MORAL EMPOWERMENT:
ELEMENTS OF A CONCEPTUAL FRAMEWORK FOR EDUCATION

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I hereby declare that, except where explicit attribution is made, the work presented in this thesis is entirely my own.

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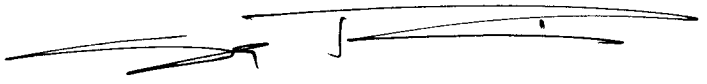

ABSTRACT

In this inquiry I focus on the philosophical framework that could guide educational programmes seeking the moral empowerment of students—the systematic development of the capacity to pursue their own intellectual and spiritual growth and to engage actively in the long-term transformation of their communities, two inseparable aspects of a twofold purpose. Moral empowerment, it is proposed, cannot be achieved by raising political consciousness alone or by pursuing moral education as activity isolated from other components of the overall curriculum. The iterative process through which the individual and the environment are transformed is in need of the full force of knowledge.

The inquiry draws on the experience of Fundacion para la Aplicacion y Ensenanza de las Ciencias, FUNDAEC, a Bahá'í inspired organization in Colombia, in order to identify the essential elements of the evolving conceptual framework under consideration. Nurturing understanding is argued to be central to the desired educational process, necessitating a critical examination of the 'subject' and the 'object' of understanding, and how the 'process of understanding' is shaped by them. Nurturing understanding must go hand in hand with the development of a number of spiritual qualities. For this to be achieved, the historical view holding science and religion in opposition should give way to the perspective that they are two complementary systems of knowledge and practice. The integration of knowledge into the content of the teaching-learning experience demands that sharp division between the cognitive and the motivational, between reason and faith, be avoided. The concept of 'capability' discussed in relation to both *being* and *doing*, is presented as an effective strategy for this purpose, with the potential to overcome certain dichotomies prevalent in educational thought and practice.

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PREFACE

I first became aware of the work of the *Fundación para la Aplicación y Enseñanza de las Ciencias* (FUNDAEC) in early 1990s when I was teaching at the *School of Nations* in Macau. The school had been created to impart 'quality education', offering an internationally recognized academic curriculum and infusing it with the spiritual teachings of the Bahá'í Faith. It was clear to us at the time that there was no such thing as 'Bahá'í education', but, like educators working in other 'Bahá'í Schools' around the world, we were trying to achieve coherence between our educational endeavours and our religious convictions. Ours was a fragmented approach, adding a few classes on moral education based on Bahá'í principles to standard curricula in English and Chinese; integrating diverse elements in a meaningful way was proving to be a difficult challenge.

The path being explored by FUNDAEC seemed to offer us an attractive alternative. Its founders were making a distinction between religious education and what later came to be called 'Bahá'í-inspired' education. They were investigating a broad set of questions related to the empowerment of youth to contribute to the development of their communities within a vision of spiritual and material civilization rooted in the Bahá'í teachings. For those of us who closely examined FUNDAEC's approach, it soon became clear that it was not suggesting adherence to one or another educational theory and practice. FUNDAEC was engaged in the kind of social action that incorporates profound philosophical reflection in its activity; it was consciously seeking the elements of a new conceptual framework at least for what it was calling 'education for development'. This deepened my interest in philosophy of education, leading me soon to formal studies in the philosophy of Chinese education in *Beijing Normal University*.

In 2002, I joined the *Office of Social and Economic Development* (OSED) at the Bahá'í World Centre and, consequently, became more involved in the work of FUNDAEC. OSED functions as a global learning agency, systemizing the knowledge being generated in diverse endeavours in the field of social and economic development and disseminating the results among Bahá'í communities. It has followed the work of FUNDAEC over the years and has drawn on its ideas to advance a discourse on education in which a growing number of organizations are participating. In recent years, it has supported several such organizations to implement some of FUNDAEC's

programmes. My intention to explore the philosophical framework of Bahá'í-inspired education has, as a result, acquired a degree of urgency.

