (female), (3) a senior docent of technical sciences (male), (4) a senior academician of technical sciences (male), (5) a professor of science and technology (male; the educational scholar).

This group, too, was collected by my friends in Russia and I had no prior acquaintance with any of the interviewees. Most of them, however, did know each other, because they all worked at the University of Ryazan. Also, in this case, I had provided my friends with particular instructions as to composition of the group so that it would include sufficient knowledge of the educational paradigm and practices of the 50s or 60s (two generations ago). The result was somewhat too homogeneous: I would have hoped for a more diverse representation of the educational strata but, given the logistic limitations of the situation,

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the group included satisfactory knowledge and experience of the desired period. The session was much shorter than anticipated: because of certain logistic misinformation (ever to be expected in Russia), the timing of the meeting was not clear to the participants and there was certain hurry for some of them. This was compensated by the fact that they turned out to be efficient interviewees as well as the fact that the questions were presented in a more formal and accurate (i.e. academic) manner. An interesting and potentially important point is that one of the interviewees, the professor of science and technology who was also our educational scholar and had the highest academic rank in the group, required that nothing negative or degrading would be said about Communism. This was not the opinion of all participants but I did assure them that Communism was not at stake here and they all seemed to be content with the setup. Discussions were conducted in an atmosphere of confident but eager experience — highly educated elderly Russian academics are eager and very competent in analysing socio-political as well as philosophical issues. The interpreter was again the same Buryat friend as in the first interview.

#### 4.3.4. SUMMARY OF DATA ACQUISITION AND FIELD ACTIVITY

A thorough, systematic and lengthy study of various sources could produce *direct empirical data* for the recursive research topic. However, in our context, we will be satisfied with *indirect empirical data* and rely on *the empirical experience and knowledge of others*. Data acquisition, in our recursive scheme, suffices with a type of group interviews. The interviews were atypical: they sought to obtain the *consensus* opinion of the entire group, not views of each participant. The discussions were recorded and the answers to questions posed were filtered from this data.

A series of further clarifying and more tangible questions were formulated to point to the formerly described descriptive features. These *indicator questions* are outlined in Appendix 1 (Index of Descriptive Indicator Questions). The actual *interview questions* were derived directly from these indicator questions. Each interview is made up of several topics, and each topic begins with a *lead question*, which is posed as an introduction to the topic. Further *clarifying questions* were presented as the discussion on each topic proceeds. Appendix 2 (Index of Group

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Interview Questions) outlines these questions and describes the systematic method of their presentation.

Four interviews were conducted: two for each of the countries, Finland and Russia — one interview for scanning the *educational paradigm* of some two generations ago, and the other for observing the *condition of the society* today. The interviewees for the educational paradigm are people who were well involved in the systematic educational work of two generations (veteran teachers, education administrators, education designers, educational scholars etc.), and one educational scholar or expert with essential research knowledge of the educational system. The interviewees for the condition of society are representatives of the present-day society (ordinary citizens: working people, unemployed people, younger people, older people etc.), and one specialist with keen socio-political insight. Thus, the four groups each form a representative sample of the demographics sought in the research.

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#### 4.4. THE ATTEMPT ON RESEARCH RESULTS: RECURSIVE CONCLUSIONS

After the fieldwork and obtaining our interview data, we need to process this data into a useful form and analyse it for the purpose of answering our research questions. Appendix 3 (Matrix of Raw Data) provides the overview of the acquired information, and Appendix 4 (Summary of Analysed Data) shows that data in its processed form. The actual interpretation of the data will be done in the aforementioned recursive manner.

##### 4.4.1. PROCESSING AND ANALYSING DATA

As mentioned in Section 4.3.2. the group interviews sought to obtain the *consensus* opinion of the entire group, not just the individual opinion of each interviewee. This consensus among the interviewees was reached and noted over general topics, not separately per question.

In the transcription process of the audiotapes, not every single view presented during the interviews has been registered but only those views that can be considered as an expression of consensus among the interviewees. This means that some interpretation, on the part of the interviewer (me), was needed for identifying which views were the collective understanding of the whole group (and thus relatively more objective) and which ones just personal views (and thus relatively more subjective). This interpretation on my part was first articulated and crosschecked, on the spot, with the interviewees to see if they too agree with it.

Moreover, since a number of answers and views were presented through examples and life experiences or through 'thinking aloud' (and not stating explicitly a direct point of view), they had to be either deductively filtered down or inductively interpreted from the material. However, special care was taken, during the transcription process, not to make any interpretations that have not actually been stated by the interviewees in some tangible and ascertainable manner.

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Appendix 3 (Output of Raw Data) is a comprehensive summary, a digest, of the relevant information on the interview tapes — without further interpretation (other than what is described above). The only processing that has been done is that the data is organized under the indicator questions. Thus, the same point, comment or answer may appear under several questions, if it is considered relevant. This transcription constitutes the output of our raw data.

#### 4.4.2. DATA INTERPRETATION

The research approach used here involves a chain of deductions that moves on progressively from the acquisition of raw data gradually to more sophisticated analysis and interpretation of that data, ending up finally to the assessment of the recursive hypotheses. The pattern of deductions thus formed will start from answering the *indicator questions* (Appendix 3: Output of Raw Data), moving on to the identification of the *descriptive features* (Appendix 4: Summary of Analysed Data), enabling the answering of *the recursive research questions* and finally, through the *interpretation rules*, examining the validity of the *recursive hypotheses*. While this pattern may seem redundant, given the broadness and universality of many concepts involved, it is felt to be necessary for a logical sequence of deductions to take place.

The aim of the research design (as outlined in Sections 4.2.3. and 4.3.1.) was to answer the four research questions in at least two comparative societies. We were to study the cases of Finland and Russia for the *educational paradigm* of some forty or fifty years ago and *the condition of society* today.

Let us recall the actual research questions regarding the *educational paradigm*: (q0<sup>b</sup>) What were the educational paradigms adopted within an earlier condition of the society? (q1<sup>b</sup>) Which educational efforts, within an earlier condition of the society, were aimed at preserving or creating specific features in the society *and* were focussed on the principle of unity in diversity? The descriptive features for these questions were:

f1<sup>a</sup> The adhered to *world-view* and *norms*.

f1<sup>b</sup> The adopted educational *objectives* and *goals*.

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- f1<sup>c</sup> The task of education regarding *socio-cultural preservation*.  
 f1<sup>d</sup> The task of education regarding *socio-cultural progression*.  
 f1<sup>e</sup> The task of education regarding *socio-cultural integration*.  
 f1<sup>f</sup> The assigned educational *contents* and *subjects*.  
 f1<sup>g</sup> The applied educational *methods* and *tools*.

The original questions on the *condition of society* were: (q0<sup>a</sup>) What is the present condition of the society? (q1<sup>a</sup>) Which traits can be detected in the present condition of the society that manifest the principle of unity in diversity? The descriptive features for these questions were:

- f2<sup>a</sup> The prevailing *beliefs* and *values*.  
 f2<sup>b</sup> The adopted forms of *leadership* and *administration*.  
 f2<sup>c</sup> The assigned social *functions* and *roles*.  
 f2<sup>d</sup> The prevalent modes of social *activity* and *interaction*.  
 f2<sup>e</sup> Evidences of *social purpose and commitment*.  
 f2<sup>f</sup> Evidences of diversity as a *collective social resource*.  
 f2<sup>g</sup> Evidences of diversity of *practice* in collective values/goals.

Here, the relation of the descriptive features to the principle of *unity in diversity* (questions q1<sup>a</sup> and q1<sup>b</sup>) must be noted: in both sets of descriptive features, while unity in diversity is not separately mentioned, it can be easily traced within the obtained data, by observing either the presence of features *conforming* to this principle or the presence of features *opposite* to it.

Let us now answer the research questions by stating the summary of the data acquired through the descriptive features (see Appendix 4: Summary of Analysed Data).

### Question q0<sup>a</sup> — “Present condition of the society”

**Finland** — Society and life are complex and atomistic, causing ambiguity and vagueness. • Uncertainty and suspicion, distance and separation are characteristic to life. • Living is focussed on one’s immediate future, (individual) survival, individualism. • Values reflect pluralism while equality, tolerance and collective welfare are emphasized • Human diversity is recognized and valued but it remains untapped as a social resource. • There is a tangible desire for a sense of purpose, and the value of inclusive leadership is recognized, while leadership remains atomistic and non-visionary.

**Russia** — Generally, values reflect increasing pluralism, diversity, heterogeneity and tolerance as well as a high degree of non-integration and lack of coherence • There is virtually no collective commitment; a desire for belonging and a yearning for closeness are evident in people’s daily lives. • Practically, people focus their lives on survival and independence; commitment to self is widespread. • The futures prospect is marked with ongoing change, lack of perspective and a feeling of helplessness mixed with vague hopefulness. • The desire for justice and just society is evident. • Authority and leadership are problematic and the system is insensitive.

### Question q0<sup>b</sup> — “Earlier educational paradigms”

**Finland** — Educational values were derived from religious patriotism and tradition and cautious optimism. • Education sought to promote realism, survival and security; preservation, not reform, was the focus. • Education stressed collective responsibility and economic self-sufficiency gained through hard work. • Education aimed at social justice, egalitarianism and socio-cultural integration; in practice, education promoted homogeneity, some degree of cultural insensitivity and also cultural stereotypes; education was authoritarian. • Educational contents emphasised languages and aimed at the matriculation examination; methods were marked with scarcity and lack of materials.

**Russia** — All formal education was squarely based on communism with a general sense of optimism and goal-orientation. • Education was seen as the primary change agent for building the future. • Everything was future-oriented: education was focussed on and aimed towards the future; even preservation of past achievements took place with the future in mind. • Formal education was marked with a sense of achievement, pursuit of excellence and as scientific and artistic accomplishment, including a definite merit system. • In practice, education also promoted collectivism and collective integration, progress in a monocultural setting and cultural assimilation.

### Question q1<sup>a</sup> — “Present traits of unity in diversity”

**Finland** — Society is complex and atomistic. • Suspicion, distance and separation are characteristic to life. • Living is focussed on (individual) survival, individualism. • Values reflect pluralism while equality, tolerance and collective welfare are emphasized • Human diversity is recognized and valued but it remains untapped as a social resource. • There is a tangible desire for a sense of purpose.

**Russia** — Generally, values reflect increasing pluralism, diversity, heterogeneity and tolerance as well as a high degree of non-integration and lack of coherence • There is virtually no collective commitment; a desire for belonging and a yearning for closeness are evident. • Focus on survival and independence as well as commitment to self are widespread. • The futures prospect is marked with lack of perspective mixed with vague hopefulness. • The desire for justice and just society is evident, but the system is insensitive.

### Question q1<sup>b</sup> — “Earlier educational efforts for unity in diversity”

*Finland* — Educational values and identity were derived from religious patriotism. • Education emphasized such social values as collective responsibility and economic self-sufficiency. • Education sought to produce citizens for a society where social justice, egalitarianism and socio-cultural integration were the norm. • In practice, education promoted homogeneity, some degree of cultural insensitivity and also cultural stereotypes.

*Russia* — All formal education was squarely based on communism and was generally goal-oriented. • Everything was future-oriented; even preservation of past achievements took place with the future in mind. • Formal education was marked with a sense of achievement, pursuit of excellence and as scientific and artistic accomplishment. • In practice, education also promoted collectivism and collective integration, progress in a monocultural setting and cultural assimilation.

The next section will embark on referring these answered questions to our recursive hypotheses through the application of the interpretation rules as outlined in Section 4.2.3.

#### 4.4.3. EXAMINING THE RECURSIVE HYPOTHESES

Now that the four recursive research questions have been generally answered, let us see how the interpretation rules effect our assessment of the recursive hypotheses. The display of the results in the presentation below goes through each interpretation rule, restating the rule, applying it to the case of Finland and Russia respectively, and drawing the conclusions. The summary boxes under country cases indicate the following: the box on the left summarizes the earlier *education paradigm* and the box on the right summarizes the present *condition of society*; the conditions of society that are CONSISTENT with the educational paradigm are marked with [✓], the ones that are DISCREPANT are marked with [✗]. After the boxes, general observations and remarks on the results are presented.

#### Applying rule $r1^a$ : Correlation of result on $q1^a$ and $q1^b$

Rule  $r1^a$  states: “*Hypothesis  $h1^a$  is true, if results on  $q1^a$  and  $q1^b$  correlate*”. In other words: “*Earlier education based on unity in diversity is traceable in today’s society (hypothesis  $h1^a$ )*, if earlier educational efforts that aimed at specific features in the society and were focussed on the principle of unity in diversity (question  $q1^a$ ) correlate with some present traits in the society that manifest the principle of unity in diversity (question  $q1^b$ )”.

*In the case of Finland:*

<p><b>r1<sup>a</sup>/fin/paradigm 1:</b> Educational values and identity were derived from religious patriotism.</p>	<ul style="list-style-type: none"> <li>✗ DISCREPANT: Living is focussed on (individual) survival, individualism.</li> <li>✗ DISCREPANT: Values reflect pluralism while equality, tolerance and collective welfare are emphasized.</li> <li>✓ CONSISTENT: There is a tangible desire for a sense of purpose.</li> </ul>
<p><b>r1<sup>a</sup>/fin/paradigm 2:</b> Education emphasized such social values as collective responsibility and economic self-sufficiency.</p>	<ul style="list-style-type: none"> <li>✗ DISCREPANT: Suspicion, distance and separation are characteristic to life.</li> <li>✗ DISCREPANT: Living is focussed on (individual) survival, individualism.</li> <li>✓ CONSISTENT: Values reflect pluralism while equality, tolerance and collective welfare are emphasized.</li> </ul>
<p><b>r1<sup>a</sup>/fin/paradigm 3:</b> Education sought to produce citizens for a society where social justice, egalitarianism and socio-cultural integration were the norm.</p>	<ul style="list-style-type: none"> <li>✗ DISCREPANT: Living is focussed on (individual) survival, individualism.</li> <li>✓ CONSISTENT: Values reflect pluralism while equality, tolerance and collective welfare are emphasized.</li> <li>✓ CONSISTENT: Human diversity is recognized and valued but it remains untapped as a social resource.</li> <li>✓ CONSISTENT: There is a tangible desire for a sense of purpose.</li> </ul>
<p><b>r1<sup>a</sup>/fin/paradigm 4:</b> In practice, education promoted homogeneity, some degree of cultural insensitivity and also cultural stereotypes.</p>	<ul style="list-style-type: none"> <li>✗ DISCREPANT: Society is complex and atomistic.</li> <li>✗ DISCREPANT: Values reflect pluralism while equality, tolerance and collective welfare are emphasized.</li> <li>✓ CONSISTENT: Human diversity is recognized and valued but it remains untapped as a social resource.</li> </ul>

*In the case of Russia:*

<p><b>r1<sup>a</sup>/rus/paradigm 1:</b> All formal education was squarely based on communism and was generally goal-oriented.</p>	<ul style="list-style-type: none"> <li>✗ DISCREPANT: Generally, values reflect increasing pluralism, diversity, heterogeneity and tolerance as well as a high degree of non-integration and lack of coherence.</li> <li>✗ DISCREPANT: There is virtually no collective commitment; a desire for belonging and a yearning for closeness are evident.</li> <li>✗ DISCREPANT: The futures prospect is marked with lack of perspective mixed with vague hopefulness.</li> </ul>
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<p><b>r1<sup>a</sup>/rus/paradigm 2:</b> Everything was future-oriented; even preservation of past achievements took place with the future in mind.</p>	<ul style="list-style-type: none"> <li>✗ DISCREPANT: Focus on survival and independence as well as commitment to self are widespread.</li> <li>✗ DISCREPANT: The futures prospect is marked with lack of perspective mixed with vague hopefulness.</li> </ul>
<p><b>r1<sup>a</sup>/rus/paradigm 3:</b> Formal education was marked with a sense of achievement, pursuit of excellence and as scientific and artistic accomplishment.</p>	<ul style="list-style-type: none"> <li>✗ DISCREPANT: There is virtually no collective commitment; a desire for belonging and a yearning for closeness are evident.</li> <li>✗ DISCREPANT: Focus on survival and independence as well as commitment to self are widespread.</li> <li>✗ DISCREPANT: The futures prospect is marked with lack of perspective mixed with vague hopefulness.</li> </ul>
<p><b>r1<sup>a</sup>/rus/paradigm 4:</b> In practice, education also promoted collectivism and collective integration, progress in a monocultural setting and cultural assimilation.</p>	<ul style="list-style-type: none"> <li>✗ DISCREPANT: Generally, values reflect increasing pluralism, diversity, heterogeneity and tolerance as well as a high degree of non-integration and lack of coherence</li> <li>✗ DISCREPANT: There is virtually no collective commitment; a desire for belonging and a yearning for closeness are evident.</li> <li>✓ CONSISTENT: The desire for justice and just society is evident, but the system is insensitive.</li> </ul>

The results seem inconclusive. The results for Finland are unclear, and the results for Russia are highly discrepant. While the Finnish society was very homogenous and the Russian society heterogeneous, both societies educated their citizens towards homogeneity. In Finland, it was a practical necessity (simply, to survive the post-war needs) while in Russia it was a doctrinal demand (diversity was recognized only in external matters, such as products of culture). This indicates, in both countries, a state of affairs contradictory to the principle of unity in diversity. In Finland, little was done consciously to accommodate the small amount of diversity that the society already held, and even less was done through the educational paradigm; in Russia, a lot was done to exhibit external manifestations of diversity with a simultaneous and deliberate dilution and neglect of fundamental diversities (e.g. cultural mentality, world-view etc.).

In fact, the *only* earlier educational paradigm that seems consistent with present-day condition of society was one from Finland ( $r1^a$ /fin/paradigm 3): “*Education sought to produce citizens for a society where social justice, egalitarianism and socio-cultural integration were the norm.*” Incidentally, this is also the only paradigm that unequivocally supports the principle of unity in diversity; all the others emphasize, either unity through uniformity, or diversity through incoherence. This paradigm is found consistent with the following conditions of the present-day Finnish society: (a) “values reflect pluralism while equality, tolerance and collective welfare are emphasized”; (b) “human diversity is recognized and valued but it remains untapped as a social resource”; (c) “there is a tangible desire for a sense of purpose”.

It can, therefore, be concluded that we have found *one* case of “earlier educational efforts that aimed at specific features in the society and were focussed on the principle of unity in diversity” (question  $q1^a$ ) and that this case *does* correlate with “some present traits in the society that manifest the principle of unity in diversity” (question  $q1^b$ ). Ergo, rule  $r1^a$  holds and *hypothesis  $h1^a$  is true*: “Earlier education based on unity in diversity *is* traceable in today’s society”. In fact, the rule holds also in another way: the efforts that were aimed at homogeneity did *not* survive and resulted only in a pluralistic social paradigm with little coherence.

### Applying rule $r1$ : Verification of hypothesis $h1$

Rule  $r1$  states: “*Hypothesis  $h1$  is true*, if hypothesis  $h1^a$  is true ( $r1^a$ )”. In other words: “*Educational success based on the principle of unity in diversity is stable and sustainable (hypothesis  $h1$ )*, if earlier education based on the principle of unity in diversity is traceable in today’s society (hypothesis  $h1^a$ ), i.e. rule  $r1^a$  holds”.

We just concluded that hypothesis  $h1^a$  is true. Ergo, rule  $r1$  holds and *hypothesis  $h1$  is true*: “Educational success based on the principle of unity in diversity *is* stable and sustainable”.

### Applying rule $r0^a$ : Correlation of result on $q0^a$ and $q0^b$

Rule  $r0^a$  states: “*Hypothesis  $h0^a$  is true*, if results on  $q0^a$  and  $q0^b$  correlate”. In other words: “*Educational paradigms chosen earlier have an historically strategic effect today (hypothesis  $h0^a$ )*, if earlier educational

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paradigms (question q0<sup>a</sup>) correlate with the present condition of society (question q0<sup>b</sup>)”.

*In the case of Finland:*

<p><b>r0<sup>a</sup>/fin/paradigm 1:</b> Educational values were derived from religious patriotism and tradition and cautious optimism.</p>	<ul style="list-style-type: none"> <li>✗ DISCREPANT: Uncertainty and suspicion, distance and separation are characteristic to life.</li> <li>✗ DISCREPANT: Values reflect pluralism while equality, tolerance and collective welfare are emphasized.</li> <li>✓ CONSISTENT: There is a tangible desire for a sense of purpose, and the value of inclusive leadership is recognized, while leadership remains atomistic and non-visionary.</li> </ul>
<p><b>r0<sup>a</sup>/fin/paradigm 2:</b> Education sought to promote realism, survival and security; preservation, not reform, was the focus.</p>	<ul style="list-style-type: none"> <li>✓ CONSISTENT: Uncertainty and suspicion, distance and separation are characteristic to life.</li> <li>✓ CONSISTENT: Living is focussed on one's immediate future, (individual) survival, individualism.</li> </ul>
<p><b>r0<sup>a</sup>/fin/paradigm 3:</b> Education stressed collective responsibility and economic self-sufficiency gained through hard work.</p>	<ul style="list-style-type: none"> <li>✗ DISCREPANT: Uncertainty and suspicion, distance and separation are characteristic to life.</li> <li>✓ CONSISTENT: Living is focussed on one's immediate future, (individual) survival, individualism.</li> </ul>
<p><b>r0<sup>a</sup>/fin/paradigm 4:</b> Education aimed at social justice, egalitarianism and socio-cultural integration; in practice, education promoted homogeneity, some degree of cultural insensitivity and also cultural stereotypes; education was authoritarian.</p>	<ul style="list-style-type: none"> <li>✓ CONSISTENT: Society and life are complex and atomistic, causing ambiguity and vagueness.</li> <li>✓ CONSISTENT: Uncertainty and suspicion, distance and separation are characteristic to life.</li> <li>✓ CONSISTENT: Values reflect pluralism while equality, tolerance and collective welfare are emphasized.</li> <li>✓ CONSISTENT: Human diversity is recognized and valued but it remains untapped as a social resource.</li> <li>✓ CONSISTENT: There is a tangible desire for a sense of purpose, and the value of inclusive leadership is recognized, while leadership remains atomistic and non-visionary.</li> </ul>

<p><b>r0<sup>a</sup>/fin/paradigm 5:</b> Educational contents emphasised languages and aimed at the matriculation examination; methods were marked with scarcity and lack of materials.</p>	<p>✓ <b>CONSISTENT:</b> Living is focussed on one's immediate future, (individual) survival, individualism.</p>
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*In the case of Russia:*

<p><b>r0<sup>a</sup>/rus/paradigm 1:</b> All formal education was squarely based on communism with a general sense of optimism and goal-orientation.</p>	<p>✗ <b>DISCREPANT:</b> Generally, values reflect increasing pluralism, diversity, heterogeneity and tolerance as well as a high degree of non-integration and lack of coherence.</p> <p>✗ <b>DISCREPANT:</b> There is virtually no collective commitment; a desire for belonging and a yearning for closeness are evident in people's daily lives.</p> <p>✗ <b>DISCREPANT:</b> The futures prospect is marked with ongoing change, lack of perspective and a feeling of helplessness mixed with vague hopefulness.</p>
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<p><b>r0<sup>a</sup>/rus/paradigm 2:</b> Education was seen as the primary change agent for building the future.</p>	<p>✗ <b>DISCREPANT:</b> Practically, people focus their lives on survival and independence; commitment to self is widespread.</p> <p>✗ <b>DISCREPANT:</b> The futures prospect is marked with ongoing change, lack of perspective and a feeling of helplessness mixed with vague hopefulness.</p>
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<p><b>r0<sup>a</sup>/rus/paradigm 3:</b> Everything was future-oriented: education was focussed on and aimed towards the future; even preservation of past achievements took place with the future in mind.</p>	<p>✗ <b>DISCREPANT:</b> Practically, people focus their lives on survival and independence; commitment to self is widespread.</p> <p>✗ <b>DISCREPANT:</b> The futures prospect is marked with ongoing change, lack of perspective and a feeling of helplessness mixed with vague hopefulness.</p>
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<p><b>r0<sup>a</sup>/rus/paradigm 4:</b> Formal education was marked with a sense of achievement, pursuit of excellence and as scientific and artistic accomplishment, including a definite merit system.</p>	<ul style="list-style-type: none"> <li>✗ DISCREPANT: Practically, people focus their lives on survival and independence; commitment to self is widespread.</li> <li>✗ DISCREPANT: The futures prospect is marked with ongoing change, lack of perspective and a feeling of helplessness mixed with vague hopefulness.</li> </ul>
<p><b>r0<sup>a</sup>/rus/paradigm 5:</b> In practice, education also promoted collectivism and collective integration, progress in a monocultural setting and cultural assimilation.</p>	<ul style="list-style-type: none"> <li>✗ DISCREPANT: Generally, values reflect increasing pluralism, diversity, heterogeneity and tolerance as well as a high degree of non-integration and lack of coherence.</li> <li>✗ DISCREPANT: There is virtually no collective commitment; a desire for belonging and a yearning for closeness are evident in people's daily lives.</li> <li>✓ CONSISTENT: The desire for justice and just society is evident.</li> <li>✓ CONSISTENT: Authority and leadership are problematic and the system is insensitive.</li> </ul>

Again, the results appear inconclusive — mildly consistent in Finland and highly discrepant in Russia. In the case of Finland, several of the earlier educational paradigms seem *fully* consistent with the present-day condition of society. In the case of Russia, almost all paradigms were *fully* discrepant in relation to the present-day reality.

Earlier education in Finland (r0<sup>a</sup>/fin/paradigm 2) "... sought to promote realism, survival and security", and "preservation, not reform, was the focus". This is consistent with the situation today, where "uncertainty and suspicion, distance and separation are characteristic to life", and where "living is focussed on one's immediate future, ... survival". Moreover, education in Finland aimed at (r0<sup>a</sup>/fin/paradigm 4) "... social justice, egalitarianism and socio-cultural integration", and in practice, it "promoted homogeneity, some degree of cultural insensitivity and also cultural stereotypes". Today, several conditions of today's society are consistent with this, in that (a) "society and life are complex and atomistic, causing ambiguity and vagueness", and "values reflect pluralism while equality, tolerance and collective welfare are emphasized", and moreover, "human diversity is recognized and valued but it remains untapped as a social resource".

Examples of Soviet education include the paradigm that (r0<sup>a</sup>/rus/paradigm 1) “all formal education was squarely based on communism with a general sense of optimism and goal-orientation”. Yet, in today’s Russia “values reflect increasing pluralism, diversity, heterogeneity and tolerance as well as a high degree of non-integration and lack of coherence”, and also “there is virtually no collective commitment”, while “a desire for belonging and a yearning for closeness are evident in people’s daily lives”; moreover, “the futures prospect is marked with ... lack of perspective and a feeling of helplessness”. Also, earlier, education in Russia was (r0<sup>a</sup>/rus/paradigm 4): “... marked with a sense of achievement, pursuit of excellence and as scientific and artistic accomplishment”. Today, however, people in Russia “focus their lives on survival and independence”, “commitment to self is widespread”.

It can, therefore, be concluded that “earlier educational paradigms” (question q0<sup>b</sup>) correlate with “the present condition of society” (question q0<sup>b</sup>) in a very peculiar manner: the present conditions of society are either *directly aligned* with earlier educational paradigms or they are *diametrically opposed* to them. In other words, the *educational paradigms of the past are never inconsequential to the future condition of society*. Ergo, rule r0<sup>a</sup> holds (with some reservations) and *hypothesis b0<sup>a</sup> is true*: “Educational paradigms chosen earlier *have* an historically strategic effect today”.

That phrase in the parentheses, “with some reservations”, signifies the observation that the educational paradigm and the condition of society do not, necessarily “correlate” in the sense that the paradigms would be *linearly* manifested in the condition of society. Rather, they correlate in the sense that the adopted educational paradigms are never inconsequential, but the consequences can be adverse in relation to the nature of the paradigm. A good example of this is the Soviet collectivism (which took place without due respect for and tapping of diversity) appeared unsustainable and resulted in the contrary condition of confusion and incoherent heterogeneity. This is consistent with the reasoning presented in Section 2.3.6. This also relates back to principle of unity in diversity.

Of course, it must be noted that neither Finland nor Russia has evolved in socio-political and national isolation (consistently with postulates H3 and H4). External, supranational factors (global trends, international economy, world politics etc.) have dictated certain

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changes. For instance, pluralism, individualism, non-patriotism, impersonal democracy and egalitarianism are features that are similar to all Western democracies and are becoming a global norm, putting pressure to all countries and cultures.

### Applying rule $r0^b$ : Verification of hypothesis $h0^a$

Rule  $r0^b$  states: “*Hypothesis  $h0^a$  is true*, if hypothesis  $h1^a$  is true ( $r1^a$ ) — even when results on  $q0^a$  and  $q0^b$  do not otherwise generally correlate ( $r0^a$ )”. In other words: “*Educational paradigms chosen earlier have an historically strategic effect today (hypothesis  $h0^a$ )*, if earlier education based on the principle of unity in diversity is traceable in today’s society (hypothesis  $h1^a$ ), i.e. rule  $r1^a$  holds — even when earlier educational paradigms (question  $q0^a$ ) do not otherwise generally correlate with the present condition of society (question  $q0^b$ ), i.e. rule  $r0^a$  would not hold”.

We just concluded, with some reservations, that results on  $q0^a$  and  $q0^b$  do correlate ( $r0$ ) and that hypothesis  $h0^a$  is true. Moreover, we have earlier already concluded that rule  $r1^a$  holds and that, therefore, hypothesis  $h1^a$  is true. Ergo, rule  $r1$  holds and, *without* reservations, *hypothesis  $h0^a$  is true*: “Educational paradigms chosen earlier *have* an historically strategic effect today”.

### Applying rule $r0$ : Verification of hypothesis $h0$

Rule  $r0$  states: “*Hypothesis  $h0$  is true*, if hypothesis  $h0^a$  is true ( $r0^a$  or  $r0^b$ )”. In other words: “*Choice of educational paradigms is a strategic futures tool (hypothesis  $h0$ )*, if educational paradigms chosen earlier have an historical strategic effect today (hypothesis  $h0^a$ ), i.e. either rule  $r0^a$  or rule  $r0^b$  holds”.

We have concluded, without reservations, that hypothesis  $h0^a$  is true. Ergo, rule  $r0$  holds and *hypothesis  $h0$  is true*: “Choice of educational paradigms is a strategic futures tool”.

### Summary of the verification of recursive hypotheses

Rule  $r1^a$ : “*Earlier education based on unity in diversity is traceable in today’s society (hypothesis  $h1^a$ )*, if earlier educational efforts that aimed at specific features in the society and were focussed on the principle of

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unity in diversity (question  $q1^a$ ) correlate with some present traits in the society that manifest the principle of unity in diversity (question  $q1^b$ )". There is only one case of earlier educational paradigms that is focussed on the principle of unity in diversity, and this case does correlate with present traits in the society somehow manifesting unity in diversity. Ergo, rule  $r1^a$  holds and *hypothesis  $h1^a$  is true*.

Rule  $r1$ : "*Educational success based on the principle of unity in diversity is stable and sustainable (hypothesis  $h1$ )*, if earlier education based on the principle of unity in diversity is traceable in today's society (hypothesis  $h1^a$ ), i.e. rule  $r1^a$  holds". Hypothesis  $h1^a$  is true. Ergo, rule  $r1$  holds and *hypothesis  $h1$  is true*.

Rule  $r0^a$ : "*Educational paradigms chosen earlier have an historically strategic effect today (hypothesis  $h0^a$ )*, if earlier educational paradigms (question  $q0^a$ ) correlate with the present condition of society (question  $q0^b$ )". Present conditions of society are either *directly aligned* with earlier educational paradigms or they are *diametrically opposed* to them — i.e. the *educational paradigms of the past are never inconsequential to the future condition of society*. Ergo, rule  $r0^a$  holds and *hypothesis  $h0^a$  is true* (with the reservation that, while adopted educational paradigms are never inconsequential, the consequences can be adverse in relation to the nature of the paradigm).

Rule  $r0^b$ : "*Educational paradigms chosen earlier have an historically strategic effect today (hypothesis  $h0^a$ )*, if earlier education based on the principle of unity in diversity is traceable in today's society (hypothesis  $h1^a$ ), i.e. rule  $r1^a$  holds — even when earlier educational paradigms (question  $q0^a$ ) do not otherwise generally correlate with the present condition of society (question  $q0^b$ ), i.e. rule  $r0^a$  would not hold". On the basis of rule  $r0^a$ , hypothesis  $h0^a$  is true with reservations; however, hypothesis  $h1^a$  is true. Ergo, rule  $r1$  holds and *hypothesis  $h0^a$  is true* (without reservations).

Rule  $r0$ : "*Choice of educational paradigms work is a strategic futures tool (hypothesis  $h0$ )*, if educational paradigms chosen earlier have an historical strategic effect today (hypothesis  $h0^a$ ), i.e. either rule  $r0^a$  or rule  $r0^b$  holds". Hypothesis  $h0^a$  is true. Ergo, rule  $r0$  holds and *hypothesis  $h0$  is true*.

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#### 4.4.4. RECURSIVE THEORETICAL CONCLUSIONS

Let it be borne in mind that this whole research scheme was meant to be a *theoretical test*, not the aim of our overall research, and it is sufficient to receive tentative empirical results to test the functionality of the research model. In general, the recursive research was an interesting theoretical exercise. The recursive hypotheses all dealt with the effect of the *practised educational paradigm* on the *realized condition of society*, with particular attention to the principle of *unity in diversity* in mind. The tentative empirical research indicates a valid basis for all the hypotheses (including an additional note in the case of hypotheses h0<sup>a</sup>):

- h0 *Choice of educational paradigms as a futures strategic tool:* The future condition of a society will significantly depend on the strategic choice of educational paradigms adopted within the present condition of that society.
- h0<sup>a</sup> *Historical strategic effect of chosen educational paradigms:* The present condition of a society significantly depends on the strategic choice of the educational paradigms adopted within an earlier condition of that society. (NOTE: Adopted educational paradigms of the past are never inconsequential to the future condition of society, but the consequences can be adverse in relation to the nature of the paradigm.)
- h1 *Stability of education based on unity in diversity:* Educational efforts that aim at effecting the future of the society, and are somehow focussed on the principle of unity in diversity, emerge as successful and leave sustainable traits in the society.
- h1<sup>a</sup> *Traceability of education based on unity in diversity:* Educational efforts that aim at creating or preserving certain features in the society, and are somehow focussed on the principle of unity in diversity, leave traits that can be detected within the present condition of society.

The recursive research was also an interesting process of familiarization with two particular national systems of education. However, it must be remembered that the tentative results do not take into account the fact that neither of the two societies has evolved in socio-political and national isolation; the effects of globalization, for

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instance, have been consciously omitted from the scope of the recursive research.

Both the Finnish and the Russian educational systems were, earlier, marked with a remarkable aspiration towards homogeneity — the former for reasons of survival, the latter for ideological reasons. Diversity was recognized (in the case of Russia, even encouraged) in external matters, such as cultural products and costumes; but in fundamental human issues, such as cultural mentality and lifestyle as well as personal character, both systems (whether knowingly or unknowingly) aimed generally at unity *without* due respect for diversity. Yet, both systems have ended up in a highly pluralistic society where there is little social coherence and where vast segments of society suffer from an acute need for a sense of purpose and communal support.

Therefore, it does appear that collectivism, egalitarianism etc. (unity) without respect for the challenge of diversity, and without tapping the human resources provided by diversity, is not sustainable. On the other hand, it seems that individualism, uniqueness etc. (diversity) without some synergy and a collective sense of purpose and direction, a genuine sense of community, is not sustainable either. Indeed, it could be concluded that (a) *not working consciously towards the principle of unity in diversity is against the natural potential of human reality (both social and individual)*, and that (b) *only those educational choices that are in accordance with the human potential will, in the long run, be sustainable and come to fruition.*

On the basis of foregoing observations, and with reference to the postulates of the recursive research, we can advance certain recursive theorems. These will be the conclusions of the recursive research.

The observation that earlier educational paradigms are never inconsequential for the later condition of society — and the implications of postulate H1 (that education is an ideal capacity of evolutionary systems to evolve through input that stimulates their development), postulate H2 (that evolutionary systems have a macrodeterministic potential manifested progressively) and postulate H8 (there are universal educational principles relevant to the realization of the potential of a given human system and its educational paradigm) — would lend themselves to the following theorem:

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- t1 *Objectively Relevant Paradigm:* The society's educational paradigms, the values and models and goals to which a society adheres, are not just normative matters of preference or taste — they are objectively either conducive to the realization of the potential of that society, or they are not — i.e. they either are *natural* to human reality (socially and individually), or they are not.

Moreover, the current global paradigm — together with postulate H3 (that the potential of evolutionary systems is best realized “within the potential of their parent system, within a context of unity in diversity”) — indicates a further theorem:

- t2 *Global Social Potential:* The potential of human societies, today, is to attain to historically unprecedented achievements through concerted effort with other societies to achieve unity in diversity; such a global paradigm is more sustainable and influential than any purely national one.

This implies that today, for the first time, it is realistically possible (although very challenging and difficult) for diverse human societies to reach for unique accomplishments viewing humankind as a world community where there is commitment to common goals in collectively essential matters while, at the same time, there is considerable complexity and broad latitude for diversity of thought and culture in matters that are secondary in relation to collective interests.

In terms of educational feedback — with regard to postulate H4 (that evolutionary systems receive positive or negative feedback, from their parent and sister systems in a process of success and failure), postulate H5 (that in memorizing systems positive-negative feedback experiences influence also future situations) and postulate H6 (that in self-conscious beings the positive-negative feedback process can be deliberate and intentional) — we have grounds to advance another theorem:

- t3 *Effectiveness Condition:* If the practised educational paradigm in a society is conducive to the realization of its potential and supports relevant universal principles, the deliberate (human) feedback process of education will be effective, i.e. will amplify and strengthen the self-operating (natural) feedback process of education and result in a more efficient realization of the society's potentials — otherwise, the process is

complicated, becomes more chaotic and painful, and in the long run, the self-operating feedback process of education will prevail resulting either in an evolutionary breakthrough or in a breakdown in the society's evolution.

Moreover, education as a manageable agent of change — and on the grounds of postulate H7 (that through the choice of educational goals and models, through individual and collective decision-making, education can be a manageable change agent and a strategic tool for purposeful evolution and for building the future) — indicates the following theorem:

t4 *Predictability Condition:* Only if the practised educational paradigms in a society are conducive to the realization of its potential and support relevant universal principles, their influence on the future of that society will be consequential and, thus, predictable — i.e. will be as projected in practised educational goals and the decision-making process, at least in the long run.

From the point of view of futures studies, these recursive theorems indicate interesting futuristic implications within the phenomenon of education. The theorems can be compressed into two summarizing theorems (see also Section 2.3.7.):

t0<sup>a</sup> *Change Agent Condition:* Education is a manageable and effective agent of future change for a society only if both the practised and professed educational paradigms, as well as the decision-making paradigm, are conducive to the realization of the potential of that society — the potential to evince the principle of unity in diversity and engage in synergic interaction with other societies.

t0<sup>b</sup> *Trend Analysis Condition:* Educational paradigm analysis is, in fact, future trends analysis in that, if the practised educational paradigms promote the potential of the society, the future trends are aligned with the educational goals and the decision-making process — if not, the trend will be a progressively chaotic process towards either a revolutionary reform in accordance with the potential or a chronic state of growing disorder and, ultimately, disintegration.

These theorems outline the outcome of the recursive research. The main recursive conclusion, however, is that *these results give a tentative*

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*support to the recursive hypotheses, and therefore, there are also grounds to assume that the recursive postulates on which they were based may also have a valid foundation* — those recursive postulates being the original hypotheses (H1-H8) of this research.

#### 4.4.5. SUMMARY OF RECURSIVE CONCLUSIONS

The recursive research, which is a theoretical test, showed that the recursive hypotheses have some valid empirical basis and that *the practised educational paradigms of a society always have consequences for the future condition of that society*. Moreover, the research indicated that *the principle of unity in diversity can be a sustainable and orienting trait in the evolution of a society*. Particularly two summarizing theorems can be advanced:

- t0<sup>a</sup> *Change Agent Condition*: Education is a manageable and effective agent of future change for a society only if both the practised and professed educational paradigms, as well as the decision-making paradigm, are conducive to the realization of the potential of that society — the potential to evince the principle of unity in diversity and engage in synergic interaction with other societies.
- t0<sup>b</sup> *Trend Analysis Condition*: Educational paradigm analysis is, in fact, future trends analysis in that, if the practised educational paradigms promote the potential of the society, the future trends are aligned with the educational goals and the decision-making process — if not, the trend will be a progressively chaotic process towards either a revolutionary reform in accordance with the potential or a chronic state of growing disorder and, ultimately, disintegration.

These theorems portray the futuristic character of the phenomenon of education. The main recursive conclusion is that, since the empirical study contributed to a meaningful examination of the recursive hypotheses, there are grounds to propose that *the recursive postulates provide a relevant conceptual frame of reference for educational research* — those recursive postulates being the original hypotheses (H1-H8) of this research.

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#### 4.5. SUMMARY & ARTICULATION OF THE ATTEMPT (ON APPLICATION)

1. The recursive method for studying the validity of the hypotheses of the research is a *speculative test* as follows: (a) consider the hypotheses of this research as postulates; (b) on the basis of these 'postulates', create recursively testing hypotheses; (c) design an empirical study to examine these recursive hypotheses; (d) draw, from the findings of this empirical study, conclusions on the recursive hypotheses; (e) recapitulate, from these results, conclusions on the original hypotheses; (f) relate the outcomes of the study to reconsider a meta-theoretical framework for the science of education.
  2. ~~The theme of the recursive research is~~ *Conscious choice of educational paradigms as a systematic means for influencing the future of the society*; relevant recursive key-concepts are: (a) educational paradigm, (b) condition of society, (c) unity in diversity.
  3. The recursive hypotheses are: (h<sub>0</sub>) choice of educational paradigms is a strategic futures tool; (h<sub>0</sub><sup>a</sup>) educational paradigms chosen earlier have an historically strategic effect today; (h<sub>1</sub>) educational success based on the principle of unity in diversity is stable and sustainable; (h<sub>1</sub><sup>a</sup>) earlier education based on unity in diversity is traceable in today's society.
  4. Recursive research questions are: (q<sub>0</sub><sup>a</sup>) What is the present condition of the society? (q<sub>0</sub><sup>b</sup>) What were the educational paradigms adopted within an earlier condition of the society? (q<sub>1</sub><sup>a</sup>) Which traits can be detected in the present condition of the society that manifest the principle of unity in diversity? (q<sub>1</sub><sup>b</sup>) Which educational efforts, within an earlier condition of the society, were aimed at preserving or creating specific features in the society *and* were focussed on the principle of unity in diversity?
  5. The interpretation rules are: (r<sub>1</sub><sup>a</sup>) *hypothesis h<sub>1</sub><sup>a</sup> is true*, if results on q<sub>1</sub><sup>a</sup> and q<sub>1</sub><sup>b</sup> correlate; (r<sub>1</sub>) *hypothesis h<sub>1</sub> is true*, if hypothesis h<sub>1</sub><sup>a</sup> is true; (r<sub>0</sub><sup>a</sup>) *hypothesis h<sub>0</sub><sup>a</sup> is true*, if results on q<sub>0</sub><sup>a</sup> and q<sub>0</sub><sup>b</sup> correlate; (r<sub>0</sub><sup>b</sup>) *hypothesis h<sub>0</sub><sup>a</sup> is true*, if hypothesis h<sub>1</sub><sup>a</sup> is true, even when
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results on  $q0^a$  and  $q0^b$  do not otherwise generally correlate; (r0) *hypothesis  $h0$  is true*, if hypothesis  $h0^a$  is true.