My course of study at the *Institute of Education* since 2007 has given me the opportunity to pursue a personal interest, which is, at the same time, of vital importance to the work of OSED. Under the invaluable guidance of Graham Haydon and Jan Derry, to whom I feel deeply indebted, I have been able to look for insights in relevant literature that would help me describe possible elements of the framework gradually evolving through the work of Bahá'í-inspired organizations with the encouragement of OSED and the help of FUNDAEC. The educational material elaborated by FUNDAEC and the documents it has written about its experience, visits to agencies in Africa, Asia and Latin America implementing some of its programmes, and participation in meetings of representatives from these agencies allowed me to put together an account of FUNDAEC's approach to moral empowerment. Frequent conversations with two of its founders, Farzam Arbab and Gustavo Correa, helped me find answers to questions that were not treated explicitly in the available material, and I would like to express my gratitude for their assistance.

Two challenges were bound to present themselves in this inquiry. The first was to avoid turning the inquiry into a means for defending my religious convictions. The content of the thesis, I hope, shows that I have met this challenge with reasonable success. The second challenge is more subtle. The objective of the thesis is to identify a set of concepts emerging from FUNDAEC's work, examine them from the perspective of various authors and reach conclusions that would enable me to elaborate elements of a philosophical framework for an educational process that seeks the moral empowerment of its students. But given the nature of the task, it was inevitable to analyse the relevant literature, at least to some extent, from FUNDAEC's perspective. Despite this fact, I believe, my arguments are largely formulated according to the original objective.

INTRODUCTORY REMARKS

Background

The Bahá'í Faith is the youngest of the world's independent religions. It was born in Iran in the middle of the nineteenth century and its spiritual and administrative centre, subsequent to the successive banishments of its Founder, Bahá'u'lláh, was established in the Holy Land, in the twin cities of Haifa and 'Akká.

The Bahá'í Faith does not see itself as one more religious system superimposed on the conflicting creeds that divide humankind, but rather as a restatement of the eternal verities underlying all the religions of the past. It upholds the unity of God, recognizes the unity of His Prophets, and inculcates the principle of the oneness and wholeness of the entire human race (Effendi, 1947).

The fundamental principle enunciated by Bahá'u'lláh is that religious truth is not absolute but relative, and that Divine Revelation is progressive (ibid.). Bahá'ís—constituting a worldwide community of some five million representing most of the nations, races and cultures on earth—believe that the unification of humankind is inevitable, although the path to its realization is tortuous. Among the principles they espouse are unfettered search after truth, the abolition of prejudice and superstition, the harmony of science and religion, the equality of rights and opportunities for women and men, and the elimination of extremes of wealth and poverty.

Bahá'í experience in the field of development stretches back to the beginnings of the Faith in Iran. In that country, the community of adherents was able, in just a few generations, to advance from a population consisting largely of illiterate villagers to one whose members were in the forefront of many endeavours. By 1973, for example, Iranian Bahá'ís had achieved a 100 percent literacy rate among women followers under the age of 40, in contrast to a national literacy rate among women of less than 20 percent (Office of Social and Economic Development, 2008). The Bahá'í community's involvement in social and economic development entered a new stage in the early 1980s, chiefly as a result of a substantial increase in the Bahá'í population of many nations. Bahá'í Development endeavours in villages and towns throughout the world often begin as simple grassroots initiatives to address some of the challenges faced by local communities

through a process of action and reflection that relies on insights drawn from the spiritual and social teachings of the Bahá'í Faith. Several hundred substantial projects have already emerged from thousands of grassroots initiatives, often in collaboration with governmental and non-governmental organizations. Most of these are in the field of education, primarily academic schools; a smaller number have grown in complexity over time and developed elaborate organizational structures.

One agency which has dedicated its resources over a few decades to search for educational content and methods inspired by Bahá'í teachings is the *Fundación para la Aplicación y Enseñanza de las Ciencias—*FUNDAEC. It was founded in 1974 by a group of scientists and professionals trying to understand the role of science, technology and education in the social and economic development of a micro-region, initially around the city of Cali in Colombia.