6. Data acquisition and field activity: It has been necessary to be satisfied with *indirect empirical data* and rely on *the empirical experience and knowledge of others*; the data was obtained through atypical group interviews where the *consensus* opinion of the entire group is sought; four interviews were conducted: two for each of the countries, Finland and Russia — one interview for scanning the *educational paradigm* of some two generations ago, and the other for observing the *condition of the society* today; the discussions were recorded and transcribed.
7. Recursive conclusions: The recursive hypotheses have some valid empirical basis — *the practised educational paradigms of a society always have consequences for the future condition of that society*; moreover, *the principle of unity in diversity can be a sustainable and orienting trait in the evolution of a society*; the issuing theorems concerning *education as an agent of change* and *trend analysis based on education*, portray the futuristic character of the phenomenon of education.

**Articulation of the Attempt (on application):** The purpose of the attempt on application is to *put the proposed meta-theoretic assumptions to a tentative test*; the recursive research is a *speculative test* on the basis of which it can be concluded that *there are grounds to propose that the recursive postulates (the original hypotheses) provide a relevant conceptual frame of reference for educational research*.

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## Chapter 5

# THE CONCLUSION

This study has articulated its quest (Chapter 1) and set its task (Chapter 2). It has made an attempt on theory (Chapter 3) and a further attempt on application (Chapter 4). Now has come the time to draw the overall conclusions for the whole study. These conclusions must, first, re-evaluate the validity of the hypotheses of this work and ascertain whether the task originally set was attained. Then, further conclusions must be drawn about the implications of the thesis on the science of education, on human sciences in general and, finally, on issues of world-view and world order.

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## 5.1. CONCLUSION ON THE TASK — THESIS —

We embarked on the Quest, we identified the Task, we made our Attempt (on theory and on application) — and now we are on the verge of our Conclusions. In this section, we are to draw *conclusions* on the plausibility of General Systems Theory for the science of education, and to articulate a Thesis on this basis.

The foundational assumption, the meta-postulate, of this work has been that the epistemological paradigm of natural sciences, and their method of exploring universals, are relevant and applicable to the paradigm of the science of education. The first task set for trying out this proposal was to *examine the applicability of General Systems Theory to the study of educational universals*. This, in fact, was our main hypothesis — that *systemic principles are applicable to, and General Systems Theory is fundamentally relevant for, the further development of the science of education, if it is to focus on educational universals*.

In doing all of this, however, it should be borne in mind that I entertain no presumptions that this theoretical work would be *the* proposed meta-theoretic foundation for the science of education; the object of this study, as pointed out earlier, is to serve as *a first step*. Thus, it makes for an opening of ongoing discussion, an exploratory process that must go on indefinitely — long process of dialogue, of argumentation and counter-argumentation in pursuit of coherent educational thinking and theory. Short of such a longstanding process, nothing conclusive can be achieved in this quest nor any definite claims be advanced. Therefore, this dissertation is a modest but firm start for this discourse — a beginning that, while certainly not conclusive, is at least coherent.

### 5.1.1. EXAMINING THE ORIGINAL HYPOTHESES

The recursive research scheme was designed in a manner that its results would indicate something about the and feasibility of the

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hypotheses of this thesis. The aim was to carry out a *speculative test* for the proposed hypotheses — to speculate on the hypothetical direction that educational theory and research *could* take *if* such suppositions were, in fact, the accepted core of the science of education. This test was designed to provide *some* tangible experience of what is being proposed. The results of this attempt were to be seen as an *example* of a meaningful research setup that would be based on the proposed hypotheses. The idea was that, if the test setup, with its empirical study, would contribute to a meaningful examination of the *recursive* hypotheses, there would be grounds to propose that the *original* hypotheses provide a relevant conceptual frame of reference and that, in turn, the *main* hypothesis is justified — that *General Systems Theory is fundamentally relevant for the science of education*.

The empirical study showed that the recursive hypotheses do have some valid empirical basis: it could be justifiably maintained that the practised educational paradigms of a society always have consequences for the future condition of that society, and moreover, that the principle of unity in diversity can be a sustainable and orienting trait in the evolution of society. Thus, further recursive theorems were advanced portraying the futuristic character of the phenomenon of education (education as an agent of change and trend analysis based on education).

The purpose of this “attempt on application” was to put the proposed meta-theoretic assumptions (original hypotheses) to a tentative test. This theoretical test *did* yield a meaningful educational study. Accordingly, the original hypothesis (H1-H8) of this research — functioning as the recursive postulates of the test — *form a relevant conceptual frame of reference for educational research*. These original hypotheses on the phenomenon of education are summarized as follows:

H1-2 *Universal evolutionary education*: Education is a universal function manifest in evolutionary systems, a process of transformation through which a system’s potential becomes manifested.

H3-4 *Education through unity in diversity*: The potential of evolutionary systems can be most fully realized in the context of reciprocity between the system and its parent and sister systems, between collectivity and individuality; positive-

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negative feedback from parent and sister systems facilitates a process of 'learning' towards the realization of the system's potential.

H1-4 *Education is the holistic process of interaction and transformation that guides a system's evolution towards the realization of its potential.*

H5-7 *Education as an agent of change through conscious feedback:* Memorizing systems can utilize the positive-negative feedback experiences also in future situations, while conscious systems can produce intentional and goal-oriented feedback (including self-education); conscious choice of educational goals and models affects the future and is a manageable tool for purposeful evolution.

H8 *Objective education:* There are universal principles and ideals that are critically relevant to the realization of the potential of a given human system and its educational paradigm and, thus, bear directly on appropriate educational goals to be adopted.

These hypotheses were, in fact, also secondary in relation to the *main* hypothesis. Their chief aim was to enact the implications of that main hypothesis, which is:

H0 *If the science of education is to focus on educational universals, systemic principles are applicable to, and General Systems Theory is fundamentally relevant for, the further development of the science of education.*

Both the original and the recursive hypotheses addressed *educational universals*. The essential conclusion here is that, while these hypotheses were focussed on *educational universals* and were, thus, very broad and abstract, by breaking and sizing them down step-by step, progressively applying their meaning to a more tangible level, they *could* be studied meaningfully and it *was* possible to work with them in a manner relevant to educational needs. In other words, systems theoretic principles *are* applicable to the study of educational universals as the focus of the science of education. Thus, our *main* hypotheses (H0) can be considered valid.

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### 5.1.2. ASSESSING THE ORIGINAL POSTULATES

Postulates are what one *assumes*, and hypotheses are what one *claims* on the basis of these assumptions. When we say “*if* A is true *then* B could also true”, it is the “*then*” that we have to prove, not the “*if*” — it is the claims that must be validated, not the assumptions. The assumptions must, nonetheless, be *justified*: they must be logically coherent and must not contradict known facts. This we sought to do during our entire “attempt on theory” (Chapter 3). Our *postulates on the systemic nature of reality* can be recapitulated as follows:

- P1 *The two aspects of one reality*: Reality incorporates two ontological capacities: the ideal capacity (changeless attributes and principles, i.e. universals), and the contingent capacity (changing attributes and circumstantialities, i.e. particulars) — a system’s contingent attributes reflect its ideal capacity.
- P2 *The unity of reality*: All systems are open and can be seen as subsystems of the entire reality, and each system is non-reducible to its constituent elements.
- P3 *The evolutionary principle*: Systems can have an ideal macrodeterministic potential which unfolds progressively (from a negligible outset towards full fruition) and is fed by increasing complexity which, in turn, is issued in by occasional bifurcations that facilitate evolutionary breakthrough while, also, including the threat of breakdown.
- P4 *The co-evolutionary context of unity in diversity*: Systems co-evolve within the context of shared potential expressed in individual and situational variety; this facilitates a feedback relationship with their parent and sister systems causing a dialectic of success and failure.

Thus, these postulates do not need to be separately reassessed, unless something in the process of validation of the hypotheses has given reason to suspect that there are incongruities in the postulates on which they were based. No such incongruities have, however, been found in the hypotheses. On the other hand, it must be readily admitted that both the postulates and the hypotheses address abstract universals; therefore, the assessment of their correspondence to empirical facts is not a straightforward task — the very dilemma on

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which the recursive research scheme was based. But, since the purpose of this research was to open a *new mode of thought*, not to formulate conclusive theorems, the logical coherence of the postulates and their observed consistency with the studied hypotheses is sufficient for us to retain them as our basic assumptions.

This brings us back to the very starting point of our postulation — the meta-postulate concerning the epistemological approach of studying educational universals as a focus of the science of education:

*P0* The general epistemological paradigm of science and its method of exploring universals, currently used by natural sciences, are relevant and applicable also to the paradigm of the science of education — they can provide substantial advances in the exploration of the phenomenon of education.

This being our meta-postulate, I do not attempt to prove the point on this assumption. However, this research has shown that such a position is, at least, not to be discarded lightly. The accustomed resentment of many human scientists for the natural scientific approach is, on the basis of this discussion, not valid. The method of making ontological approximations about assumed universals and assessing them through their correspondence with the empirical observations is a universally applicable paradigm of scientific inquiry, mistakenly taken for being *positivistic*. If this epistemological paradigm is pursued broadly, it will fall into the trap of positivism; instead, it can provide an *epistemological monism* among all sciences in respect to the manner they seek to augment our understanding of reality.

### 5.1.3. VERIFYING THE ACCOMPLISHMENT OF THE TASK

In Chapter 2, it was shown that there may exist apprehensions concerning *human universals* (e.g. reluctance towards universal definitions of human reality, of right vs. wrong, of socio-political objectives, of global systems of governance) and against *educational universals* (e.g. reluctance towards universal definitions of education, of educational values, of educational goals, of unity in educational systems). It was moreover observed that such apprehensions are targeted at the *realist* interpretation of educational universals and that, while such universals are not denied altogether, they are ignored within

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a conceptualist frame of mind, i.e. ascribing less *reality* and *relevance* to them than the realist position would.

Then the task was set to *take the first modest step in focussing the science of education on educational universals*; this first step was, further, defined as *studying the applicability of General Systems Theory to the science of education*. This task has been accomplished by making a considerable attempt both on theory (Chapter 3) and on application (Chapter 4). The results of these attempts, while not even aiming at conclusiveness, should be sufficient to provoke discussion on the *relevance of educational universals to the science and practice of education* and the applicability of General Systems Theory in addressing educational universals. Stimulating such discussion has been the very aim of this entire study.

#### 5.1.4. THE THESIS

G. K. Chesterton (1950) writes: “Every education teaches a philosophy; if not by dogma then by suggestion, by implication, by atmosphere. Every part of that education has a connection with every other part. If it does not all combine to convey some general view of life, it’s not education at all.” It is this very fact that demands us to address human and educational universals. If “every education teaches a philosophy”, the assumptions which that philosophy makes about human beings are central to education. And, if those assumptions are left to the ephemeral and fluctuating conditions of passing situations, then there is no relevance in discussing education as an academic topic at all — unless, of course, we succumb to Sartre’s (1943, p. 90) assertion that “human reality is by nature an unhappy consciousness” because it is tormented by its inability to be “totality which it is”. I, for one, am not prepared to succumb to that assertion, and neither are 90 % of the inhabitants of this planet.

So, here we are, saying that “*if A is true then B could also true*”. That big “if” (A) is that *educational universals need to become the focus of the science of education through the general epistemological paradigm of science*, and that big “then” (B) is that *General Systems Theory is relevant and applicable to the study of educational universals*. The “if” is the meta-postulate of this research, and the “then” the main hypothesis. In addressing human and educational universals, the research has put realism in contrast with

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nominalism and conceptualism, and maintained that human reality is, indeed, *not* essentially a mere biological formation and that human consciousness has an objective reality — it is not a mere by-product of biological evolution and a delusion caused by neural activities in the brain.

Thus our thesis is based on a paradigm of reality that modifies and incorporates *holistic*, *Platonistic* and *teleological* perspectives, as opposed to *atomistic*, *reductionistic* and *materialistic* ones — keeping in mind, however, that any generalizations that we make about reality, all our universals, are approximations of *assumed* absolutes, at best. With this having been said, I will now proceed to advance my thesis. The thesis is given in a logical sequence of sets of theorems bearing on reality *per se* (T0), on the hierarchical levels of reality (T1), on human reality (T2), and on human education (T3), and on the science of education (T4); each subsequent set of theorems builds on the previous set.

#### Theorems on reality *per se*:

- T0<sup>a</sup> Reality is essentially one: it is one holistic and synergic entity that cannot be divided into isolated parts nor reduced to the atomistic sum of its constituent elements.
- T0<sup>b</sup> Reality is systemic in character: it has ideal and contingent ontological capacities and various levels that are organized in a hierarchical manner.
- T0<sup>c</sup> Ideal ontological capacities are manifested on different contingent levels, including: the mineral, the plant, the animal, and the human (including rational and moral).
- T0<sup>d</sup> Each contingent level is capable of manifesting certain ideal capacities; each higher level is capable of manifesting the capacities of lower levels *and* additional capacities pertaining to its own level.

#### Theorems on the hierarchical levels of reality:

- T1<sup>a</sup> The mineral level manifests the first and most basic universals of *existing* or *being* (corresponding to the laws of physics).
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- T1<sup>b</sup> The plant level manifests additional universals of *goal-oriented* or *evolving* or *organic being* (corresponding with the laws of biology).
- T1<sup>c</sup> The animal level manifests further universals of *conscious being* (corresponding to the laws of primitive psychology).
- T1<sup>d</sup> The human level has a rational aspect that manifests the higher universals of *self-conscious being* (corresponding to the laws of rational ego and volition).
- T1<sup>e</sup> The human level has a further moral aspect that manifests the transcendent universals of *ethical being* (corresponding to the principles of universal ethos).

### Theorems on human reality:

- T2<sup>a</sup> Human reality is, primarily, manifested on the rational and moral levels; these manifest the universals of *self-conscious being* and *ethical being*; thus, human existence corresponds to the *laws of rational ego and purposeful volition* as well as the *principles of universal ethos*.
- T2<sup>b</sup> The *principles of universal ethos* can never be fully grasped by human consciousness, because human consciousness is capable of grasping only a *relative, not an absolute, understanding* of universals; intercommunication of human minds can, however, achieve a higher *relative objectivity* of universals.
- T2<sup>c</sup> The principles of universal ethos are manifested in the social and individual human reality *progressively* through a *process of ethical evolution* — i.e. human evolution manifests progressively higher and relatively more objective levels of that universal ethos; the record of the spiritual legacy of world religions, and the recent attainment to some universally accepted ethical principles, testifies to this.
- T2<sup>d</sup> Universal ethos corresponds to the fundamental *potential of human reality* (collective and individual) and to the principles that must be applied in order for that potential to evolve and be realized; *human volition* (collective and individual), or free will, is a critical factor in realizing the human potential.
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**Theorems on human education:**

- T3<sup>a</sup> It is possible to systematically influence the future of individuals and societies through education — education can be a strategic agent of change for conscious and purposeful evolution.
- T3<sup>b</sup> There are universal principles and ideals that are critically relevant to the realization of human potentialities and, thus, bear directly on appropriate educational goals and values.
- T3<sup>c</sup> The universals of moral being, the principles of universal ethos, are at the core of human reality and, thus, denote relevant educational universals — educational goals and values.

**Theorems on the science of education:**

- T4<sup>a</sup> Science without holistic vision is dogmatic — scientific belief demands holistic vision.
- T4<sup>b</sup> Human and educational universals need to become the focus of the science of education, if it wishes to remain relevant and faithful to fundamental human needs.
- T4<sup>c</sup> The general epistemological paradigm of science and its method of exploring universals are applicable also to the paradigm of the science of education.
- T4<sup>d</sup> General Systems Theory is fundamentally relevant for the study of educational universals and must be pursued further for this purpose by the scholarly community.

Regarding the concept of “universal ethos” referred to in the theorems T1<sup>e</sup>, T2<sup>a</sup>, T2<sup>b</sup>, T2<sup>c</sup>, T2<sup>d</sup> and T3<sup>c</sup>, since it “can never be fully grasped by human consciousness” and since “human evolution manifests progressively higher and relatively more objective levels of that universal ethos”, it is plausible to speak of the possibility of achieving a *global ethos* within the system of humankind.

It is, however, the last two sets of theorems (T3-T4) that, in fact, form our actual thesis. These theorems delineate the transition “from

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reductionistic discourse to systemic theory” in the science of education, as referred to in the title of this work. Here, then, is the main conclusion of this research:

**THESIS:**

Meaningful scientific belief demands holistic vision and, therefore, *human and educational universals* must become the focus of the science of education, particularly regarding *moral existence* and *global ethos*; the general *epistemological paradigm of science* is applicable to, and *General Systems Theory* is fundamentally relevant for, addressing educational universals; briefly:

- It is possible to make ontological approximations about human and educational universals and to investigate their plausibility through empirical observations.
- It is possible to make futuristic approximations about an ethically justifiable and sustainable human paradigm and to pursue them through practical educational measures.

It is evident that the foregoing theorems address reality as a whole and are, thus, applicable to almost any science. This is not due to a presumptuous attempt on my part to address all natural and human sciences. Rather, it is attributable to the fact that this study has been concerned with the philosophy of science while keeping in mind the criteria of holism; moreover, systems theoretic principles address reality as a whole, and therefore, postulates made on their basis have ramifications for a vast array of fields.

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## 5.2. CONCLUSION ON IMPLICATIONS FOR THE SCIENCE OF EDUCATION

We started out our quest (Chapter 1) by asking if there is justification for education as a science. It was argued that science is an aspiration to unravel the *essential reality of things*, focusses the long-term interest of science on the *universal qualities* of reality. In the case of the science of education, essentiality would mean *the holistic study of the phenomenon of education*.

It was, moreover, observed that the chronic focus on the particulars of education appears to be due to lack of willingness to re-evaluate ingrained habits of the scholarly mind which, in turn, is attributable to the power of tradition. But, holding to tradition is *not* the characteristic of the entire scope of pedagogical research: far from undermining the work hitherto done by educationalists (groundbreaking educational approaches, experiments, policies and theories), focus on universals would provide that work with a broader rationale, a coherent context, a more appropriate platform to evolve and thrive, instead of abandoning them as unintegrated islands of educational knowledge.

The relevant quest of the science of education, for the present time, was then reformulated as follows: *to empower the science of education to be free of the chronic pursuit of the particulars of education*. The conclusions in my thesis, while addressing reality as a whole, are immediately relevant to this quest: if these theorems are accepted, science can seek to address educational universals from a realist perspective. Fundamentally, the science of education would start to address *ethical ideals* and *educational objectives*, as its most relevant universals. Educational approaches, methods, and outcomes can, then, be developed against the background provided by these universals.

As pointed out in Section 3.2.1., the new modes of educational implementation (such as action research and learning organization) may seem pragmatic *in appearance*, but they address a philosophical or universal *foundation*: the universal functionality of many of these new trends in the vast diversity of human culture and experience indicate certain factors that are universal to human reality (for instance, the

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capability to execute successful projects in as diverse setups as a small village in a developing country, a large supranational corporation, an international non-governmental organization for civic change, the political organization of a town in an industrialized country).

It is, indeed, commitment to genuine betterment that educational science shares with futures studies. Their similarity with the science of medicine, in that they seek to produce effective practice for real-life improvements, only underscores their need *to be backed up by proper and credible theoretical thought*. As the science of medicine needs to identify relatively objective criteria of physical healing (i.e. the betterment of the biological aspect of human reality), the science of education needs to find some universalist criteria for good education (i.e. the betterment of the social, intellectual, emotional and spiritual aspects of human reality).

The main asset of the conclusions in this thesis is that they provide theoretical tools for pursuing a *global ethos* that could provide some measure of objectivity in identifying values and educational goals — for good education. Our theorems argue that “human reality is, primarily, manifested on the rational and moral levels” corresponding to “the *laws of rational ego and purposeful volition* as well as the *principles of universal ethos*”; that a universal ethos “is manifested in the social and individual reality *progressively* through a *process of ethical evolution*”; that “the principles of universal ethos are at the core of human reality and, thus, denote relevant educational universals” and “educational goals and values”; and that “*human volition*” is “a critical factor in realizing the human potential”. Moreover, the theorems point out that “education can be a strategic agent of change for conscious and purposeful evolution”; that “scientific belief demands holistic vision”; that “human and educational universals need to become the focus of the science of education”; and that “General Systems Theory is fundamentally relevant for the study of educational universals”.

All of this, if recognized, calls for a paradigm shift for the science of education and the academe that advocates it. It calls for overcoming anachronism in the science of education and transcending mere play with the philosophical nomenclature when discussing the ontology of human reality and its education. In order for education to bring forth the potential of human reality, to be committed to “genuine better-

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ment” and to cause “effective practice for real-life improvements”, it must pursue and find “some universal criteria for good education”. For this purpose, the philosophy of education needs to come to the centre of educational research and theory.

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### 5.3. CONCLUSION ON IMPLICATIONS FOR HUMAN SCIENCES IN GENERAL

It is quite evident that our conclusions on the science of education apply, directly or indirectly, also to human sciences in general. A few additional words, however, concerning these implications may be appropriate. As in the case of the science of education, also human sciences in general must confront and overcome their anachronism. Their disciplinarity is in crisis — indeed, disciplinarity, itself, is in crisis due to a global crisis of perception (see: Capra 1983).

Most human sciences stem somehow from the tradition of sociology — a discipline that “is deeply rooted in modernity” and “considers Max Weber as one of its founding fathers”; in the atmosphere of postmodernist fluctuating concepts, this discipline — and, with it, the entire scope of human sciences — finds itself confronted with an acute need for a paradigm shift (Giesen, 1992, p. 316). The misuse of theories of history and society for promoting elitist ideological ends has cautioned most human scientists against human universals (cf.: Goldthrope, 1992, p. 139). This experience is particularly acute to the Western experience of history. Sociology is, in fact, the attempt of the Western civilization to understand *its own* paradigm, not the human paradigm in general. According to Willis Harman (1988, pp. 33-34), we who have been educated in the modern (Western) society naturally assume that our scientific view of reality is essentially correct.