FUNDAEC has expressed its primary aim as the creation of a social space for specific populations in which they could actively engage in learning about their own path of development. The name given to this social space is *University for Integral Development.* With this vision FUNDAEC dedicated the first decade of its existence to research and action on the different processes of community life, assisting various groups in the aforementioned micro-region to participate in the generation, application and diffusion of knowledge to improve each process. While some of the processes of individual, family and community life are not directly related to education, analyzing the chain of daily activities involved in each and the factors determining its unfoldment generated a body of knowledge that was progressively incorporated into educational materials, principally for youth. For example, examining the chain of activities related to the production of crops and animal husbandry gave rise to participative research on alternative systems of production on small farms. Similar research and action was carried out in areas of health, formal education, socialization, community organization, local economies, environment and appropriate technology. A set of some eighty textbooks based on this experience were prepared constituting the core of a curriculum for secondary education that, in the ensuing two decades, reached tens of thousands of students in several Latin American countries. The secondary school programme became known as *Sistema de Aprendizaje Tutorial (SAT);* to make its large scale implementation possible, two other programmes were also developed, one for the

training of secondary school teachers and the other for raising human resources with competence at the Masters level. In recent years, FUNDAEC has focused on a revised portion of the SAT curriculum to create a programme for the training of 'Promoters of Community Well-Being', which is now being adopted by a growing number of organizations in Africa, Asia and the Pacific.

The Aim of the Inquiry

The intention of my thesis is to help advance the discourse of the growing number of groups and organizations around the world engaged in educational processes that have come to be designated as 'Bahá'í inspired'. To do so, I first identify a number of key concepts that can be considered crucial elements of an evolving framework for the educational processes in question. The Bahá'í teachings themselves, of course, do not include what might be called educational theory, or for that matter, a structured educational philosophy. I could use them as a primary source for the identification of key concepts by carrying out my own particular reading of Bahá'í text. But that is not the approach I adopt; this choice, among other things, allows me to steer away from apologetics. The other source available to me is the fledgling discourse of Bahá'í-inspired educational endeavours. However, the capacity to go beyond the expression of ideals and make theoretical contributions has been, in general, slow to develop. Most groups are engaged in offering educational services based on one or another prevalent theory with some reference to such principles as the unity of humankind, the equality of men and women and the harmony between science and religion. A notable exception is FUNDAEC, whose experience necessarily becomes a major source in which elements of the framework being sought can be found, although in most cases they are not adequately elaborated. The founders of FUNDAEC were aware from the beginning that they would not be defining the framework for Bahá'í-inspired education. All they hoped to do was to take a few steps in the desired direction and initiate a process of action, reflection and research that would lead to the creation of a framework and the corresponding educational programmes in a series of approximations. The field of education, they believed, has been subject to too many theoretical fads. While the succession of theories that have achieved temporary prominence during the past decades have contributed to progress, much more can be achieved through systematic action—well informed by a diversity of

pedagogical perspectives—accompanied by profound reflection within an evolving conceptual framework.

That I refer to FUNDAEC often throughout the thesis does not make it the sole focus of my attention; my hope, too, is that the ideas being explored here can help those involved in Bahá'í-inspired endeavours to achieve greater coherence as they strive to translate their ideals into effective educational programmes. Emphasis is on the gradual development of a framework for action to which an increasing number of groups can contribute, arising from experience and reflection—two ingredients of any endeavour to tackle philosophical problems. Naturally, I intend to make some contribution, no matter how small, to the discussion of certain themes in the general discourse on education as well.

The several key concepts that are identified and discussed throughout the thesis as possible elements of an evolving framework for educational processes inspired by the Bahá'í teachings have not been subjected to much philosophical scrutiny to date. The main task of this thesis, then, is to search the relevant philosophical literature, to examine the concepts in question in that context, and to find ways to elaborate them in a language that lends itself to philosophical exploration. By its very nature, this task involves reference to several authors rather than an exhaustive treatment of the works of one or two. While a sufficiently deep understanding of the work of each author is required, the aim is not to treat his or her arguments comprehensively, but more to use insights gained from them to elaborate, to a reasonable extent, the key elements of the conceptual framework under consideration.

Generating Premises

The term 'Bahá'í inspired' is in need of some clarification: The educational efforts thus designated do not include religious instruction. Like followers of other religions, Bahá'ís, too, engage in the study of the history of their faith, its laws, principles and tenets. These are not, however, the topics addressed in the kind of programmes with which I am concerned. Nor is the object of study individual and social codes of conduct 'inspired' by the teachings of the Faith—a Bahá'í version of moral education. 'Inspiration' in this case refers to the framework of thought and action within which educational experience unfolds, a framework that, as already mentioned,

is to be continually elaborated and refined. Programmes are expected to develop through a dynamic process of action and reflection on action, which is well informed of various theories and practices in the field of education and is in conscious interaction with these practices. In fact, those involved in such endeavours are not exclusively Bahá'ís but like-minded individuals who agree on the fundamental elements of the evolving conceptual framework.

At the heart of the framework under consideration is the concept of moral empowerment. A brief examination of the genesis of the concept as used by FUNDAEC—sometimes denoting the principal aim of the educational process it proposes and sometimes referring to the process itself—seems necessary in this introduction. Discussions with individuals who have played crucial roles in the creation of FUNDAEC underscore the importance of two interrelated sets of Bahá'í teachings that gradually led them to their conception of moral empowerment. The first has to do with the principle of the oneness of humankind and the second with the evolution of human society.

The oneness of humankind is the central principle of the Bahá'í Faith and the pivot around which all its other teachings revolve. The widespread acceptance of this principle, Bahá'ís believe, is indispensable if humanity is to overcome its present formidable challenges. Oneness, they are quick to point out, does not imply uniformity; on the contrary, it should bring to mind the image of a garden in which the diversity of colours and shapes increases its beauty. Yet, with all the diversity, the flowers are "refreshed by the waters of one spring, revived by the breath of one wind," and "invigorated by the rays of one sun" (Bahá'í World Centre, 1978, p. 290). At the same time, "the consciousness of the oneness of humankind" should not be construed as "a mere outburst of ignorant emotionalism" or "an expression of vague and pious hope" (Effendi, 1974, p. 42). The principle while requiring the recognition of the gains humanity has made in building harmonious relationships, both interpersonal and collective, cannot be "merely identified with a reawakening of the spirit of brotherhood and good-will among men" (ibid.). It is "applicable not only to the individual, but concerns itself primarily with the nature of those essential relationships that must bind all the states and nations as members of one human family" (ibid.). It envisions a world "organically unified in all the essential aspects of its life, its political machinery, its spiritual aspiration, its trade and finance", without stifling "the flame of a sane and

intelligent patriotism in men's hearts", abolishing "the system of national autonomy so essential if the evils of excessive centralization are to be avoided", or suppressing "the diversity of ethnical origins, of climate, of history, of language and tradition, of thought and habit, that differentiate the peoples and nations of the world". It calls for a "wider loyalty" and implies "an organic change in the structure of present-day society, a change such as the world has not yet experienced" (ibid.).

As to the evolution of society, Bahá'í teachings suggest that humanity's collective life can be seen in terms of stages analogous to the different phases in the life of a human being: infancy, childhood, adolescence and maturity. This analogy, Bahá'ís believe, captures "the millennia-long process that has carried humanity to this culminating point in its collective history" (Bahá'í World Centre, 2001, p. 50), the beginning of its passage to maturity. Accordingly, the agitations of today's society are understood as the necessary manifestations of an age of transition. Each period in the biological, cognitive and emotional life of the individual is marked by certain conditions characteristic of a particular degree of intelligence and capacity, and entering a new phase requires advances that supersede former conditions and needs. It is envisioned that the transformation called for in the nature of social relations and social structures in this stage of transition are as profound as the transformation that marks the passage from adolescence to maturity. In this light, the destructive and constructive forces operating in the world today are associated with parallel processes of disintegration and integration of a society in rapid transformation, and are interpreted as forces that are simultaneously compelling humanity to abandon the habits of childhood and to adopt ways that are commensurate with its approaching maturity. It is important to note that, for Bahá'ís, such a view of history does not imply an ideology and a political programme that would force the appearance of a mature humanity. They are well aware that ideologies based on deterministic visions of history have caused havoc in the world during the twentieth century. That humanity undergoes a process of maturation is a conviction that influences thought and behaviour as would the knowledge that a growing tree has the potential to bring forth luscious fruits if it receives the necessary light, nutrients and water. It is in the makeup of a child to become an adult, and the consciousness of such a potential is indispensable particularly during the turbulent age of adolescence.