Thus, our ‘scientific view’ is not scientific at all because it lacks the criteria of *holistic perspective*, as demanded by the principle that “scientific belief demands holistic vision”. Lack of true multicultural (i.e. multi world-view) experience of vision among the majority of prominent social theorists and philosophers has narrowed their empirical sample and has lead to *incorrect (or too limited or specific) generalizations about human reality* (for instance, the generalization that human universals either do not exist or are irrelevant — itself, paradoxically, a claimed universal).

It was Western humanism that brought the human being to the centre of philosophical thought and elevated him to the status of *the* central figure of reality. It is strange, then, that a science that represents

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the culmination of a humanistic world-view should abandon the task of understanding the human reality. Instead, humanism placed only the *individual* as the focal point of human sciences; in virtually all sociological models, the *a priori* and basic sociological subject is the individual — not a comprehensive concept of human reality that would attest to the *synergic* aspect of humanity.

Yet, the task of gaining some collective understanding of human reality may not have to be abandoned altogether. Instead of either abandoning it or pursuing it as a private enterprise, an alternative approach would be *to adopt a gradual, progressive and consultative process* that would involve, not only the scholars of the field, but the generality of people with their various world-views and mentalities. Today's communications technology provides the means for such an ongoing process of communication. It is up to the scientists — both as opinion-makers and as ones who have the power to initiate such a process — to provoke such a conscious evolutionary approach as a collective venture.

The *evolution of human consciousness* has reached a point where such ventures are both possible and necessary (hence, the *crisis of perception*). According to the existing biological, palaeontologic and archaeological evidence humans have trodden this Earth for a few million years — that is, a mere 0.1 % of the Earth's life. As pointed out in Section 2.2.3. and restated as theorems T1<sup>d</sup> and T1<sup>e</sup> and T2<sup>a</sup> in Section 5.1.4., there are somewhat as significant differences between human consciousness and animal awareness as there are between animal awareness and vegetable non-awareness. Our theorems indicate that human reality corresponds to "*laws of rational ego and volition*" as well as the "*principles of universal ethos*" and that, thus, humans are essentially "rational and moral" beings. This is to say that human consciousness transcends that of the animal in two respects:

1. *Rational consciousness*: awareness that "I" exists and has a relationship with the surrounding reality, a capacity for rational thought and the volition to act deliberately by applying latent talents.
  2. *Ideal consciousness*: awareness of some purpose or reality greater than ones ego, an ability to overcome self and ascend towards noble ideals, a capacity to commit to high principles and live accordingly.
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We could designate these two aspects of human consciousness collectively as human “*meta-consciousness*”. Perhaps, it is this meta-consciousness that Peter Russell (1983, p. 55) is referring to in saying: “Consciousness *is* different from a collection of [brain] cells, just as life is different from a collection of atoms. Instead of arguing that consciousness is merely a by-product of brain activity, one could take the view that since consciousness evolves out of life, consciousness is already inherent within life in some potential though latent form. Likewise, since life evolves from apparently inanimate matter, life is already inherent within matter in a latent form.”

It is not hard to imagine that, *if* the notion of human meta-consciousness would be included as a *universally accepted concept* within human sciences, this would have unprecedented ramifications on theories of society, history, governance, psychology, and education.

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#### 5.4. CONCLUSION ON WORLD-VIEW AND WORLD ORDER

All preceding discussions, in fact this entire study, have circled around one central theme: *the coherence of world-view*. Whatever the particular case we have been discussing, the main assumption has been that *all aspects of reality — whether physical, mental, or spiritual — belong to one universal whole*. The crisis of perception in favour of such philosophical unity is, today, felt in all aspects of human life on this planet. The Cartesian paradigm has run its course and is now giving way to a different pattern of thought (Capra 1983). All of this will have repercussions for both world-view and world order.

Given such a critical historical paradigm shift, the ethical responsibility of no human being can be based on mere arbitrary or dogmatic claims or ideological preferences. This was the motivating impulse behind my dissertation. This is why the issue of holistic vision, as opposed to atomistic dogma, was so tenaciously (at times, perhaps even overzealously) pursued. A sceptical and cynical frame of mind is a sure trap for becoming tangled up with our present world predicament. It can prevent us from overcoming the obstacles in the way of our first global breakthrough and, instead, actualize the looming breakdown. Indeed, our mode of thought is critical to our common future. Thus, world-view and world order are intimately related and interwoven. (Cf.: Teilhard de Chardin 1965; Aurobindo 1971; Fromm 1976.)

The onrushing postmodernism has inclined the *homo occidentalis*, the Western man, (and with him, the majority of humankind) to the “total acceptance of the ephemerality, fragmentation, discontinuity, and the chaotic” (Harvey 1989, p. 44). The postmodernist insistence on this stance is to maintain that the current paradigm of the Western civilization would be the culmination and final word in human civilization (and social potential). There is no sign that we would be at the end of the road yet; neither is there any indication that the current paradigm would have stability or permanence. On the contrary, the systemic approach suggested in this work indicates that the world paradigm is undergoing momentous upheavals and profound transitions with a rapidity unprecedented in known history. The road forward is

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unpredictable and has ups and downs, breakthroughs and breakdowns. It would be indeed premature to assume that history would have given its final verdict on human civilization, and that that verdict justifies cynicism and pessimism. An example of an opposite, while subtle, indication is the mere fact that the United Nations' Declaration of Human Rights ever came into being: despite the lack of commitment on the part of many member-states, its existence is an historic accomplishment that would not have been possible a few decades earlier — an accomplishment that speaks in favour of the possibility that we have begun to learn agreeing on *some* universal principles, because they have proven to be *empirically* necessary for our survival and, hopefully, for the emergence of a sustainable human civilization.

In 1970, the renowned Finnish writer, Mika Waltari, said on a radio interview (translated from the Finnish): “While Finland is my fatherland, Europe is our hereditary land, but it is the world that is our only home, our only native land!”<sup>1</sup> Some may dismiss such sentiments as romantic idealism, but global ethos inherent in these words has permeated enlightened minds all over the world and is becoming a hopeful sign that, indeed, we *can* learn from the lessons of history, albeit slowly (cf.: Küng 1998; Küng & Schmidt 1998; see also: Taylor 1992; Puolimatka 1989).

Now that the discussion is on world-view and world order, a cautionary note may be appropriate. We have often referred to a “Platonistic” view of universals and, in fact, of reality. This is a notion on world-*view* not world *order*. Even the world-view Plato espoused was, to some extent, inadequate in that, while suggesting highly enlightening principles on the ontology of reality, he interpreted these principles rather simplistically. More importantly, however, the political order of Plato's (1930 [original 4<sup>th</sup> century B.C.) *Republic* is certainly not advocated here. These political ideas, while coherent and progressive from a certain point of departure, fall utterly short of the needs of a complex and multifaceted humanity — particularly in its present global paradigm. In fact, our ‘Platonistic’ conclusions suggest a number of quite different socio-historical perspectives, applying the principles of unity in diversity and macrodeterminism to the social reality:

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<sup>1</sup> Original Finnish: “Vaikka Suomi on isänmaani, niin Eurooppa on meidän perintämaamme, mutta koko maailma meidän ainoa kotimme, ainoa synnyinmaamme!”

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1. The system of humankind, like any other system, has the potential of manifesting, in its social order, the principle of unity in diversity.
2. Such a potential can fully be realized only after a gradual evolutionary process of maturation.
3. The process of maturation of humankind has traditionally been disturbed, but not disabled, by both collective and individual misuse of human free will in conflict with the principle of unity in diversity.
4. Unity in diversity, as a universal principle, must ultimately penetrate the system of humankind through the urging of humanity's current problems compelling it to conform to this principle.
5. Humanity's stubborn hesitance to conform to the principle of unity in diversity both postpones its advent and makes its emergence a more painful process.

The idealism inherent in these propositions should be viewed in the light of the two examples of Section 2.3.6.: it was pointed out that the Nazi educational system and, to a lesser degree, that of the Soviet system were *allegedly* idealistic and did *appear* so but, in reality and in their broadest contexts they were *actually* quite cynical and were, *in effect*, rather gloomy in their view of human reality. This was based on the understanding that these systems did not view humanity in an inclusive and optimistic manner but were highly exclusive and pessimistic in relation to humankind as a whole. Idealism is attached to some manner of optimism and, in order to remain coherent, this optimism should be as comprehensive and inclusive as possible; otherwise, that idealism is a mere rhetoric core within a shell that is *de facto* cynical and counteracts that idealism.

Inevitably, this discussion of comprehensiveness and inclusion brings us to the problematique of the much-misunderstood concept of *globalism*. The problem of globalism is that it is a *contextual condition*; in this condition any social or political or economic 'feature' can become globally dominant or widespread (similarly, in a national or local context any feature can become nationally or locally dominant or widespread). Thus, the problem is not with globalization *per se*, but with

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what is *made* global through individual and collective human choices, which, in turn, are dependent on the spiritual maturity of the human race.

It is precisely here that globalization appears as destructive to us. My assumption is that the unbalanced victory march of the European civilization, for the past half millennium, is the primary reason for the distortion of the phenomenon of globalization (see: P. Izadi 1996). The era of imperialism in European history brought that civilization into the world stage as *the* dominant cultural influence. Its acts became global in scope and its effects were, and are, felt worldwide. The heritage left by the European conquistadors to the colonists of new domains all over the world has been the arrogant self-justification, not only to pillage and plunder the human and natural resources of the invaded areas, but to disperse the very structure of the native society and to dismiss with narrow-minded neglect a unique opportunity to enrich their own world-view and life perspectives. Many are the cultures and their world-views that were swept from the face of the earth. For instance, the unyielding reluctance of European settlers to even consider the virtues of native Americans — much less to learn from their undeniable virtues — resulted in the American culture becoming the extension and, indeed, the culmination of the European civilization, with virtually no trace of native American mentality left in it.

Let it be pointed out that it is not the qualities of the Western civilization, as such, that are under critical review here. Western science and technology, economic efficiency, sense of enterprise, administrative organization — these are all excellent aids to human progress. As a result of these we, today, have a global network of communication and traffic connecting the people of the world and enabling cultural interaction in an unprecedented scale. But this intercommunication follows, for the most part, the patterns of the Western world-view. Indeed, the Western way of thought and life is *the* dominant aspiration of the modern world. For, no longer can one apply the name “Western civilization” only to Europe and America. It is applicable to a global network of interaction founded upon the imperialistic heritage.

Thus, the cause of objection is not the Western civilization itself but its *overwhelming dominance* over the entire world. And it is this feature that has given the term “globalization” a bad name. For, the

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virtues of the West, when combined with excessive pursuit of material well-being and void of corresponding ethical values and a moral code, have proven globally harmful. In fact, this has corrupted and retarded the long-term development of the Western civilization itself, as by its dominance it prevents the salutary influence of other cultures on its *own* evolution.

There are examples of similar events in history also in other parts of the world and by other cultures, although in a much smaller scale. The main point is that the immoderate dominance of *any* one culture or civilizational paradigm is detrimental, not only to other cultures, but also to its own development. For, the exercise of any matter beyond moderation will cease to promote its development (another universal, perhaps!). In the words of Bahá'u'lláh (1952 [circa 1880], pp. 342-343): “The civilization, so often vaunted by the learned exponents of arts and sciences, will, if allowed to overleap the bounds of moderation, bring great evil upon men. . . . If carried to excess, civilization will prove as prolific a source of evil as it had been of goodness when kept within the restraints of moderation.”

Willis Harman (1988, pp. 33-34) points out that other world-views are an essential ingredient in a relevant view of reality in that, through other cultural windows, other aspects of the total human experience are emphasized and contribute to an holistic understanding of human reality. Any cultural mentality on this planet, regardless of its demographic dimensions, is a potential contributor to this enterprise (cf.: Ereira 1990, pp. 228-230). Perhaps the true potentials of a culture are fully realized only in communication with other cultures — not just any kind of interaction, but a communication that seeks to release new aspects in human society through the exposure of these aspects by varied cultural world-views, by the manifold ways of diverse peoples to look at the world, and by the eminent wisdom inherent in their heritages. Would not such a utilization of cultural diversity, in fact, foster the identity of these cultures and, indeed, add to their uniqueness and *simultaneously integrate them into a world community*? Cultures, instead of being isolated entities preserving statically their identity in a struggle against alien influence, are interrelated dynamic scenes of human development, and, although their heritages have traditionally satisfied the needs of their respective societies, they could also immensely

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contribute to the evolution of a new world order (cf.: Honigmann, 1963, p. 313).

Viewed from this perspective 'globalism' does not seem such a bad idea after all. It is just that we human beings tend to first *misuse* a wonderful thing before we learn to use it as it is supposed to be used. As a stubborn growing child often fails to welcome his maturation, likewise, humankind is persistently clinging to its childish tenets: its fragmented world-view, its obsolete modes of interaction, its outdated social structures, its immature political organization. Also, like an adolescent at the peak of his physical development, humankind is physically and materially highly advanced: scientific accomplishments, technological achievements, communication and transportation networks, economic efficiency, organizational performance, systematic planning — all these are more advanced than ever before; they are the perfect machinery for the needs and life of a mature humanity. Now, it is maturity itself that has to be attained. (Cf.: Kurtakko & Izadi 1991, p. 39.)

The watchword for humanity's global maturity, and its touchstone, is the principle of unity in diversity. This principle presupposes that the diversity of humankind is fundamental to the social reality and is also a valuable resource for the entire humanity; it also insists that unity is needed in matters that are *intrinsically* universal or global. Unity of purpose, unity of vision, unity of core values, unity of law and of principles of global governance are, not only practically indispensable for the management of human affairs, but also sit at the heart of humanity's identity in its new global attire. This principle denotes a *synergic* socio-political quality where cultural, mental, individual or situational diversity is not a social barrier but, rather, the very substance of unity, and provides the resources for the dynamic and proper functioning of society. This interpretation denotes diversity as an organic and integral quality of society, not an atomistic and stochastic and corrosive social wildcard that we, today, call "pluralism".

Such maturity, while it seems far from our present state, is now within the reach of humankind. *We have* learned from our mistakes. Today, world order is under constant reform and the very agitations of human affairs contribute to its maturation and emergence. Regardless of what sceptical observers may conclude, a need for a global system of

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governance based on some universal code of law has, during the past century, been slowly but irresistibly forcing itself on the minds of the world's peoples and has been reinforced by establishment and expansion of the United Nations Organization. Event such as the terrorist attack on 11 September 2001, and its still-continuing aftermath, only help to reinforce this influence and impress it on the consciousness of humankind. The fact that practical effects and results have, for the most part, been modest and even disappointing does not in any way nullify the historic and irreversible change of direction in the way human affairs are being organized. World order is on a no-return road to its next evolutionary leap. Success in efforts towards global governance will emerge from the realization that fatal conflicts and catastrophes are unavoidable in a world society that is organically interdependent but has no system of *collective security*, upheld by well-informed international legislation and an effective executive system (backed by credible judiciary powers and law enforcement). (See: Commission for Global Governance 1995; Universal House of Justice 1986.)

Should such epoch-making events take place on the level of world order, yet, on the level of ordinary lives of individual citizens, their effects may not appear, after all, that dramatic. They may brighten our future perspective but do not solve our deepest concerns. For, attaining a new world order through global structural rearrangements is, mainly, within the power of decision-makers and politicians. Short of a basic reorientation of people's lives at the grass-roots level, it will remain an outward force to prevent mankind from destroying itself. As marvellous an achievement as this would be, yet even a world without war will have only marginal effect on the social and personal concerns of people (with the exception of those who are actually under the spectre of war). For, what agitates us most in our daily existence are issues in our own community and personal lives: maintaining harmony in our family life, educating our children, finding our place in the society, maintaining a means of livelihood, protecting ourselves and our families against the ills of a collapsing society, coming to peace with our own selves, healing our broken human relationships, finding some meaning in our lives, and so forth. Such aspirations are hardly answered by renewing humankind's socio-political structure, important as that is. These are matters more of ethical and moral integrity, character training, social ties, etc. In other words, these are matters of *world-view*.

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One of the most firmly established and globally propagated assumptions of our faulty world-view is the prevailing cult of individualism. Although rooted in the Western philosophy, this perception of human reality has spread to most parts of the world. The foundation of this view is a belief in the unbridled and unchallenged right of the individual for the “pursuit of happiness” — a conviction that has been further amplified and intensified by political ideology, academic elitism and the widespread consumer economy. This belief has become *the* overriding criterion for much of the morals of the modern human being, arousing an aggressive and almost limitless sense of personal entitlement. The effect has been the corrosion of the morals of both the individual and the society. The consequences have been visible in terms of the disintegration of families, the loss of sense of community, the feeling of aimlessness and bewilderment felt especially by youth and children, disease, drug addiction and other all-too-familiar ills of present-day life. (Cf.: Bahá’í International Community 1999.) Emancipation from such misleading assumptions will mean questioning some of the twentieth century’s most deeply rooted conceptions about human reality. It is a hopeful sign that visionary educationalists are awakening to these contemplations. For instance, Buchen (1974, pp. 135-136.) observes:

“One basic reason why the humanities did not honor the past legacy of educating the whole man is that they turned, instead, to educating the individual; and the concept of individuality and that of the whole man are not synonymous. The individual man is stirred by independence, autonomy and self-reliance; the holistic man by interdependence, collectivism and reliance. And if one views the history of the presumptuous century as essentially the history of individuality, then what perhaps becomes clear is that individuality is the great overreacher, the lovely presumption. Indeed, we may have reached a point in history when individuality, traditionally conceived, may have gone as far as it can go. What we need today is not merely traditional means for multiplying or extending individuality, but also nontraditional ways for surrendering part of it.

For the humanist the idea of ‘surrendering’ even a fraction of one’s individuality will no doubt seem like heresy. Perhaps this alarm can be reduced, however, if we dispose immediately of a misconception.

There may be a direct correlation between our present contemplation of the limits of individuality. But just as the

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concept that growth has limits need not necessarily signify the end of growth, so, too, the notion that individuality may have limits need not signify the end of individuality. Understanding the limits of any system is the first step toward expanding or transcending these limits. In short, the real conflict we face now is a conflict not between the old and the new, but between the new and the futuristic, between what is known and what is emerging, between the individual and the new, emerging image of that might be termed the collectivized individual. The whole person is not and cannot be totally individual; part of the whole — today more than ever — must be nonindividualized, communal, or ‘collectivized’.”

This call for a sense of community is raised even on the level of educational *methods*. In the words of Ingram (1979, p. 53): “It is ironic that while subject teaching fosters individualism through group learning, integrative teaching encourages cooperation through individualized teaching. Yet, while excessive subject teaching discourages cooperation, excessive integration teaching does not necessarily exclude competition. Clearly, teaching and learning should provide opportunity for both, but what we are particularly concerned to demonstrate in this section is the closeness of integration and cooperation.” Morris & Krajewski (1980, p. 132) nicely summarize the cooperative and communal aspect of educational aspirations: “If the biggest problem facing the future of education is how to motivate youth to feel that life is worth living or that it can be satisfying, it follows that we can only solve this problem by helping youth to develop a spirit of community — a blend of social cohesion, purpose, and moral commitments that draws people together, builds their sense of identity, and creates mutual loyalty. This kind of humanistic socialization should become the major objective for education.”

Given the current global scale of humanity’s paradigm, this sense of community must include the entire human race. In other words, a fundamental ingredient of the identity of every human being, today, must be an awareness of being a citizen of the world, not only of one’s country or nation. This concept of *world citizenship* is no longer a mere expression of vague brotherhood; it has become a necessary aspect of learning to live as a competent inhabitant of this planet. The cause of global education — basic education meant for every child in the world — has already enlisted in its service an army of dedicated people from

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every nation, culture and faith. It deserves the utmost support that the governments of the world can lend it. But it deserves also the full attention of scholars of education.

I find it unnecessary to argue for the view that global change is a fact of our current historical paradigm. What can be meaningfully discussed are the basic futuristic choices that this paradigm presents the human race: do we want to be only reactive pawns drifting in the flow of global change, *or* do we want to have, at least, some control over our futures and manage change towards a desirable and sustainable paradigm of globalization. If we choose the former, there is little point to discuss various alternatives of human action and socio-political behaviour; if, however, we choose the latter, education comes to the centre of attention and its reform a strategically relevant focus.

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## 5.5. SUMMARY & ARTICULATION OF THE CONCLUSION

1. The “attempt on application” (Chapter 4) put the proposed meta-theoretic assumptions, the original hypotheses to a speculative test; this test confirmed that the hypotheses form a meaningful conceptual frame of reference for educational research.
  2. The confirmation of the hypotheses validates the *main* hypothesis: *If the science of education is to focus on educational universals, systemic principles are applicable to, and General Systems Theory is fundamentally relevant for, the further development of the science of education.*
  3. Theorems on reality *per se* (T0): Reality is essentially one, undividable entity; reality is systemic and has both ideal and contingent capacities; the ideal capacity is manifested on different contingent levels (including the mineral, the plant, the animal, the human); each higher contingent level manifests additional ideal capacities.
  4. Theorems on the hierarchical levels of reality (T1): The mineral level manifests the universals of *existing* or *being*; the plant level manifests universals of *goal-oriented* or *evolving* or *organic being*; the animal level manifests the universals of *conscious being*; the human level has a rational aspect that manifests the universals of *self-conscious being*; the human level has also a moral aspect that manifests the universals of *ethical being*.
  5. Theorems on human reality (T2): Human reality is, primarily, manifested on the rational and moral levels corresponding to the *laws of rational ego and purposeful volition* as well as the *principles of universal ethos*; humans can achieve only *relative and progressively higher understanding* of the principles of universal ethos; universal ethos is manifested in the social and individual human reality *progressively* through a *process of ethical evolution*; universal ethos corresponds to the *potential of human reality* and to the principles to be applied for the realization of that potential; *human volition* is a critical factor in realizing the human potential.
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6. Theorems on human education (T3): Education can be used as a strategic agent of change for conscious and purposeful evolution; there are universal principles and ideals that bear directly on appropriate educational goals and values; the principles of universal ethos, are at the core of human reality and denote relevant educational goals and values.
7. The main asset of the theorems and the final *thesis* (see below: Articulation of the Conclusions) of this study is that they provide theoretical tools for pursuing a *global ethos* that could provide some measure of objectivity in identifying educational goals and values — good education.
8. The notion of human *meta-consciousness* (comprising of rational consciousness and ideal consciousness), if included as a *universally accepted concept* within human sciences, would have unprecedented ramifications on theories of society, history, psychology, and education.
9. A sceptical and cynical frame of mind can trap humankind in its present world predicament; it can become an obstacle in the way of our first global breakthrough and, instead, actualize the looming breakdown; our mode of thought is critical to our common future — world-view and world order are intimately related and interwoven.