Everything seems to indicate that the interplay of the two sets of teachings stated above—on the oneness of humankind and on the evolution of society—created in the minds of the founders of FUNDAEC the conception of a *telos*: a twofold moral purpose of personal transformation—the becoming "imbued with new virtues and powers, new moralities, new capacities" (Bahá'í Publishing Trust, 1972, p. 9)—and of the transformation of society. The aim of the educational process, at least the one for preparing promoters of community well-being in a programme equivalent to secondary education and another for the training of the corresponding secondary school teachers, was thus expressed as the empowerment of the individual to assume responsibility for developing those virtues and powers required of her as a member of a human race now entering its age of maturity, on the one hand, and of consciously contributing to organic change in the structures of society, on the other. The term 'moral empowerment' is to encapsulate the enabling educational process implied by this aim. Moral empowerment is the topic of the first chapter of this thesis, but one consideration that seems to have given direction to FUNDAEC's line of reasoning in adopting such an aim should be mentioned here.

History, both past and contemporary, offers examples of how religious teachings are re-interpreted by certain groups in order to focus them on the problems of society at a given time. Liberation theology, already in full bloom in Latin America in the years FUNDAEC was being formed, is a good example of this phenomenon in the Christian Faith. The nature of the Bahá'í Faith and its organization is such that its followers have not felt the need for such alternative readings. However, those who join the worldwide community do characterize the various mindsets through which religion in general is experienced. The pathways to a central religious experience represented by these mindsets have been explored by students of religion and include ritualism, legalism, evangelism, social reform and mysticism. Aware of these tendencies that have in fact caused many a division in most religions, the Bahá'í community tries to create a particular balance among the various aspects of the teachings it espouses. How to achieve the 'right balance' between the mystical, moral, administrative and social teachings of their Faith is an ongoing theme of discussion. For the founders of FUNDAEC who were active participants in such discussions, constant endeavour by members of the community not to function in an inward looking congregational mode in which religion would be treated as "a series of beliefs, a set of

customs" (Bahá'í World Centre, 1978, p. 52)[1] or one in which the focus would be on the mere acknowledgement of belief and a virtuous life concerned with one's own affairs, was a moral obligation.

The Bahá'í teachings that inspire FUNDAEC and other educational programmes being considered here, then, are to a great extent on the theme of 'civilization building' and the indispensable role individuals, communities and social institutions play in propelling the advancement of civilization. The intimate relationship between the two dimensions of the moral purpose—seen in the context of the gradual emergence of a world civilization that embraces both the spiritual and material dimensions of human existence—is to be considered a fundamental element of the philosophical framework of these programmes. As FUNDAEC puts it, a profound awareness of the reciprocal relationship between personal growth and organic change in the structures of society is essential to social action. One develops virtues not in isolation, but through activity for the benefit of others:

> To focus one's sense of purpose only on the development of one's own potential is to lose objectivity and perspective. With no outside interactions and social goals, one has no standard by which to judge personal progress and no concrete results by which to measure one's development. A person forgetful of the social dimension of moral purpose is prone to subtle forms of ego—combinations of guilt, self-righteousness, and self-satisfaction. (FUNDAEC, 2006, p. 13)

Conversely, a sense of purpose driven only by the desire to transform society can easily become distorted. By focusing exclusively on change of structure, one can lose sight of one's own spiritual and moral development, and overlook respect and compassion for others. The door is then open to cruelty and oppression as long as they serve the higher purpose of social and political transformation. "Social Action, then, must transcend the limitations of unfettered individualism and of suffocating collectivism and direct energies towards a balanced approach to personal and collective transformation—complementary dimensions of a single process" (ibid.).

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[1] This is an extract from the following statement of 'Abdu'l-Bahá : "Religion, moreover, is not a series of beliefs, a set of customs; religion is the teachings of the Lord God, teachings which constitute the very life of humankind, which urge high thoughts upon the mind, refine the character, and lay the groundwork for man's everlasting honour" (Bahá'í World Centre, 1978, p. 52).

This formulation of the complementarity between the individual and collective dimensions of a moral purpose resonates with a passage written on behalf of Shoghi Effendi, the implications of which are discussed in a number of places in this thesis:

> We cannot segregate the human heart from the environment outside us and say that once one of these is reformed everything will be improved. Man is organic with the world. His inner life moulds the environment and is itself deeply affected by it. The one acts upon the other and every abiding change in the life of man is the result of these mutual reactions. (Bahá'í Publications Australia, 1990, p. 84)

Outline of the Argument

The introductory remarks above on the Bahá'í community's involvement in social and economic development of peoples, on the approach adopted in the present exploration of a conceptual framework that would inform educational programmes seeking moral empowerment and on the nature of religious beliefs that would inspire certain organizations to work within such a framework, pave the way for an analysis in chapter 1 of the notion of moral empowerment and the identification of a series of concepts to be examined in subsequent chapters. Understanding emerges as an essential element of the framework under consideration and the theme runs through the entire thesis. In chapter 2, search for desired characteristics of the 'subject of understanding', the protagonist of moral empowerment, is undertaken through a critical examination of Bruner's computational and cultural accounts of cognition, on the one hand, and in light of Alasdair MacIntyre's analysis of emotivist self and arguments against extreme subjectivism, on the other. The discussion of understanding is further developed in chapter 3 by considering its infinite dimension both as a process in which one may systematically advance and as an attribute of the human soul with its endless potentialities. A brief analysis of MacIntyre's account of virtues embedded in practice helps clarify the concept of 'spiritual qualities', which together with understanding are viewed as permanent constituents of *being*. Accordingly, it is suggested that fostering understanding and nurturing spiritual qualities should be considered inseparable aims in an educational process concerned with moral empowerment. In chapter 4, the exploration of the 'object of understanding' in its most general sense—physical, social and spiritual reality—is undertaken. Drawing on insights from John R. Searle, Thomas Nagel and John McDowell, as well as attempts by FUNDAEC to deal with the problem of fragmentation in education, significant connections between the subject, the object and the

process of understanding are made explicit. Focus is then shifted in chapter 5 to an argument in favour of the complementarity of science and religion as two sources of knowledge, in which specific objects of understanding are to be sought. Chapter 6 deals with the question of integration, first at the level of knowledge—drawing on Paul Hirst's theory of forms of knowledge and his later views on the priority of practical knowledge—then at the level of values inherent in knowledge, and finally through a brief presentation of the inseparability of thought and action. Chapter 7 is dedicated to the examination of the concept of capability, both an element of Amartya Sen's conception of development as freedom and a fundamental element of FUNDAEC's pedagogical approach to moral empowerment. Chapter 8 takes further the notion of capability by examining its relevance to pedagogical choices, specifically its usefulness as an integrating strategy to overcome certain deeply rooted dichotomies in education. Finally, focusing on capabilities that bear directly on moral issues, the question of continuity between thought, language and action is addressed in chapter 9 with particular attention to the oneness of heart and mind, and the interplay between the individual and the collective.

CHAPTER 1: MORAL EMPOWERMENT

In the introductory remarks reference was made to moral empowerment, a term signifying both the process and the goal of educational programmes that seek to enable students to take charge of their own intellectual and moral growth and to contribute to the transformation of society. While the entire thesis is dedicated to this theme, a preliminary analysis of the concept, its meaning and application, seems necessary as a first step. Since the transformation in question is perceived in the context of humanity's transition from childhood to maturity, I begin this analysis with a brief description in the first section of the nature of certain relationships fundamental to human existence, suggesting that transition to maturity is marked by the profound transformation they will necessarily undergo. This, I argue, entails a willingness to go beyond narrow conceptions of power. In the section that follows, I undertake a quick examination of certain views of power and of the corresponding educational approaches seeking political empowerment. The limitations of the political dimensions of power, identified in that section, sets me on a search for an expanded notion of power on which educational processes concerned with moral empowerment could draw. With insights emerging from this discussion in the background, I then introduce a series of concepts to be elaborated in subsequent chapters as key elements of the conceptual framework being explored.

Essential Relationships

Being impelled by a twofold purpose to pursue one's own intellectual and spiritual growth and to contribute at the same time to the transformation of society does not imply tension between the two; they are two interwoven aspects of one necessary and inevitable movement. What is proposed here is that advancing in both implies change in those essential relationships that define human existence—among individuals and groups, between the individual, community and institutions of society, and between these and the natural environment. Any search for the content and methods of Bahá'í-inspired educational programmes must address, not infrequently, three interrelated questions: What will these relationships be like once humanity has entered its age of maturity? What is the nature of the changes that will occur in these relationships as the transition from childhood to maturity advances through successive stages? And what kind of educational activities will enable the student to participate in transformative processes at any

given stage? None of the three questions have immediate answers; a long process of research, action and reflection, all carried out within a philosophical framework which itself must evolve, can shed light on the issues at hand as an effective pedagogy is gradually developed.