**Articulation of the Conclusion (THESIS):** Since meaningful scientific belief demands holistic vision, *universals* must become the focus of the science of education (particularly regarding *moral existence* and *global ethos*); the *epistemological paradigm of science* and *General Systems Theory* are applicable to, and fundamentally relevant for, educational universals; thus, the plausibility of ontological approximations of educational universals can be investigated through empirical observation, and futuristic approximations for an ethically justifiable and sustainable human paradigm can be pursued through practical educational measures.

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## Chapter 6

# SUMMARY

In this chapter, I will present ‘one-page summaries’ or ‘fact-sheets’ of each chapter of this report for ease of reference. These summaries are even shorter than the “Summary & Articulation” provided at the end of each chapter. Reading this summary would give any reader an overall picture of the whole study, but it would provide none of the justifications and backgrounds essential to understanding the conceptual framework of the thesis. Given the philosophical and multifaceted nature of this work, such a cursory reading would fail to convey my intended meaning. Thus, this brief chapter is meant to function only as a frame of reference. The very last section of this chapter (Section 6.6.) provides a “Summary of Overall Reasoning” — a *very* brief abstract of the logical sequence that gave the original impetus to, and forms the backbone of, this entire dissertation.

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## 6.1. SUMMARY OF THE QUEST

This research asks: Is there justification for *education as a science*? Science must unravel the *essential reality of things*, which in turn requires a focus on the *universal qualities* of reality. The realist, nominalist and conceptualist interpretation of universals need to be evaluated in order to address such universal qualities of reality.

Within the science of education, essentiality would mean *the holistic study of the phenomenon of education* — in other words: *the study of educational universals*. Such a focus would broaden the rationale of the work hitherto done by educationalists and give it a coherent context. At present, there are no generally accepted *universal ontological assumptions on the nature and education of human reality*; the *study of the particulars* of education is the target of the majority of pedagogical research and theory.

The *fixated focus on the particulars of education* is due to lack of willingness to re-evaluate ingrained habits of the scholarly mind, which in turn is attributable to the *power of tradition*. The groundbreaking, non-traditional, educational work being done by many educationalists remain unintegrated islands of educational knowledge.

An *informal and subtle form of tradition* working at the core of pedagogical science, sustains lack of interest in educational universals and persists in the study of particulars and isolated philosophies, thus turning into *atomistic dogma*.

**Articulation of the Quest:** The relevant quest of the science of education, for the present, is: *to empower the science of education to be free of the chronic pursuit of the particulars of education*.

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## 6.2. SUMMARY OF THE TASK

There exists caution against *human universals* as well as against *educational universals*. Fear of educational universals is targeted at the *realist* interpretation and *natural scientific* epistemology of universals — that this would reintroduce positivism to the science of education. This fear is not expressed in denying them altogether, but in *ignoring* them, within a conceptualist frame of mind, by ascribing *less reality* to universals than the realist position.

Educational universals can be seen as plausible, for instance, through the definition of universals on the *influence of education* and universals on the *effect of systematic education*.

**Articulation of the Task:** The task is *to take the first modest step in focussing the science of education on educational universals*; this first step is defined as follows: *to study the applicability of General Systems Theory to the science of education*.

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### 6.3. SUMMARY OF THE ATTEMPT (ON THEORY)

*Science without holistic vision is dogmatic, i.e. scientific belief demands a coherent perspective of the whole. The theoretic attempt of the research is to demonstrate the philosophical feasibility of educational universals through a meta-theoretic study of the applicability of General Systems Theory to the science of education.*

Systemic postulates on reality: (P0) *the general epistemological paradigm of science and its method of exploring universals, currently used by natural sciences, are relevant and applicable also to the paradigm of the science of education*; (P1) reality incorporates two ontological capacities: the ideal capacity and the contingent capacity — contingent attributes reflect the ideal capacity; (P2) all systems can be seen as subsystems of the entire reality; (P3) systems can have an ideal macrodeterministic potential which unfolds progressively through periods of bifurcation; (P4) systems co-evolve within the context of shared potential expressed in individual and situational variety, and through a feedback relationship causing a dialectic of success and failure.

Systemic hypotheses on education: (H0) *if the science of education is to focus on educational universals, General Systems Theory is fundamentally relevant for the science of education*; (H 1-4) education is a universal function of evolutionary systems, the holistic process of interaction and transformation that guides a system's evolution towards the realization of its potential; (H 5-6) self-conscious and purposeful systems can produce intentional and goal-oriented feedback; (H7) conscious educational choices affect the future and are a manageable tool for purposeful evolution; (H8) there are universal principles and ideals that are critically relevant to the realization of the potential of human systems and bear directly on appropriate educational paradigms.

**Articulation of the Attempt (on theory):** The purpose of the attempt on theory is to be *the first step in focussing the science of education on educational universals*; this step is taken through hypotheses that reposition the science of education in a systems theoretical philosophical context with systemic ontological postulates at its core.

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#### 6.4. SUMMARY OF THE ATTEMPT (ON APPLICATION)

The recursive method for studying the validity of the hypotheses of the research is a *speculative test* as follows: (a) consider the hypotheses of this research as postulates; (b) on the basis of these ‘postulates’, create recursively testing hypotheses; (c) design an empirical study to examine these recursive hypotheses; (d) draw, from the findings of this empirical study, conclusions on the recursive hypotheses; (e) recapitulate, from these results, conclusions on the original hypotheses; (f) relate the outcomes of the study to reconsider a meta-theoretical framework for the science of education.

The theme of the recursive research is: *Conscious choice of educational paradigms as a systematic means for influencing the future of society*. The recursive hypotheses are: (h0) choice of educational paradigms is a strategic futures tool; (h0<sup>a</sup>) educational paradigms chosen earlier have an historically strategic effect today; (h1) educational success based on the principle of unity in diversity is stable and sustainable; (h1<sup>a</sup>) earlier education based on unity in diversity is traceable in today’s society.

Recursive conclusions: The recursive hypotheses have some valid empirical basis — *the practised educational paradigms of a society always have consequences for the future condition of that society; moreover, the principle of unity in diversity can be a sustainable and orienting trait in the evolution of a society*; the issuing theorems concerning *education as a change agent and trend analysis based on education*, portray the futuristic character of the phenomenon of education.

**Articulation of the Attempt (on application):** Based on the recursive research as a *speculative test*, it can be concluded that *there are grounds to propose that the recursive postulates (the original hypotheses) provide a relevant conceptual frame of reference for educational research*.

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## 6.5. SUMMARY OF THE CONCLUSION

The speculative test, the recursive research, confirmed that the original hypotheses form a meaningful conceptual frame of reference for educational research which, validates the *main hypothesis*: *If the science of education is to focus on educational universals, General Systems Theory is fundamentally relevant for the science of education.*

If the postulates and hypotheses are accepted, theorems on reality *per se*, on the hierarchical levels of reality, on human reality, on human education, and on the science of education can be proposed. The essential asset of the theorems and the final *thesis* (see below: Articulation) is that they provide theoretical tools for pursuing a *global ethos* that could provide some measure of objectivity in identifying educational goals and values — i.e. tools for good education. Also, the notion of human *meta-consciousness* (comprising of rational consciousness and ideal consciousness), if included as a *universally accepted concept* within human sciences, would have unprecedented ramifications on theories of society, history, psychology and education.

A sceptical and cynical frame of mind can trap humankind in its present world predicament; it can become an obstacle in the way of our first global breakthrough and, instead, actualize the looming breakdown; our mode of thought is critical to our common future — world-view and world order are intimately related and interwoven.

**Articulation of the Conclusion (THESIS):** Since meaningful scientific belief demands holistic vision, *universals* must become the focus of the science of education (particularly regarding *moral existence* and *global ethos*); the *epistemological paradigm of science* and *General Systems Theory* are applicable to, and fundamentally relevant for, educational universals; thus, the plausibility of ontological approximations of educational universals can be investigated through empirical observation, and futuristic approximations for an ethically justifiable and sustainable human paradigm can be pursued through practical educational measures.

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## 6.6. SUMMARY OF OVERALL REASONING

To sum up the overall reasoning that gave the impetus for this research — the line of thought that forms its backbone — I provide here a *very* brief abstract of the logical sequence behind this entire dissertation:

- We live at a global turning point in the history of humankind; education and pedagogical science need to assume their futuristic responsibility at this historic turning point.
- To do this, the science of education needs a generally acceptable philosophical foundation — credible theoretical thinking for facilitating the holistic and coherent study of the phenomenon of education.
- It is plausible to pursue this by focussing the science of education on general approximations of the universals of education, as opposed to its mere particulars.
- The general epistemological paradigm of science, mainly used by natural sciences, can be meaningfully applied also to the study of educational universals, while avoiding the pitfalls of a merely positivistic approach.
- The theoretical model provided by General Systems Theory appears to provide a good basis for the formulation of such educational universals that would correspond to the futuristic role of education as an agent of change at the paradigm of globalization.

There is a basic futuristic choice that our global paradigm of change presents: Do we want to be reactive pawns drifting in the flow of global change, *or* do we want to have some control over our futures and manage change towards a desirable and sustainable paradigm of globalization? It is this latter choice that brings educational reform to the centre of discussion.

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## EPILOGUE

Within the reasoning of this study, a particular philosophy may be noticed in the background of my postulates and hypotheses. I readily acknowledge that these premises have been inspired by the writings of Bahá'u'lláh (1817-1892). In fact, one of the motivating factors for my interest in science has been the high regard and emphasis that Bahá'u'lláh placed on sciences and critical rationality.

As this study points out, we human scientists base our work on one or another set of premises — on assumptions that are usually arrived at through some personal process. Sometimes, such premises come intuitively as the outcome of our childhood education, our backgrounds and our experiences; sometimes, they come as outcomes of personal contemplation and systematic investigation. Often, such premises remain unarticulated in the process of research and do not become a target of critical evaluation. Yet, such assumptions are the axiomatic basis — matters of faith — at the core of research. It is therefore important that these assumptions are made knowingly and are also articulated.

In my case, I have squarely articulated my premises and am aware that both my postulates and my hypotheses are inspired by the writings of Bahá'u'lláh. However, my method of investigating the validity of my premises in general, and the hypotheses in particular, is based on the accepted tradition of scientific investigation and logical reasoning. Therefore, it is these assumptions and my reasoning on their basis that should become the target of critical evaluation.

If the premises and the reasoning are regarded by the scholarly community as rationally sound and scientifically plausible, my intended contribution is made. In any case, I sincerely hope that my systemic reflections for holistic vision will help to open an ongoing “quest of the

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science of education” in a manner that would be relevant to the global turning point at which humankind is presently standing.

*“Regard man as a mine rich in gems of inestimable value.  
Education can, alone, cause it to reveal its treasures,  
and enable mankind to benefit therefrom.”*

— Bahá'u'lláh (*Gleanings*, CXXII) —

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## Appendix 1

# INDEX OF DESCRIPTIVE INDICATOR QUESTIONS

### 1.1. INDICATOR QUESTIONS IN THE ORDER OF LOGICAL SEQUENCE

Below is the list of indicator questions in the order of the sequence during interview (as discussed in Section 4.3.2.). The references (in small font) after each question refer to the descriptive features (see Section 4.2.3.).

i1	What aspects of the universe are considered real or objective?	f1 <sup>a</sup> , f2 <sup>a</sup>
i2	What is the position and role of human beings on this planet?	f1 <sup>a</sup> , f2 <sup>a</sup>
i3	What is the purpose of human life?	f1 <sup>a</sup> , f2 <sup>a</sup>
i4	What is the purpose of human society?	f1 <sup>a</sup> , f2 <sup>a</sup>
i5	What is the purpose of education?	f1 <sup>a</sup> , f1 <sup>b</sup> , f1 <sup>c</sup> , f1 <sup>d</sup> , f1 <sup>e</sup> , f2 <sup>d</sup>
i6	What are the school subjects that are taught?	f1 <sup>f</sup> , f1 <sup>g</sup>
i7	How language is taught, what is the essential approach?	f1 <sup>f</sup> , f1 <sup>g</sup>
i8	How geography is taught, what are the essential topics?	f1 <sup>f</sup> , f1 <sup>g</sup> , f1 <sup>h</sup>
i9	How mathematics is taught, what are the essential aspects?	f1 <sup>f</sup> , f1 <sup>g</sup> , f1 <sup>h</sup>
i10	How arts/music are taught, what is the essential purpose?	f1 <sup>c</sup> , f1 <sup>d</sup> , f1 <sup>f</sup> , f1 <sup>g</sup>
i11	How social topics are taught, what are the essential points?	f1 <sup>c</sup> , f1 <sup>d</sup> , f1 <sup>f</sup> , f1 <sup>g</sup>
i12	How history is taught, what are the essential topics?	f1 <sup>a</sup> , f1 <sup>c</sup> , f1 <sup>d</sup> , f1 <sup>f</sup> , f1 <sup>g</sup>
i13	How religion is taught, what is the essential message?	f1 <sup>a</sup> , f1 <sup>c</sup> , f1 <sup>d</sup> , f1 <sup>f</sup> , f1 <sup>g</sup>
i14	How are students punished for undesirable behaviour?	f1 <sup>g</sup>
i15	How are students rewarded for desirable behaviour?	f1 <sup>g</sup>
i16	How are students punished for undesirable ideas?	f1 <sup>g</sup>
i17	How are students rewarded for desirable ideas?	f1 <sup>g</sup>
i18	What is the purpose of educational feedback?	f1 <sup>g</sup>
i19	What is the definition of a 'successful' individual?	f1 <sup>b</sup> , f2 <sup>a</sup> , f2 <sup>b</sup> , f2 <sup>c</sup> , f2 <sup>d</sup>
i20	What goals or styles of life are seen as right vs. wrong?	f1 <sup>a</sup> , f1 <sup>b</sup> , f2 <sup>a</sup> , f2 <sup>b</sup> , f2 <sup>c</sup> , f2 <sup>d</sup> , f2 <sup>e</sup>
i21	What types of human relationships are cherished?	f1 <sup>b</sup> , f1 <sup>c</sup> , f2 <sup>a</sup> , f2 <sup>b</sup> , f2 <sup>c</sup> , f2 <sup>d</sup> , f2 <sup>e</sup> , f2 <sup>f</sup> , f2 <sup>g</sup>
i22	What modes of conflict resolution are applied?	f1 <sup>c</sup> , f1 <sup>g</sup> , f2 <sup>b</sup> , f2 <sup>c</sup> , f2 <sup>d</sup> , f2 <sup>e</sup> , f2 <sup>f</sup> , f2 <sup>g</sup>
i23	What is the role of authority in a social unit/system?	f1 <sup>c</sup> , f1 <sup>g</sup> , f2 <sup>b</sup> , f2 <sup>c</sup> , f2 <sup>d</sup> , f2 <sup>e</sup> , f2 <sup>f</sup> , f2 <sup>g</sup>
i24	What ideals of decision-making are followed?	f1 <sup>c</sup> , f2 <sup>b</sup> , f2 <sup>c</sup> , f2 <sup>d</sup> , f2 <sup>e</sup> , f2 <sup>f</sup> , f2 <sup>g</sup>
i25	What ideals of leadership are followed?	f1 <sup>c</sup> , f2 <sup>b</sup> , f2 <sup>c</sup> , f2 <sup>d</sup>
i26	What is the patriotic identity of a citizen?	f1 <sup>a</sup> , f1 <sup>c</sup> , f1 <sup>e</sup> , f2 <sup>a</sup> , f2 <sup>b</sup> , f2 <sup>c</sup>
i27	What is the value of the individual in society?	f1 <sup>c</sup> , f2 <sup>a</sup> , f2 <sup>b</sup> , f2 <sup>c</sup> , f2 <sup>d</sup>
i28	What is the value of sub-cultures in society?	f1 <sup>c</sup> , f2 <sup>a</sup> , f2 <sup>b</sup> , f2 <sup>c</sup> , f2 <sup>d</sup>
i29	What is the self-image of the individual in society?	f1 <sup>c</sup> , f1 <sup>d</sup> , f1 <sup>e</sup> , f2 <sup>a</sup> , f2 <sup>b</sup> , f2 <sup>c</sup> , f2 <sup>d</sup> , f2 <sup>e</sup> , f2 <sup>f</sup>
i30	What is the role of society towards the individual?	f1 <sup>c</sup> , f1 <sup>d</sup> , f1 <sup>e</sup> , f2 <sup>b</sup> , f2 <sup>c</sup> , f2 <sup>d</sup> , f2 <sup>e</sup> , f2 <sup>f</sup>
i31	What is the self-image of sub-cultures in society?	f1 <sup>c</sup> , f1 <sup>d</sup> , f1 <sup>e</sup> , f2 <sup>a</sup> , f2 <sup>b</sup> , f2 <sup>c</sup> , f2 <sup>d</sup> , f2 <sup>e</sup> , f2 <sup>f</sup>
i32	What is the role of society towards sub-cultures?	f1 <sup>c</sup> , f1 <sup>d</sup> , f1 <sup>e</sup> , f2 <sup>b</sup> , f2 <sup>c</sup> , f2 <sup>d</sup> , 2 <sup>f</sup>
i33	What is the definition of a 'successful' society?	f1 <sup>a</sup> , f1 <sup>b</sup> , f1 <sup>c</sup> , f1 <sup>d</sup> , f1 <sup>e</sup> , f2 <sup>a</sup> , f2 <sup>b</sup> , f2 <sup>c</sup>
i34	What are the criteria for distinguishing right vs. wrong?	f1 <sup>a</sup> , f1 <sup>b</sup> , f2 <sup>a</sup>
i35	What is the near and distant future of the world/society?	f1 <sup>a</sup> , f1 <sup>b</sup> , f2 <sup>a</sup> , f2 <sup>b</sup> , f2 <sup>c</sup> , f2 <sup>d</sup> , f2 <sup>e</sup> , f2 <sup>f</sup> , f2 <sup>g</sup>
i36	Can the future be influenced? How?	f1 <sup>a</sup> , f1 <sup>b</sup> , f2 <sup>a</sup> , f2 <sup>b</sup> , f2 <sup>c</sup> , f2 <sup>d</sup>

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## 1.2. INDICATOR QUESTIONS IN THE ORDER OF INDICATING PATTERN

Below is the list of the indicator questions in the order of indicating pattern (as discussed in Section 4.3.2.). Descriptive features for *educational paradigm* and *condition of society* with "f1" and "f2", respectively (see Section 4.2.3.).

f1<sup>a</sup> The adhered to *world-view* and *norms*:

- i1 What aspects of the universe are considered real or objective?
- i2 What is the position and role of human beings on this planet?
- i3 What is the purpose of human life?
- i4 What is the purpose of human society?
- i5 What is the purpose of education?
- i8 How geography is taught, what are the essential topics?
- i9 How mathematics is taught, what are the essential aspects?
- i12 How history is taught, what are the essential topics?
- i13 How religion is taught, what is the essential message?
- i20 What life goals and lifestyles are considered right vs. wrong?
- i26 What is the patriotic identity of a citizen?
- i33 What is the definition of a 'successful' society?
- i34 What are the criteria for distinguishing right vs. wrong?
- i35 What is the future of the world/society like (near & far)?
- i36 Can the future of the world/society be influenced? How?

f1<sup>b</sup> The adopted educational *objectives* and *goals*:

- i5 What is the purpose of education?
- i19 What is the definition of a 'successful' individual?
- i20 What life goals and lifestyles are considered right vs. wrong?
- i21 What types of human relationships are cherished?
- i33 What is the definition of a 'successful' society?
- i34 What are the criteria for distinguishing right vs. wrong?
- i35 What is the future of the world/society like (near & far)?
- i36 Can the future of the world/society be influenced? How?

f1<sup>c</sup> The task of education regarding *socio-cultural preservation*:

- i5 What is the purpose of education?
- i10 How arts/music are taught, what is the essential purpose?
- i11 How social topics are taught, what are the essential points?
- i12 How history is taught, what are the essential topics?
- i13 How religion is taught, what is the essential message?
- i26 What is the patriotic identity of a citizen?
- i27 What is the value of the individual in the society?
- i28 What is the value of sub-cultures in the society?
- i29 What is the self-image of the individual within the society?
- i30 What is the role-image of the society towards the individual?
- i31 What is the self-image of sub-cultures within the society?
- i32 What is the role-image of the society towards sub-cultures?
- i33 What is the definition of a 'successful' society?
- i35 What is the future of the world/society like (near & far)?

f1<sup>d</sup> The task of education regarding *socio-cultural progression*:

- i5 What is the purpose of education?
- i10 How arts/music are taught, what is the essential purpose?
- i11 How social topics are taught, what are the essential points?
- i12 How history is taught, what are the essential topics?
- i13 How religion is taught, what is the essential message?
- i29 What is the self-image of the individual within the society?
- i30 What is the role-image of the society towards the individual?
- i31 What is the self-image of sub-cultures within the society?
- i32 What is the role-image of the society towards sub-cultures?
- i33 What is the definition of a 'successful' society?
- i35 What is the future of the world/society like (near & far)?

f1<sup>e</sup> The task of education regarding *socio-cultural integration*:

- i21 What types of human relationships are cherished?
- i22 What modes of conflict resolution are applied?

- i23 What is the role of authority in a social unit/system?
- i24 What ideals of decision-making are followed?
- i25 What ideals of leadership are followed?
- i26 What is the patriotic identity of a citizen?
- i29 What is the self-image of the individual within the society?
- i30 What is the role-image of the society towards the individual?
- i31 What is the self-image of sub-cultures within the society?
- i32 What is the role-image of the society towards sub-cultures?
- i33 What is the definition of a 'successful' society?
- i35 What is the future of the world/society like (near & far)?

f1<sup>f</sup> The assigned educational *contents* and *subjects*:

- i6 What are the school subjects that are taught?
- i7 How language is taught, what is the essential approach?
- i8 How geography is taught, what are the essential topics?
- i9 How mathematics is taught, what are the essential aspects?
- i10 How arts/music are taught, what is the essential purpose?
- i11 How social topics are taught, what are the essential points?
- i12 How history is taught, what are the essential topics?
- i13 How religion is taught, what is the essential message?

f1<sup>g</sup> The applied educational *methods* and *tools*:

- i7 How language is taught, what is the essential approach?
- i8 How geography is taught, what are the essential topics?
- i9 How mathematics is taught, what are the essential aspects?
- i10 How arts/music are taught, what is the essential purpose?
- i11 How social topics are taught, what are the essential points?
- i12 How history is taught, what are the essential topics?
- i13 How religion is taught, what is the essential message?
- i14 How are students punished for undesirable behaviour?
- i15 How are students rewarded for desirable behaviour?
- i16 How are students punished for undesirable ideas?
- i17 How are students rewarded for desirable ideas?
- i18 What is the purpose of educational feedback?
- i22 What modes of conflict resolution are applied?
- i23 What is the role of authority in a social unit/system?

f2<sup>a</sup> The prevailing *beliefs* and *values*:

- i1 What aspects of the universe are considered real or objective?
- i2 What is the position and role of human beings on this planet?
- i3 What is the purpose of human life?
- i4 What is the purpose of human society?
- i21 What types of human relationships are cherished?
- i26 What is the patriotic identity of a citizen?
- i27 What is the value of the individual in the society?
- i28 What is the value of sub-cultures in the society?
- i29 What is the self-image of the individual within the society?
- i31 What is the self-image of sub-cultures within the society?
- i33 What is the definition of a 'successful' society?
- i34 What are the criteria for distinguishing right vs. wrong?
- i35 What is the future of the world/society like (near & far)?
- i36 Can the future of the world/society be influenced? How?

f2<sup>b</sup> The adopted forms of *leadership* and *administration*:

- i22 What modes of conflict resolution are applied?
- i23 What is the role of authority in a social unit/system?
- i24 What ideals of decision-making are followed?
- i25 What ideals of leadership are followed?
- i30 What is the role-image of the society towards the individual?
- i32 What is the role-image of the society towards sub-cultures?
- i33 What is the definition of a 'successful' society?
- i35 What is the future of the world/society like (near & far)?
- i36 Can the future of the world/society be influenced? How?

f2<sup>c</sup> The assigned social *functions* and *roles*:

- i19 What is the definition of a 'successful' individual?
- i20 What life goals and lifestyles are considered right vs. wrong?
- i21 What types of human relationships are cherished?
- i23 What is the role of authority in a social unit/system?
- i24 What ideals of decision-making are followed?

- i25 What ideals of leadership are followed?
- i27 What is the value of the individual in the society?
- i28 What is the value of sub-cultures in the society?
- i29 What is the self-image of the individual within the society?
- i31 What is the self-image of sub-cultures within the society?

f2<sup>d</sup> The prevalent modes of social *activity* and *interaction*:

- i5 What is the purpose of education?
- i21 What types of human relationships are cherished?
- i22 What modes of conflict resolution are applied?
- i24 What ideals of decision-making are followed?
- i25 What ideals of leadership are followed?
- i26 What is the patriotic identity of a citizen?
- i29 What is the self-image of the individual within the society?
- i31 What is the self-image of sub-cultures within the society?

f2<sup>e</sup> Evidences of *social purpose and commitment*:

- i19 What is the definition of a 'successful' individual?
- i20 What life goals and lifestyles are considered right vs. wrong?
- i21 What types of human relationships are cherished?
- i22 What modes of conflict resolution are applied?
- i23 What is the role of authority in a social unit/system?
- i24 What ideals of decision-making are followed?
- i26 What is the patriotic identity of a citizen?
- i30 What is the role-image of the society towards the individual?
- i32 What is the role-image of the society towards sub-cultures?
- i33 What is the definition of a 'successful' society?
- i35 What is the future of the world/society like (near & far)?
- i36 Can the future of the world/society be influenced? How?

f2<sup>f</sup> Evidences of diversity as a *collective social resource*:

- i19 What is the definition of a 'successful' individual?
- i20 What life goals and lifestyles are considered right vs. wrong?
- i21 What types of human relationships are cherished?
- i22 What modes of conflict resolution are applied?
- i23 What is the role of authority in a social unit/system?
- i24 What ideals of decision-making are followed?
- i27 What is the value of the individual in the society?
- i28 What is the value of sub-cultures in the society?
- i29 What is the self-image of the individual within the society?
- i30 What is the role-image of the society towards the individual?
- i31 What is the self-image of sub-cultures within the society?
- i32 What is the role-image of the society towards sub-cultures?

f2<sup>g</sup> Evidences of diversity of *practice* in collective values/goals:

- i19 What is the definition of a 'successful' individual?
- i20 What life goals and lifestyles are considered right vs. wrong?
- i21 What types of human relationships are cherished?
- i22 What modes of conflict resolution are applied?
- i23 What is the role of authority in a social unit/system?
- i24 What ideals of decision-making are followed?
- i27 What is the value of the individual in the society?
- i28 What is the value of sub-cultures in the society?
- i29 What is the self-image of the individual within the society?
- i30 What is the role-image of the society towards the individual?
- i31 What is the self-image of sub-cultures within the society?
- i32 What is the role-image of the society towards sub-cultures?
- i36 Can the future of the world/society be influenced? How?

## Appendix 2

# INDEX OF GROUP INTERVIEW QUESTIONS

### 2.1. INTERVIEW QUESTIONS FOR *EDUCATIONAL PARADIGM*

Below is the list of interview questions under 7 interview topics. Each topic begins with a *lead question* (LQ#) and is followed by further *auxiliary questions* (AQ#). The corresponding indicator questions per each interview topic are given in parentheses after each topic code. These interview questions are posed to veteran teachers or administrators and educational designers or scholars.

**LQ1A (topic 1A) (i1-i5):** How was the position and role of humans seen to differ (or not differ) from other beings on this planet?

- AQ1 Was there a purpose seen for human life? Was it thought possible to find it? Was it considered to be different for every individual?
- AQ2 What was thought to be the purpose for the existence of a human society? What was it considered to be needed for?
- AQ3 What was the purpose of education?
- AQ4 What things in all existence were thought of as “facts” and were, thus, undisputable and what things were considered as matters of opinion?

**LQ2A (topic 2A) (i6-i13):** What were the most important educational subjects and how were they taught?

- AQ1 How was language taught, what was the approach?
- AQ2 How was geography taught, what were the topics?
- AQ3 How was mathematics taught, what were the aspects?
- AQ4 How were arts/music taught, what was the purpose?
- AQ5 How were social topics taught, what were the points?
- AQ6 How was history taught, what were the topics?
- AQ7 How was religion taught, what was the message?

**LQ3A (topic 3A) (i14-i18):** What was the role of educational feedback? How were students rewarded or punished?

- AQ1 How were students encouraged (rewarded) for desirable and discouraged (punished) for undesirable behaviour?
- AQ2 How were students encouraged (rewarded) for desirable and discouraged (punished) for undesirable ideas?

**LQ4A (topic 4A) (i19-i22):** What values predominantly guided people’s social interaction, human relationships?

- AQ1 Which goals or styles of life were seen worthy of pursuance and which ones as unworthy or wrong?
- AQ2 What was the definition of a ‘successful’ individual?
- AQ3 What types of human relationships were cherished by people (e.g. who was considered a ‘true friend’)?
- AQ4 How were conflicts usually settled within the family?
- AQ5 How were conflicts usually settled among friends?
- AQ6 How were conflicts usually settled among colleagues?
- AQ7 How were conflicts usually settled between strangers?

**LQ5A (topic 5A) (i23-i25):** What was thought to be the role of authority and leadership in the society? What was seen as its function?

- AQ1 Was authority and a system of management seen as something necessary in e.g. in the family or the classroom or the village or the nation?
  - AQ2 How were decisions *reached at* in the family? In the school? In the political realm?
  - AQ3 What was considered to be a good leader? What were his/her qualities?
-

**LQ6A (topic 6A) (i26-i33):** What did an individual member of the society typically think of his/her role or function in the society? What about the role or function of a sub-culture?

- AQ1 What things made a citizen feel he/she is really part of this particular nation? What brought patriotism?
- AQ2 What was thought to be the sign of the success of the society as a whole? What were causes of national self-esteem?
- AQ3 What was the value of an individual as part of the nation? How were his/her unique qualities valued and utilized?
- AQ4 What was the value of a sub-culture or ethnic minority as part of the nation? How were its unique qualities valued and utilized?
- AQ5 How did an individual value his/her own unique qualities? Did he/she think of these qualities as something useful for others, the whole society?
- AQ6 How did a sub-culture or ethnic minority value its own unique qualities? Did it think of these qualities as something useful for others cultures, the whole society?
- AQ7 What were considered to be the duties of the society towards its individual members?
- AQ8 What were considered to be the duties of the society towards its sub-cultures or ethnic minorities?

**LQ7A (topic 7A) (i34-i36):** How was the future thought of by the society as a whole and by its individual members? What was thought to be the value of today's actions in relation to the future of the society?

- AQ1 How was the near future of the nation perceived?
- AQ2 How was the near future of the world perceived?
- AQ3 How was the distant future of the nation perceived?
- AQ4 How was the distant future of the world perceived?
- AQ5 Was it thought possible to influence the future? How?
- AQ6 Were educational choices thought essentially as means of influencing the future? How were such choices made?
- AQ7 Were the actions of people valued (as right vs. wrong) in terms of their influence on the future?
- AQ8 How were people thought to be able to distinguish right from wrong, good from evil?

## 2.2. INTERVIEW QUESTIONS FOR *CONDITION OF SOCIETY*

Below is the list of interview questions under 5 interview topics. Each topic begins with a *lead question* (LQ#) and is followed by further *auxiliary questions* (AQ#). The corresponding indicator questions per each interview topic are given in parentheses after each topic code. These interview questions are posed to 'ordinary citizens' and some specialists.

**LQ1B (topic 1B) (i1-i5):** How is the position and role of humans seen to differ (or not differ) from other beings on this planet?

- AQ1 Is there a purpose seen for human life? Is it thought possible to identify it? Is it considered to be different for every individual?
- AQ2 What is thought to be the purpose for the existence of a human society? What is it considered to be needed for?
- AQ3 What is the purpose of education?
- AQ4 What things in all existence are thought of as "facts" and are, thus, undisputable and what things are considered as matters of opinion?

**LQ2B (topic 2B) (i19-i22):** What values predominantly guide people's social interaction, human relationships?

- AQ1 Which goals or styles of life are seen worthy of pursuance and which ones as unworthy or wrong?
- AQ2 What is the definition of a 'successful' individual?
- AQ3 What types of human relationships are cherished by people (e.g. who is considered a 'true friend')?
- AQ4 How are conflicts usually settled within the family?
- AQ5 How are conflicts usually settled among friends?
- AQ6 How are conflicts usually settled among colleagues?
- AQ7 How are conflicts usually settled between strangers?

**LQ3B (topic 3B) (i23-i25):** What is thought to be the role of authority and leadership in the society? What is seen as its function?

- AQ1 Is authority and a system of management seen as something necessary in e.g. in the family or the classroom or the village or the nation?



- AQ2 How are decisions *reached at* in the family? In the school? In the political realm?  
 AQ3 What is considered to be a good leader? What are his/her qualities?

**LQ4B (topic 4B) (i26-i33):** What does an individual member of the society typically think of his/her role or function in the society? What about the role or function of a sub-culture?

- AQ1 What things make a citizen feel he/she is really part of this particular nation? What brings patriotism?  
 AQ2 What is thought to be the sign of the success of the society as a whole? What are causes of national self-esteem?  
 AQ3 What is the value of an individual as part of the nation? How are his/her unique qualities valued and utilized?  
 AQ4 What is the value of a sub-culture or ethnic minority as part of the nation? How are its unique qualities valued and utilized?  
 AQ5 How does an individual value his/her own unique qualities? Does he/she think of these qualities as something useful for others, the whole society?  
 AQ6 How does a sub-culture or ethnic minority value its own unique qualities? Does it think of these qualities as something useful for others cultures, the whole society?  
 AQ7 What are considered to be the duties of the society towards its individual members?  
 AQ8 What are considered to be the duties of the society towards its sub-cultures or ethnic minorities?

**LQ5B (topic 5B) (i34-i36):** How is the future thought of by the society as a whole and by its individual members? What is thought to be the value of today's actions in relation to the future of the society?

- AQ1 How is the near future of the nation perceived?  
 AQ2 How is the near future of the world perceived?  
 AQ3 How is the distant future of the nation perceived?  
 AQ4 How is the distant future of the world perceived?  
 AQ5 Is it thought possible to influence the future? How?  
 AQ6 Are educational choices thought essentially as means of influencing the future? How are such choices made?  
 AQ7 Are the actions of people valued (as right vs. wrong) in terms of their influence on the future?  
 AQ8 How are people thought to be able to distinguish right from wrong, good from evil?

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# Appendix 3

## OUTPUT OF RAW DATA

### 3.1. INTERVIEW IN FINLAND ON *EDUCATIONAL PARADIGM* (Regarding data processing, see Section 4.4.1.)

**INTERVIEW #1F:** Educational paradigm.  
**LOCATION:** Oulu, Finland (City library, conf.room #1).  
**DATE & TIME:** Monday, 22 May 2000, at 1200.  
**DURATION:** 1215-1530, 3h 15min.  
**INTERVIEWER:** Izadi, Partow.  
**INTERVIEWEES:** A retired general teacher; primary school  
A retired Swedish teacher; high school  
A retired Finnish teacher; high school  
A retired general teacher; primary school  
An education professor; *educational scholar*

**TAPE COUNTER:**

i1-i5 1/A:000 - 1/A:257  
i6-i13 1/A:258 - 1/B:161  
i14-i18 1/B:162 - 1/B:459  
i19-i22 1/B:460 - 2/A:218  
i23-i25 2/A:219 - 2/A:376  
i26-i33 2/A:377 - 2/B:124  
i34-i36 2/B:125 - 2/B:403

- i1 What aspects of the universe are considered real or objective?
    - [NO DATA AVAILABLE].
  - i2 What is the position and role of human beings on this planet?
    - Christian view: the human being, the crown of creation (rights & responsibilities).
  - i3 What is the purpose of human life?
    - The *de facto* purpose of life: survive in the post-war situation.
    - Humans as national beings who must become patriotic.
  - i4 What is the purpose of human society?
    - The de facto purpose of life: survive in the post-war situation.
    - Purpose of social system: preserve independence in a sensitive political situation.
    - Purpose of society: maintain national unity.
  - i5 What is the purpose of education?
    - Purpose of education: teach to survive in the post-war situation.
    - Purpose of education: teach to become patriotic.
    - Purpose of education: preserve independence in a sensitive political situation.
    - Formal education: a political tool for socio-political ends.
    - Purpose of education: produce citizens that are 'worthy of the society'.
    - The home: emphasis on survival aspect; the school: emphasis on patriotism.
    - Education more for preservation than renewing.
    - Education was very homogenising.
    - Purpose of education: to secure the future (not to build *new* futures).
    - Education moved from elitist (classical) to egalitarian (everything for everyone).
  - i6 What are the school subjects that are taught?
    - Emphasis was on Finnish, languages (German & Russian), religion, history, math.
    - Geography, arts and music etc. were taught, but with less emphasis or importance.
    - There was a very clear and acute lack of teaching materials (textbooks etc.).
-

- Real goal of high school: the matriculation examination (eligibility for university).
  - Languages were over-emphasized (apparent in the matriculation examination).
- i7 **How language is taught, what is the essential approach?**
- Teaching the Finnish language emphasized patriotic literature (e.g. *Kalevala*).
  - Languages were emphasized for commerce (Ger.) and political stability (Rus.).
  - Main rationale for language teaching was international competitive competencies.
  - Translation of texts between languages was one of the main teaching methods.
- i8 **How geography is taught, what are the essential topics?**
- Elements of colonialist world-view existed (e.g. stereotypical views on Africans).
- i9 **How mathematics is taught, what are the essential aspects?**
- [NO DATA AVAILABLE].
- i10 **How arts/music are taught, what is the essential purpose?**
- There was a lack of proper emphasis on arts and music (esp. in high school).
- i11 **How social topics are taught, what are the essential points?**
- [NO DATA AVAILABLE].
- i12 **How history is taught, what are the essential topics?**
- History was taught as the history of the nation's independence.
  - History teaching was distorted in favour of nationalistic ideals.
- i13 **How religion is taught, what is the essential message?**
- Religious education was highly confessional (Lutheran).
  - Religious education was part of patriotic education ("home, religion, fatherland").
  - The Lutheran/Christian view of human reality was predominant
  - Other religions were almost absent in the curriculum (at least 'objectively').
- i14 **How are students punished for undesirable behaviour?**
- One method 'punishment' was the. exaggeration of 'natural consequences'.
  - Putting out of the class or keeping in detention was a method of punishment.
  - Poor grades were given as a result of laziness or non-competence.
  - Stern or rectifying 'speech' was an often-used form of negative feedback.
- i15 **How are students rewarded for desirable behaviour?**
- Good grades were given or praise as a result of hard work or competence.
- i16 **How are students punished for undesirable ideas?**
- There were some 'taboos': sexuality, political conviction, religious conviction.
  - Negative feedback on 'taboos' was based on ignoring the person or the behaviour.
- i17 **How are students rewarded for desirable ideas?**
- [NO DATA AVAILABLE].
- i18 **What is the purpose of educational feedback?**
- The purpose of negative feedback was to teach to behave oneself in the society.
  - The purpose of positive feedback was to promote hard study or good manners.
- i19 **What is the definition of a 'successful' individual?**
- Socioeconomic success was rarely reason for seeking companionship of a person.
  - A reasonable wealth resulting from 'hard work' was a measure of success.
  - Respect and success were attributed to self-sufficiency (not being a burden).
  - Paradox: a village's sole high school graduate prided in and mocked as a 'snob'.
- i20 **What goals or styles of life are seen as right vs. wrong?**
- Respect and success were attributed to self-sufficiency (not being a burden).
  - The standard of proper life was to do one's part in the work of the society.
  - Spirit of 'talkoo' (traditional occasions for neighbourly help) was held in value.
  - There was a greater sense of collective responsibility (e.g. in child raising).
- i21 **What types of human relationships are cherished?**
- Typical social modes were neighbourly visits, cross-generational interaction etc.
  - Teachers became easily friends with colleagues and often visited each other.
-

- Spirit of 'talkoo' (traditional occasions for neighbourly help) was held in value.
  - There was a greater sense of collective responsibility (e.g. in child raising).
- i22 **What modes of conflict resolution are applied?**
- Open conflict was not usual; potential conflict was ignored and did not actualize.
  - 'Bad families' (e.g. violence) were known but not reacted upon (by the school).
  - There were political conflicts among friends, but the friendships were unharmed.
  - There was a greater sense of collective responsibility (e.g. in child raising).
  - There was a sense of social support (network): the 'core family' was not alone.
- i23 **What is the role of authority in a social unit/system?**
- Upright and just (yet, authoritative) leadership, a 'father-figure', was venerated.
  - Formal authority was usually quite clear-cut and unquestioned.
- i24 **What ideals of decision-making are followed?**
- Voicing a differing opinion directly and openly was considered respectful.
  - Actual decision-making at work and in families was relatively democratic.
- i25 **What ideals of leadership are followed?**
- Upright and just (yet, authoritative) leadership, a 'father-figure', was venerated.
  - Formal authority was usually quite clear-cut and unquestioned.
- i26 **What is the patriotic identity of a citizen?**
- National pride was felt in having been able to pay the war debts in full.
  - National self-esteem was felt in having been able to maintain independence.
  - The Lutheran/Christian view of human reality was predominant
  - Religious education was part of patriotic education ("home, religion, fatherland").
  - There was a reassuring reliance on "Finland is a good country to live in".
  - Sport achievements were an important source and element of national pride.
  - The Olympics of 1952 in Helsinki added to the sense of national achievement.
  - The Finnish natural environment was genuinely venerated with a sense of pride.
- i27 **What is the value of the individual in society?**
- A 'real worker' was better valued than high learning (esp. in rural communities).
  - Use of Russian prisoners of war as farm workers often resulted in good friendship.
- i28 **What is the value of sub-cultures in society?**
- Some sort of 'casts' did exist based on economic and working status.
  - While gypsies were given a place overnight, they were viewed as 'rogue citizens'.
  - Use of Russian prisoners of war as farm workers often resulted in good friendship.
- i29 **What is the self-image of the individual in society?**
- [NO DATA AVAILABLE].
- i30 **What is the role of society towards the individual?**
- [NO DATA AVAILABLE].
- i31 **What is the self-image of sub-cultures in society?**
- Gypsies were able to maintain very different cultural values
  - Gypsy children did not stay long in schools.
- i32 **What is the role of society towards sub-cultures?**
- Society was seen responsible for the welfare of all (not only the sub-cultures).
  - There was no culture-specific education (e.g. for the Sámi or Gypsy languages).
- i33 **What is the definition of a 'successful' society?**
- National pride was felt in having been able to pay the war debts in full.
  - National self-esteem was felt in having been able to maintain independence.
  - Sport achievements were an important source and element of national pride.
  - The Olympics of 1952 in Helsinki added to the sense of national achievement.
  - Post-war advances (esp. forestry and metallurgy) were seen as collective success.
  - General social welfare was considered among the greatest national achievements.
- i34 **What are the criteria for distinguishing right vs. wrong?**
- The force of tradition was perhaps the strongest standard for right vs. wrong.
  - Future oriented standards (e.g. 'sustainable development') were very rare.
-

- i35 **What is the near and distant future of the world/society?**
- Despite some fears, there was great faith in a prosperous national future.
  - There was some fear and suspicion due to the cold war and the Soviet neighbour.
  - The future of the world was generally seen as positive and optimistic.
- i36 **Can the future be influenced? How?**
- Futures thoughts centred on surviving the industrializing world and the cold war.
  - Purpose of education: to secure the future (not to build *new* futures).

### 3.2. INTERVIEW IN FINLAND ON *CONDITION OF SOCIETY* (Regarding data processing, see Section 4.4.1.)

**INTERVIEW #2F:** Condition of society.  
**LOCATION:** Rovaniemi, Finland (City library, conf.room #1).  
**DATE & TIME:** Thursday, 25 May 2000, at 1200.  
**DURATION:** 1225-1535, 2h 40min.  
**INTERVIEWER:** Izadi, Partow.  
**INTERVIEWEES:** An education student; young  
 A youth worker; lower mid.age  
 A restaurant keeper, unemployed.; upper mid.age  
 An army officer, retired; elderly  
 A sociology professor; *specialist*

#### TAPE COUNTER:

i1-i4 1/A:000 - 1/A:277  
 i19-i22 1/A:278 - 1/B:049  
 i23-i25 1/B:050 - 1/B:260  
 i26-i33 1/B:261 - 2/A:126  
 i34-i36 2/A:127 - 2/A:348

- i1 **What aspects of the universe are considered real or objective?**
- [NO DATA AVAILABLE].
- i2 **What is the position and role of human beings on this planet?**
- We are 'mammals like others', but we can justify or plan our doings rationally.
- i3 **What is the purpose of human life?**
- Human life is a survival fight — but mostly immaterially, not just physically.
  - Modern humans do not think about the purpose of life; life is a pragmatic survival.
  - Crises in life may awaken to think more deeply about the purpose of life.
  - People's identity is unified — perhaps unified only by a concern for (near) future.
- i4 **What is the purpose of human society?**
- Many see 'the society' as taxes and services — i.e. the welfare state.
  - Basic security for immediate future is the main expectation towards the society.
  - If basic needs are met, there are expectations of immaterial input to social life.
- i5 **What is the purpose of education?**
- [NO DATA AVAILABLE].
- i19 **What is the definition of a 'successful' individual?**
- The importance attached to titles and positions has decreased considerably
  - Many younger professionals seek titles or positions to be accepted or credible.
  - Success is not clearly defined with no unified view on social or personal success.
  - Useful 'life skills' (applying skills to life situations, survival) is generally valued.
  - Parents, rather than youth, value institutional 'milestones' (e.g. graduations).
- i20 **What goals or styles of life are seen as right vs. wrong?**
- Success is not clearly defined with no unified view on social or personal success.
  - Useful 'life skills' (applying skills to life situations, survival) is generally valued.
  - Independent, meaningful work with sufficient free time is a well-valued lifestyle.
  - Good health and the existence of friends are seen as elements of good living.

- i21 **What types of human relationships are cherished?**
- Today's complex reality makes also human relationships more complex.
  - Conflict is so characteristic to today's society and life that it causes suspicion.
  - True friendship is very rare due to the sense of suspicion in human relationships.
- i22 **What modes of conflict resolution are applied?**
- Men deal with conflicts in a straightforward manner (e.g. no 'subtle meanings').
  - Women have a deeper (and emphatic) and more complex approach to conflicts.
  - Esp. in workplaces, hurt feelings or conflicts are not discussed among the parties.
  - 'Bothering issues' are discussed in a different forum (e.g. among near friends).
  - Human relationships are more complex; 'friendship' or 'conflict' is less clear-cut.
  - Conflict is so characteristic to today's society and life that it causes suspicion.
- i23 **What is the role of authority in a social unit/system?**
- Practically (e.g. in classrooms) some authority or discipline is seen as necessary.
  - The authority of an honest leader is more easily followed and accepted.
  - Authorities are not accepted without question — it is deserved not demanded.
  - Individual independence has become highly valued.
  - The value of leadership for 'holding the strings together' is being re-established.
  - Leadership that gives sufficient latitude of action for its subordinates is valued.
  - Capacity to manage change is seen as a standard for good leadership.
- i24 **What ideals of decision-making are followed?**
- On the grass-root level, less collective decision-making seems to take place.
  - Often responsibility is just divided and each makes decision independently.
  - Leadership that gives sufficient latitude of action for its subordinates is valued.
  - Ability to leave space for decision-making on lower levels is valued.
  - Organizations are cut in smaller sub-divisions limiting the scope of leadership.
  - Leadership becomes more atomistic enabling less visionary development.
- i25 **What ideals of leadership are followed?**
- The authority of an honest leader is more easily followed and accepted.
  - Authorities are not accepted without question — it is deserved not demanded.
  - Leadership that gives sufficient latitude of action for its subordinates is valued.
  - Ability to leave space for decision-making on lower levels is valued.
  - Capacity to manage change is seen as a standard for good leadership.
  - Organizations are cut in smaller sub-divisions limiting the scope of leadership.
  - Leadership becomes more atomistic enabling less visionary development.
- i26 **What is the patriotic identity of a citizen?**
- Language is an important element of national identity.
  - For women, the good status of Finnish women is a cause of national pride.
  - The Finnish egalitarian welfare system is justification for patriotic pride.
  - Emotional experiences of one's country create a sense of national self-esteem.
  - Serene nature experiences are, perhaps, a strong builders of patriotic identity.
  - Sports are not such a patriotic issue as it seems, but a popular feeling/experience.
  - Today, many elements of patriotism come from the media (are editorial choices).
- i27 **What is the value of the individual in society?**
- Those who can do productive work (are not dependent on others) are valued.
  - Those who cease being 'productive' are institutionalized and become 'recipients'.
  - Those who become 'recipients' feel as 'useless citizen' and lose their self-respect.
- i28 **What is the value of sub-cultures in society?**
- Active tolerance has increased (e.g. Sámi cultural empowerment).
  - Ethnic minorities are often valued in their cultural 'products' (art, artefacts etc.).
  - Ethnic minorities are not seen as contributors to community and social models.
- i29 **What is the self-image of the individual in society?**
- Those who cease being 'productive' are institutionalized and become 'recipients'.
  - Those who become 'recipients' feel as 'useless citizen' and lose their self-respect.
- i30 **What is the role of society towards the individual?**
- Many see 'the society' as taxes and services — i.e. the welfare state.
  - Basic security for immediate future is the main expectation towards the society.
-

- i31 **What is the self-image of sub-cultures in society?**
- The Sámi and the Gypsies do not feel as an integrated part of the Finnish society.
  - The Swedish minority is well integrated into the society and does not feel isolated.
  - The Gypsies may feel taking advantage of the society to the extent possible.
  - Historical ethnic minorities can take pride in their cultural uniqueness and identity.
  - Refugees' identity is different: they come to a country with no historical frame.
- i32 **What is the role of society towards sub-cultures?**
- The society is seen responsible to uphold ethnic, cultural and ideological plurality.
  - The society is seen responsible to care for the welfare of refugees that are taken.
- i33 **What is the definition of a 'successful' society?**
- [NO DATA AVAILABLE].
- i34 **What are the criteria for distinguishing right vs. wrong?**
- Ethical models come from outside the social heritage (public effect, media etc.)
  - Ethical models provided today are more complex diversified, and less tangible.
  - There is less discussion on right vs. wrong and the consequences of one's action.
  - The concept of right vs. wrong has become ambiguous, the whole question is lost.
- i35 **What is the near and distant future of the world/society?**
- There is hardly any unified view of the future predominant among Finns today.
  - Finns are optimistic about their own future (focussed on economic development).
  - About world futures, Finns are more sceptical (or fearful), but they do not despair.
- i36 **Can the future be influenced? How?**
- Most (incl. decision-makers) feel that future cannot be influenced significantly.
  - World futures, in particular, are felt to be out of the influence of one nation.
  - Decision-making is felt to be withdrawing further from the reach of lower levels.
  - Educational choices are seen as possible tools and strategies for futures building.
  - Educational choices are not seen as properly applied as tools for futures building.

### 3.3. INTERVIEW IN RUSSIA ON *EDUCATIONAL PARADIGM*

(Regarding data processing, see Section 4.4.1.)

**INTERVIEW #1R:** Educational paradigm.  
**LOCATION:** Ryazan, Russia (Children's library, reading hall).  
**DATE & TIME:** Tuesday, 27 June 2000, at 1300.  
**DURATION:** 1355-1510, 1h 15min.  
**INTERVIEWER:** Izadi, Partow.  
**INTERVIEWEES:** A senior history teacher; high school  
 A senior technical sciences docent; university  
 A senior French teacher; high school  
 A senior technical sciences academician; university  
 A science & technology professor; *educational scholar*  
**INTERPRETER:** Dorzhieva, Oxana.

#### TAPE COUNTER:

i1-i5 1/A:000 - 1/A:210  
 i6-i13 1/A:211 - 1/A:311  
 i14-i18 1/A:312 - 1/A:421  
 i19-i22 1/A:422 - 1/A:521  
 i23-i25 1/A:522 - 1/A:594  
 i26-i30 1/A:595 - 1/A:end  
 i31-i36 1/B:007 - 1/B:119

- i1 **What aspects of the universe are considered real or objective?**
- Values, life purposes etc. were not matters of opinions but matters of fact.
- i2 **What is the position and role of human beings on this planet?**
- All were thought to have a great task to fit into in order to reach great heights.
  - One's lifework was with the "Soviet progress" and its final goal, Communism.



- 
- Being human (with intellect and personality) was something to be proud of.
  - The humanitarian aspect of being a human was not very much emphasized.
  - Humans (as apart from animals) have speech, intellect, conscience.
  - The difference between humans and animals was seen in a materialistic point of view.
  - The difference between human beings and other creatures were taken as facts.
  - Values, life purposes etc. were not matters of opinions but matters of fact.
- i3 **What is the purpose of human life?**
- All were thought to have a great task to fit into in order to reach great heights.
  - One's lifework was with the "Soviet progress" and its final goal, Communism.
  - Being human (with intellect and personality) was something to be proud of.
  - The humanitarian aspect of being a human was not very much emphasized.
  - Humans (as apart from animals) have speech, intellect, conscience.
  - The difference between humans and animals was seen in a materialistic point of view.
  - Survival was *not* an issue — everything had been taken care of by the system.
  - Life was competition: to strive for higher accomplishment more than the others.
- i4 **What is the purpose of human society?**
- Soviet society was thought as very progressive, with Communism as its final goal.
  - The view on society was very holistic and also very rigid, both at the same time.
- i5 **What is the purpose of education?**
- Education was very goal-oriented and strongly based on the Communist ideology.
  - The educational system was harnessed to serve the goal of Communism.
  - The educational system was harnessed to mobilize human resources for the goal.
  - Education is the primary method (all others are secondary) to influence the future.
  - Scientific and technological advancement were not as important as education.
- i6 **What are the school subjects that are taught?**
- All subjects were considered important and not secondary or auxiliary.
  - Esp. on the secondary level: Russian, literature, math, chemistry, history, biology.
  - Esp. on the secondary level: physical training/sports was one of the priorities.
  - Esp. on the secondary level: Communist philosophy.
- i7 **How language is taught, what is the essential approach?**
- The 60s and 70s were different in method (in general, i.e. in all subject).
- i8 **How geography is taught, what are the essential topics?**
- [NO DATA AVAILABLE].
- i9 **How mathematics is taught, what are the essential aspects?**
- Sometimes logic was taught as a separate subject.
- i10 **How arts/music are taught, what is the essential purpose?**
- Drawing and singing was considered of importance.
- i11 **How social topics are taught, what are the essential points?**
- Sometimes Soviet constitution was taught as separate subject.
- i12 **How history is taught, what are the essential topics?**
- Religion was not taught; in history, it was dealt with as an historical phenomenon.
- i13 **How religion is taught, what is the essential message?**
- Religion was not taught; in history, it was dealt with as an historical phenomenon.
- i14 **How are students punished for undesirable behaviour?**
- Bad students got negative feedback mainly through bad marks and re-examinations
  - There was collective pressure and additional courses for bad students.
  - Physical punishment was not used.
  - Good students were to help weak students.
  - The teacher was to organize a system for good students helping out bad ones.
  - Punishment and encouragement, both were used as needed.
- i15 **How are students rewarded for desirable behaviour?**
- Good students were encouraged and commended in various ways
  - Certain kind of 'praising lists' were used.
  - Sometimes, a special medal or a trip to a nice camp was awarded.
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  - Sometimes, a special medal or a trip to a nice camp was awarded.
  - Good students were to help weak students.
  - The teacher was to organize a system for good students helping out bad ones.
  - Punishment and encouragement, both were used as needed.
- i18 **What is the purpose of educational feedback?**
- Goal: to make the student learn as much as possible; the system was competitive.
- i19 **What is the definition of a 'successful' individual?**
- A successful person was one who fought for Communism and worked in team.
  - Even sacrifice for the whole was not considered too great a price.
  - An unsuccessful person was one who worked not, who had no goals.
  - An unsuccessful person was one with a fruitless life (such as the 'winoes').
  - Particularly people with high professional goals were appreciated.
  - E.g., children who wanted to become cosmonauts, scientists etc. were appreciated.
  - Also the ordinary worker was (in principle) valued and considered successful.
- i20 **What goals or styles of life are seen as right vs. wrong?**
- A worthy lifestyle was one of fighting Communism and working in team.
  - Even sacrifice for the whole was not considered too great a price for worthy living.
  - A worthless lifestyle was one of not working, having no goals.
  - A worthless lifestyle was one that was fruitless (such as the 'winoes').
- i21 **What types of human relationships are cherished?**
- Mutual fidelity, trust, self-sacrifice were most valued in personal relationships.
  - Fidelity, trust, self-sacrifice were also practically present between close friends.
  - Family relationships were very highly cherished and enjoyed.
  - Understanding and partnership between husband & wife was considered essential.
  - Everyone shared everything (e.g. snack in the train but also in all life situations).
- i22 **What modes of conflict resolution are applied?**
- Superficial conflicts did happen (like children: first hot fighting, soon all is fine).
- i23 **What is the role of authority in a social unit/system?**
- A hierarchical structure of authority was built into the social system.
  - In the class there were positions/privileges achieved for certain accomplishments.
  - Accomplishments (e.g. good study or organizing) were monitored systematically
  - A 'ranking' system existed also in other connections (working places etc.).
  - There were also 'unofficial' leaders, who braved the etiquette or some of the rules.
  - E.g., one openly disagreeing with the teacher (very rare) could become popular.
- i24 **What ideals of decision-making are followed?**
- A hierarchical structure of authority was built into the social system.
  - In the class there were positions/privileges achieved for certain accomplishments.
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  - There were also 'unofficial' leaders, who braved the etiquette or some of the rules.
  - E.g., one openly disagreeing with the teacher (very rare) could become popular.
- i26 **What is the patriotic identity of a citizen?**
- National identity was no problem: Russian national identity was the rule.
  - Russian national identity embraced and assimilated different peoples.
  - The were considered to be no separate peoples but all were one great nation.
  - The Second World War and its outcome brought a great sense of patriotism.
  - The heroes of the Second World War were the heroes of labour and national celebrities.
- i27 **What is the value of the individual in society?**
- Sense of initiative decreased; everything was done ready by the government.
- i28 **What is the value of sub-cultures in society?**
- None could claim being purely Russian: for generations people have mixed.
  - All nationalities within the country were very much loved, all felt like one family.
  - Yet, there are conflicts now: they must have been gradually building for decades.
- i29 **What is the self-image of the individual in society?**
- Sense of initiative decreased; everything was done ready by the government.
- i30 **What is the role of society towards the individual?**
- Sense of initiative decreased; everything was done ready by the government.
- i31 **What is the self-image of sub-cultures in society?**
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  - All nationalities within the country were very much loved, all felt like one family.
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- None could claim being purely Russian: for generations people have mixed.
  - All nationalities within the country were very much loved, all felt like one family.
  - Yet, there are conflicts now: they must have been gradually building for decades.
- i33 **What is the definition of a 'successful' society?**
- Soviet society was thought as very progressive, with Communism as its final goal.
  - The view on society was very holistic and also very rigid, both at the same time.
- i34 **What are the criteria for distinguishing right vs. wrong?**
- Everything was very strict in the country.
  - While the system was rigid, it was thought that all can build their own happiness.
  - The purpose was to show that the Socialist way of life was the only right way.
  - The criteria for right vs. wrong was based both on tradition and ideology.
  - Many of the values of society were in reality based on religion/Christianity.
- i35 **What is the near and distant future of the world/society?**
- World future was seen in the furtherance of Socialism, then Communism.
  - It was even thought that Communism would pervade the world in the '80s.
  - The future of the world was not seen only as communistic.
  - The crisis of capitalism was always expected to appear behind the next corner.
  - The future was seen possibly as chaotic but holding considerable hope.
  - The future view was generally very optimistic.
  - Foremost task: to build for children a materially and spiritually enlightened society.
  - It was thought that certain sacrifices must now be made to realize the goal.
- i36 **Can the future be influenced? How?**
- Education is the primary method (all others are secondary) to influence the future.
  - Scientific and technological advancement where not as important as education.
  - Sometimes logic was taught as a separate subject.
-

### 3.4. INTERVIEW IN RUSSIA ON *CONDITION OF SOCIETY*

(Regarding data processing, see Section 4.4.1.)

**INTERVIEW #2R:** Condition of society.  
**LOCATION:** Ryazan, Russia (home of Mss. Dorzhieva & Podpisnova).  
**DATE & TIME:** Monday, 26 June 2000, at 1600.  
**DURATION:** 1615-1820, 2h 5min.  
**INTERVIEWER:** Izadi, Partow.  
**INTERVIEWEES:** A first aid medic; lower mid.age  
 A computer student; young  
 An English student; young [only partly participating]  
 A librarian; upper mid.age  
 A housewife; upper mid.age  
 A journalist; *specialist*  
**INTERPRETER:** Dorzhieva, Oxana.

#### TAPE COUNTER:

i1-i4 1/A:000 - 1/A:194  
 i19-i22 1/A:195 - 1/A:551  
 i23-i25 1/A:552 - 1/B:165  
 i26-i33 1/B:166 - 2/A:034  
 i34-i36 2/A:035 - 2/A:223

- i1 What aspects of the universe are considered real or objective?  
 • [NO DATA AVAILABLE].
- i2 What is the position and role of human beings on this planet?  
 • [NO DATA AVAILABLE].
- i3 What is the purpose of human life?  
 • Most (esp. uneducated) people do not reflect on things like the purpose of life.  
 • The goal for many: get a livelihood (education and job to sustain oneself/family).  
 • Education as such is also a primary value.  
 • Survival, as such, is the life goal for many people.  
 • As people grow older/mature, their life goals may change (e.g. peace, money).  
 • All in all, goals are very diverse.
- i4 What is the purpose of human society?  
 • People do not think much about such things as the purpose of society.  
 • In general, people feel that society is needed for man.  
 • Without society, there is no prosperity (e.g. education) for the individual either.
- i5 What is the purpose of education?  
 • [NO DATA AVAILABLE].
- i19 What is the definition of a 'successful' individual?  
 • Ideals differ: e.g. money/career, family/children, ascetic 'Indian yoga' life.  
 • Perhaps family/children and education/work are seen as important.  
 • For men: job and house, children who carry ones name (family oriented issues).  
 • For women too, both prosperity of children and success in career are important.  
 • Perhaps, the most despised people are those who are like parasites in the society.  
 • Some despise those capable of surviving, others despise those who are idle.  
 • The understanding may be different depending on the generation one represents.
- i20 What goals or styles of life are seen as right vs. wrong?  
 • Ideals differ: e.g. money/career, family/children, ascetic 'Indian yoga' life.  
 • Perhaps family/children and education/work are seen as important.  
 • For men: job and house, children who carry ones name (family oriented issues).  
 • For women too, both prosperity of children and success in career are important.  
 • Perhaps, the most despised people are those who are like parasites in the society.  
 • Some despise those capable of surviving, others despise those who are idle.  
 • The understanding may be different depending on the generation one represents.
- i21 What types of human relationships are cherished?  
 • Family and children are considered very important human relationships.

- A true friend, one whom you know would never betray you.
  - Older people feel finding true friends not very hard; younger ones deem it harder.
- i22 **What modes of conflict resolution are applied?**
- Conflict settlement in the family depends on the level of education.
  - Family conflicts depend on the ex./lack of common goals (e.g. children's welfare).
  - In educated families, conflicts are settled civilly (discussion, mutual agreement).
  - In less educated families, fights break out frequently.
  - Among friends, conflicts are usually easy to settle; they break out less frequently.
  - Disputes between colleagues and in work places are a more complicated issue.
  - Disagreement between the boss and the subordinate leads hardly to any argument.
  - Two equals may dispute subtly going on for long periods (competing/degrading).
  - Frank disputes of colleagues may be hot but short, easily settled and forgotten.
- i23 **What is the role of authority in a social unit/system?**
- Disagreement between the boss and the subordinate leads hardly to any argument.
  - People want strong leaders but do not want to be told what to do.
  - People do not like authorities but are used to function through obeying.
  - Some form of authority are considered necessary to manage the life of the society.
  - A good leader is considered to be one who listens to the opinions of everyone.
  - A good leader is considered to be one whom people want to follow as their leader.
  - A good leader is considered to be one who can be an example to others.
  - A good leader is considered to be one who thinks of others before himself.
  - A good leader is considered to be one with high level of culture and knowledge.
  - A good leader is considered to be one who has vision.
- i24 **What ideals of decision-making are followed?**
- Conflict settlement in the family depends on the level of education.
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  - Two equals may dispute subtly going on for long periods (competing/degrading).
  - Frank disputes of colleagues may be hot but short, easily settled and forgotten.
  - Usually, the mode of leadership is through dictation, although often 'masked'
  - The dictating mode of leading is today challenged by growing numbers of people.
  - Many leaders are considered old-fashioned in their way of wielding authority.
  - A good leader is considered to be one who listens to the opinions of everyone.
- i25 **What ideals of leadership are followed?**
- Disagreement between the boss and the subordinate leads hardly to any argument.
  - People want strong leaders but do not want to be told what to do.
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  - A good leader is considered to be one who thinks of others before himself.
  - A good leader is considered to be one with high level of culture and knowledge.
  - A good leader is considered to be one who has vision.
- i26 **What is the patriotic identity of a citizen?**
- One's history and language are essential elements of one's patriotic identity.
  - Achievements in arts and literature are considered as signs of the success.
  - Achievements in arts and literature are a great source of collective pride.
  - Achievements in arts and literature were even more strongly valued earlier.
  - It may be that patriotic feelings are not very strong among today's Russians.
  - Mainly, national identity comes from education given (or not given) by parents.
  - Perhaps nostalgic sentiments are the strongest form patriotic feelings.
  - Perhaps, the sense of cultural identity is stronger among minorities than Russians.
- i27 **What is the value of the individual in society?**
- Formerly collectiveness and full equality of all were emphasized.
  - Today, solos working alone against others/society are seen as kind of heroes.
-

- People are becoming more tolerant to different individuals.
  - People today also appreciate more highly special or unique type of personalities.
  - People feel freer today to express their individual inclinations and views.
  - There are still doubts on how much one can bring his/her personality forth.
  - The system is not felt to enable/encourage bringing one's qualities to general use.
- i28 **What is the value of sub-cultures in society?**
- Earlier, Russians were as elder brothers and others in Russia as younger brothers.
  - One from a minority, living in the domestic region, does not feel like a 'minority'.
  - One from a minority, if in a typically Russian region, feels being in the 'minority'.
  - There are some nationalistic sentiments causing intolerance towards minorities.
  - Minority ethnicities are freer to practice their culture (no one is stopping them).
  - Minority cultures certainly do not feel that they are encouraged to flourish.
  - The society does not provide much support for the practice of minority cultures.
- i29 **What is the self-image of the individual in society?**
- Formerly collectiveness and full equality of all were emphasized.
  - Today, solos working alone against others/society are seen as kind of heroes.
  - People feel freer today to express their individual inclinations and views.
  - There are still doubts on how much one can bring his/her personality forth.
  - The system is not felt to enable/encourage bringing one's qualities to general use.
  - Perhaps, the sense of cultural identity is stronger among minorities than Russians.
- i30 **What is the role of society towards the individual?**
- The system is not felt to enable/encourage bringing one's qualities to general use.
  - It is thought as the highest duty of the society to provide of education for all.
  - It is thought as the duty of the society to provide health services.
  - It is thought as the duty of society to protect against the enemy or criminals etc.
- i31 **What is the self-image of sub-cultures in society?**
- Earlier, Russians were as elder brothers and others in Russia as younger brothers.
  - One from a minority, living in the domestic region, does not feel like a 'minority'.
  - One from a minority, if in a typically Russian region, feels being in the 'minority'.
  - Minority ethnicities are freer to practice their culture (no one is stopping them).
  - Minority cultures certainly do not feel that they are encouraged to flourish.
  - The society does not provide much support for the practice of minority cultures.
  - Many sub-cultures are passive in seeking to regain cultural rights/opportunities.
- i32 **What is the role of society towards sub-cultures?**
- Minority ethnicities are freer to practice their culture (no one is stopping them).
  - Minority cultures certainly do not feel that they are encouraged to flourish.
  - The society does not provide much support for the practice of minority cultures.
  - Generally, people do not think about the role of society towards its sub-cultures.
  - Little is expected of the government (getting back cultural sites/buildings/lands).
  - Many sub-cultures are passive in seeking to regain cultural rights/opportunities.
- i33 **What is the definition of a 'successful' society?**
- Achievements in arts and literature are considered as signs of the success.
  - Achievements in arts and literature are a great source of collective pride.
  - Achievements in arts and literature were even more strongly valued earlier.
  - In general, people feel that society is needed for man.
  - Without society, there is no prosperity (e.g. education) for the individual either.
- i34 **What are the criteria for distinguishing right vs. wrong?**
- People seldom think that their value choices would effect the future of the society.
  - It is mostly general 'common sense' defining people's choices of right vs. wrong.
  - General 'common sense' is based on tradition learned at home.
  - General 'common sense' is based on tradition in the society in general.
  - General 'common sense' learned at home and in the society may differ greatly.
  - Most people also make up their own mind on what is right vs. wrong.
- i35 **What is the near and distant future of the world/society?**
- The near future is hardly considered by the ordinary people.
  - People are just tired and try to carry on their daily lives.
  - People may still feel that there is some hope and try hard to get their lives better.
  - Down deep people are hopeful that the distant future will be much better.
  - People are hopeful that things in Russia may turn out well but not in a near future.
-

- The future of the world hardly touches the ordinary people.
- People hope for peace and many think that it is time to believe in its possibility.

i36 **Can the future be influenced? How?**

- People feel generally helpless in influencing the future.
  - People do not feel their views or actions have influence on the shape of the future.
  - People seldom think that their value choices would effect the future of the society.
  - Education is considered as means of influencing at least ones own future.
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# Appendix 4

## SUMMARY OF ANALYSED DATA

### 4.1. INTERVIEW IN FINLAND ON *EDUCATIONAL PARADIGM* (Regarding data interpretation, see Section 4.4.2.)

**INTERVIEW #1F:** Educational paradigm.  
**LOCATION:** Oulu, Finland (City library, conf.room #1).  
**DATE & TIME:** Monday, 22 May 2000, at 1200.  
**DURATION:** 1215-1530, 3h 15min.

#### f1<sup>a</sup> THE ADHERED TO *WORLD-VIEW AND NORMS*:

**Key words:** patriotism, survival, realism, religion.

**Summary:**

- Humans as national or patriotic beings, citizens 'worthy of the society'.
- National unity and a *secure* future, surviving the post-war situation, confessional religious patriotism, the force of tradition.
- Self-sufficiency and giving one's share in the work of the society, a sense of collective responsibility.
- National pride in paying the war debts, in sport achievements, in technological advances, in the system of social welfare and in the Finnish nature.
- Fear and suspicion due to the cold war and the Soviet neighbour, faith in a prosperous national future and the future of the world.

#### f1<sup>b</sup> THE ADOPTED EDUCATIONAL *OBJECTIVES AND GOALS*:

**Key words:** patriotism, self-sufficiency, collective responsibility, homogeneity.

**Summary:**

- Producing citizens 'worthy of the society', becoming patriotic, surviving in the post-war situation, securing the future (not to build new futures).
- The force of tradition, self-sufficiency and giving one's share in the work of the society, success acquired from 'hard work'.
- From elitist (classical) to egalitarian (everything for everyone) education, homogenising education, a sense of collective responsibility.

#### f1<sup>c</sup> THE TASK OF EDUCATION REGARDING *SOCIO-CULTURAL PRESERVATION*:

**Key words:** preservation, security, survival, homogeneity, cultural insensitivity.

**Summary:**

- Education more for preservation than reforming: securing the future, preserving independence, surviving the post-war situation; religious education confessional and patriotic; history as that of independence.
- Education homogenising; a greater sense of collective responsibility and social support; no culture-specific education (e.g. for Sámi or Gypsy).
- Fear and suspicion due to the cold war and the Soviet neighbour; yet faith in national future and the future of the world.

#### f1<sup>d</sup> THE TASK OF EDUCATION REGARDING *SOCIO-CULTURAL PROGRESSION*:

**Key words:** non-reforming, cultural insensitivity, cautious optimism.

**Summary:**

- Education more for preservation than reforming education homogenising; no culture-specific education (e.g. for the Sámi or Gypsy languages).
  - Pride in post-war technological advances and in the system of general social welfare.
-

- Despite fears due to the cold war and the Soviet neighbour, yet faith in national future and the future of the world.

f1<sup>e</sup> THE TASK OF EDUCATION REGARDING *SOCIO-CULTURAL INTEGRATION*:

**Key words:** socio-cultural integration, egalitarianism, social justice.

**Summary:**

- Education for producing citizens 'worthy of the society' and for securing the future; religious education highly confessional.
- Moving from elitist (classical) to egalitarian — very homogenising; a greater sense of collective responsibility.
- Society seen responsible for the welfare of all, not particularly sub-cultures; no culture-specific education for sub-cultures.
- Upright, just and authoritative leadership venerated; decision-making relatively democratic; open conflict not usual.

f1<sup>f</sup> THE ASSIGNED EDUCATIONAL *CONTENTS* AND *SUBJECTS*:

**Key words:** patriotism, languages, matriculation examination, lack of materials.

**Summary:**

- Goal of high school: matriculation examination; emphasis on languages for international competitive competencies, commerce and political stability; geography, arts and music etc. with less importance.
- Religious education confessional and patriotic (other religions almost absent); history as that of the nation's independence.
- In languages, translation of texts between languages the main method; in the Finnish language, emphasis on patriotic literature (e.g. *Kalevala*); a very acute lack of teaching materials (textbooks etc.).

f1<sup>g</sup> THE APPLIED EDUCATIONAL *METHODS* AND *TOOLS*:

**Key words:** authoritative leadership, stereotypes, scarcity.

**Summary:**

- Upright and just leadership; rectifying 'speech'; good and bad grades; putting out of the class or keeping in detention.
- History from the point of view of the nation's independence, stereotypical views of other cultures, other religions absent in the curriculum.
- Lack of materials, translation of texts.

## 4.2. INTERVIEW IN FINLAND ON *CONDITION OF SOCIETY*

(Regarding data interpretation, see Section 4.4.2.)

**INTERVIEW #2F:** Condition of society.

**LOCATION:** Rovaniemi, Finland (City library, conf.room #1).

**DATE & TIME:** Thursday, 25 May 2000, at 1200.

**DURATION:** 1225-1535, 2h 40min.

f2<sup>a</sup> THE PREVAILING *BELIEFS* AND *VALUES*:

**Key words:** ambiguity, survival, complexity, suspicion.

**Summary:**

- Humans mammals with rational abilities, right vs. wrong and purpose of life become ambiguous, not pondered; human life a pragmatic survival.
- Human relationships complex, conflict characteristic; sense of suspicion.
- Society seen as taxes and services (the welfare state); productive work (not being dependent on others) valued.
- Patriotic identity based on language, egalitarian welfare system, serene nature experiences; active tolerance increased.
- No predominant unified view of the future; future seen as uncertain but not pessimistic; influencing the future seen unfeasible.

f2<sup>b</sup> THE ADOPTED FORMS OF *LEADERSHIP AND ADMINISTRATION*:

**Key words:** value of leadership, atomistic & non-visionary, immediate future.

**Summary:**

- Value of leadership being re-established when giving sufficient latitude for lower levels valued and capable of managing change.
- Leadership become more atomistic, less visionary; decision-making withdrawing from the reach of the grass-roots level.
- Society seen responsible for basic security and immediate future, also for upholding ethnic, cultural and ideological plurality.
- Decision-makers feel that future cannot be influenced significantly; educational choices seen as possible futures tools for futures building.

f2<sup>c</sup> THE ASSIGNED SOCIAL *FUNCTIONS AND ROLES*:

**Key words:** ambiguity, individual survival, atomistic, tolerance.

**Summary:**

- Success not clearly defined, importance of titles decreased, individual independence and productivity valued.
- Human relationships complex, suspicion common, true friendships rare.
- Leadership in managing change with sufficient latitude to lower levels valued; leadership more atomistic, less visionary.
- Active tolerance increased; minorities not seen as social contributors.

f2<sup>d</sup> THE PREVALENT MODES OF SOCIAL *ACTIVITY AND INTERACTION*:

**Key words:** complexity, vagueness, atomistic, distance.

**Summary:**

- Relationships complex, conflict and suspicion characteristic, concept of 'friendship' or 'conflict' vague.
- Authority atomistic, less collective decisions on the grass-roots level.
- Work valued, lack of productivity causing marginalisation.
- Minorities valued 'from a distance' with little true interaction.

f2<sup>e</sup> EVIDENCES OF *SOCIAL PURPOSE AND COMMITMENT*:

**Key words:** vagueness, collective welfare, individualism, desire for purpose.

**Summary:**

- Futures view vague, nationally optimistic, globally sceptical.
- Social purpose based on collective welfare under one system and pursuit of personal welfare within that system; plurality valued.
- Commitment to human relationship, friendship etc. complex and vague; personal independence and success (vaguely defined) highly valued.
- Leadership desired for sense of collective purpose; visionary leadership less possible.

f2<sup>f</sup> EVIDENCES OF DIVERSITY AS A *COLLECTIVE SOCIAL RESOURCE*:

**Key words:** tolerance, equality, separation, individualism, complexity.

**Summary:**

- Tolerance more active; ethnic diversity required to be upheld, but not tapped.
- Individual practical capacity appreciated; personal formal accomplishment not very valued; independence hold important.
- Complexity (disordered diversity) makes personal relationships complex, conflict becomes characteristic.
- Capacity to manage and diversity, to allow freedom in application, valued in leadership.

f2<sup>g</sup> EVIDENCES OF DIVERSITY OF *PRACTICE IN COLLECTIVE VALUES/GOALS*:

**Key words:** inclusive leadership, pluralism, complexity, uncertainty.

**Summary:**

- Capacity to manage change and giving latitude to lower levels appreciated in leadership; leadership often visionless, atomistic.
- Society taking more responsibility for ethnic, cultural and ideological plurality; no integrative approach.

- No unified view on social or personal success; personal independence and productivity sought.
- Human relationships complex; concepts of 'friendship' or 'conflict' less clear-cut.

### 4.3. INTERVIEW IN RUSSIA ON *EDUCATIONAL PARADIGM*

(Regarding data interpretation, see Section 4.4.2.)

**INTERVIEW #1R:** Educational paradigm.

**LOCATION:** Ryazan, Russia (Children's library, reading hall).

**DATE & TIME:** Tuesday, 27 June 2000, at 1300.

**DURATION:** 1355-1510, 1h 15min.

#### f1<sup>a</sup> THE ADHERED TO *WORLD-VIEW* AND *NORMS*:

**Key words:** communism, goal-orientation, achievement, optimism, collectivism.

**Summary:**

- Humanity intellect, personality, speech, conscience valued, materialistic view; values taken as facts, based on tradition and ideology.
- Holistic and rigid view on society, purpose: Soviet progress, Communism; all had a great task: achieve excellence in servicing common good.
- National identity based on Russian identity, which embraced and assimilated different peoples into one great nation.
- Education main method of future building, goal-oriented for Communism.
- Futures view optimistic; world future seen in the furtherance of Socialism, then Communism; the crisis of capitalism expected.

#### f1<sup>b</sup> THE ADOPTED *EDUCATIONAL OBJECTIVES* AND *GOALS*:

**Key words:** goal-orientation, education for future, pursuit of excellence.

**Summary:**

- Future seen optimistically and as the fruition of Communism; education very goal oriented and the primary method to effect that future
- Values and norms formally aimed at a Socialist way of life, practically based both on tradition and ideology (and even religion).
- Success seen in striving for Communism, serving the whole, working in team, pursuing excellence in all aspirations (esp. professional).
- Fidelity, trust, self-sacrifice valued in highly in private life.

#### f1<sup>c</sup> THE TASK OF EDUCATION REGARDING *SOCIO-CULTURAL PRESERVATION*:

**KEY WORDS:** future-oriented preservation, cultural assimilation, collectivism.

**SUMMARY:**

- Education goal-oriented, based on the Communist ideology; education primarily a method to influence the future (not to preserve).
- National identity based on Russian identity embracing other, no separate peoples (all one great nation); religion belittled, not preserved.

#### f1<sup>d</sup> THE TASK OF EDUCATION REGARDING *SOCIO-CULTURAL PROGRESSION*:

**Key words:** futures-oriented education, monocultural progression.

**Summary:**

- World future in furtherance of Communism, future optimistic; goal-orientation for building a materially and spiritually enlightened society.
- Education primary method to influence the future, goal-oriented, based on Communist ideology, harnessed to mobilize human resources for this.
- Soviet society considered progressive, simultaneously holistic and rigid; did not encourage a sense of initiative.
- Sub-cultures assimilated in the flow of collective progress.

#### f1<sup>e</sup> THE TASK OF EDUCATION REGARDING *SOCIO-CULTURAL INTEGRATION*:

**Key words:** collective integration, cultural assimilation.

**Summary:**

- Education harnessed for Communism, mobilize human resources for this; foremost task: build a materially and spiritually enlightened society.
- Soviet society considered progressive, holistic and rigid simultaneously; hierarchical structure of authority; decreased sense of initiative.
- Russian national identity assimilating different peoples; no separate peoples considered, all one nation.

f1<sup>f</sup> **THE ASSIGNED EDUCATIONAL CONTENTS AND SUBJECTS:**

**Key words:** pursuit of excellence, scientific & artistic accomplishment.

**Summary:**

- Assuming a great task to further the society and to pursue high accomplishment strongly emphasized and systematically implemented.
- Science and sports strongly emphasized, also drawing and singing; logic and constitutional issues sometimes a focus.

f1<sup>g</sup> **THE APPLIED EDUCATIONAL METHODS AND TOOLS:**

**Key words:** merit system.

**Summary:**

- Methods aimed at making students learn as much as possible; a competitive system with rankings and various types of commendation.
- Good students were to help weak students; both reward and punishment used (no physical punishment).
- 'Unofficial' leaders existed, those becoming popular by braving the etiquette or some of the rules (very rare).

#### 4.4. INTERVIEW IN RUSSIA ON *CONDITION OF SOCIETY* (Regarding data interpretation, see Section 4.4.2.)

**INTERVIEW #2R:** Condition of society.

**LOCATION:** Ryazan, Russia (home of Mss. Dorzhieva & Podpisnova).

**DATE & TIME:** Monday, 26 June 2000, at 1600.

**DURATION:** 1615-1820, 2h 5min.

f2<sup>a</sup> **THE PREVAILING BELIEFS AND VALUES:**

**Key words:** pluralism, survival, lack of perspective, vague hope.

**Summary:**

- Values based on 'common sense', very diverse; survival as a common life goal; family/children, friendship and trust cherished; education as a value.
- Society as provider of education, health services and protection for all; focus changing from collectivity to individuality.
- Patriotism derived from history/language, art/literature, nostalgic sentiments; patriotism not very high; minorities more patriotic.
- Sense of helplessness towards future; one's choices felt indifferent; hopefulness about the distant future of Russia; world futures distant, peace felt remotely possible.

f2<sup>b</sup> **THE ADOPTED FORMS OF LEADERSHIP AND ADMINISTRATION:**

**Key words:** transformation, helplessness, hope.

**Summary:**

- Old fashion authority disliked but people used to function through obeying orders, just and encouraging leaders wanted.
- Highest duty of society seen as provision of education for all, society not providing much support for minority cultures.

- Settlement of disputes varies from frank and quick to subtle and continued.
- General feeling of helplessness in influencing the future; some hope maintained for a better Russia and peace.

f2<sup>c</sup> THE ASSIGNED SOCIAL *FUNCTIONS* AND *ROLES*:

**Key words:** survival, diversity, independence, problematic leadership.

**Summary:**

- Parasites of society despised, surviving valued; family, children, true friends valued; life pursuits differ between generations.
- Appreciation of diverse or unique individualities increasing.
- Conflict settlement depends on education, varies in the family, between friends, colleagues or boss and subordinate.
- Minorities more independent but their value/role not really increased.
- Strong, just leaders valued, but dictating authority shunned.

f2<sup>d</sup> THE PREVALENT MODES OF SOCIAL *ACTIVITY* AND *INTERACTION*:

**Key words:** closeness yearned, heterogeneity, insensitive system.

**Summary:**

- Family and children and true friends as cherished social relationships.
- Interaction in conflict situations context-dependent: family (educated/not educated), friends, boss-employee, colleagues.
- Dictating still a common (albeit 'masked') mode of leadership.
- The system not felt to enable/encourage self-expression and bringing the individual's qualities to general use.
- Minorities freer but not encouraged to flourish; many inactive.

f2<sup>e</sup> EVIDENCES OF *SOCIAL PURPOSE* AND *COMMITMENT*:

**Key words:** helplessness, hopefulness, desire for justice, desire for belonging.

**Summary:**

- General feeling of helpless in relation to future; tentative hopefulness for a better future in Russia and peace in the world.
- Strong leaders wanted but people do not want to be told what to do; visionary, upright and considerate emphatic leaders desired.
- History, language, cultural achievements valued as national success; patriotism not very strong among Russians, stronger among minorities.
- Life ideals very varied (money and career, family and children, ascetic 'Indian yoga' life etc.); close relationships cherished.

f2<sup>f</sup> EVIDENCES OF DIVERSITY AS A *COLLECTIVE SOCIAL RESOURCE*:

**Key words:** tolerance, non-integration.

**Summary:**

- Dictating leadership common but challenged by growing numbers; a good leader considered to listens to all opinions.
- Tolerance and appreciation of different types increased; more freedom of expression, but personal qualities not utilized by the system.
- Minority cultures freer to practice but not encouraged to flourish.

f2<sup>g</sup> EVIDENCES OF DIVERSITY OF *PRACTICE* IN COLLECTIVE VALUES/GOALS:

**Key words:** lack of coherence, no collective commitment, commitment to self.

**Summary:**

- Former collectivity gone; individual success emphasized, but not incorporated to common welfare.
  - Earlier monoculturalism gone; minority cultures gained more freedom but not integrated as flourishing elements of the larger society.
  - Education deemed as a central common goal and safeguard for future; one's own choices not seen as a factor of common future.
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