What can be argued with relative ease at this point is that the principle of the oneness of humankind gives direction to this age of transition and offers insights into the nature of the changes that must occur in each of the above-mentioned relationships. An example from the Bahá'í teachings illustrates this point. In the physical world, the human body has evolved to a degree of complexity that makes the emergence of consciousness possible. The modes of operation that guarantee the biological functioning of the body and its well-being are characterized by the perfect integration of diverse cells: "No cell lives apart from the body, whether in contributing to its functioning or in deriving its share from the well-being of the whole" (Bahá'í International Community, 1995). It is the wholeness of the system that allows for the complete development of the capacities inherent in each of its component elements. The physical well-being achieved finds its purpose in channelling the expression of individual consciousness; "that is to say, the purpose of the biological development transcends the mere existence of the body and its parts" (ibid.).

It is worthwhile to consider whether the same conception does not apply to the organization of humanity's collective existence. Admittedly, unlike the cells of the body, the individuals constituting society are endowed with intelligence and volition. But will not the essential relationships that define human existence evolve during the passage from childhood to maturity, one can at least ask the question, in such a way that the diverse capacities of the members of the collectivity are given room to fully develop as the bonds among individuals, communities and the institutions of society are strengthened? And if so, can one assume that such development will lead to an increasingly more complete expression of human consciousness through the complexity of social organizations and structures, themselves undergoing an evolutionary process?[2]

[2] The metaphor of the human body used here may bring to mind other attempts to describe society in organic terms. Durkheim's model of organic solidarity is one example. Durkheim makes a distinction between mechanical and organic solidarity. Mechanical solidarity is a feature of less advanced, more homogenous and highly religious societies, whereas organic solidarity represents the higher evolutionary stage in social order marked by complexity, differentiation and interdependence as seen in modern industrialized society. However, it is important to note that Bahá'ís are not necessarily promoting such an organic model

The metaphor of the human body, if taken seriously, points to the inadequacy of the conception of human society either as an aggregate of competing elements or as a conglomerate of differentiated sectors each trying to exploit the achievements of others. As transition to maturity advances, humanity will need to move away from the vision of society as the arena of negotiations among individuals defending personal or group interest. The steady increase in the number of people living in conditions of absolute poverty, the growing gap between the rich and the poor and the economic crisis affecting even the richest countries of the world, in an era of globalization so focussed on competitiveness, seem to indicate that numerous challenges have to be overcome if the aspirations of the individual are to be harmonized with the interests of society. The condition in which the state as the embodiment of collective will would crush individuality to defend what is considered to be a higher purpose, is not compatible with the type of relationships the principle of the oneness of humankind seems to demand either. Much of my argument in this thesis will assume that "the advancement of the race has not occurred at the expense of human individuality. As social organization has increased, the scope for the expression of the capacities latent in each human being has correspondingly expanded. Because the relationship between the individual and society is a reciprocal one, the transformation now required must occur simultaneously within human consciousness and the structure of social institutions" (ibid.).

Given the centrality of power to the way relationships among individuals, groups and the institutions of society have taken shape during the long evolutionary process that has brought humanity to its present state, and given the close association between the very concept of power and such phenomena as domination, competition and conflict, it seems reasonable to suggest that the transformation being envisioned may require a fundamental revision of the conception of power. A first step in such an endeavour would be to look at the various dimensions of prevalent views of political power and ask if they exhaust the meaning of power in all the relationships in which a human being enters. My brief analysis of political power in the following section leads me to the conclusion that there are other dimensions to power that a process of moral

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of social organization whatever its merits may be. They employ the metaphor only as a means to gain insight into to the nature of the relationships that would govern a society approaching its stage of maturity. The distinguishing feature of the vision of social organization that spurs their efforts is the 'consciousness of the oneness of humankind'.

empowerment would have to recognize and bring into play. But this conclusion in itself does not prove to be entirely satisfactory. The conception of political power also needs to undergo a transformation if the essential relationships defining human society are to evolve in keeping with the maturation of the human race. These relationships cannot be fragmented, for example, into those that involve political power as generally accepted today and those that depend on other dimensions of power[3]. Power structures that fill the political landscape, whether connected to government or the institutions of civil society, cannot be kept apart from the other spheres of human life; the struggles they engender penetrate every facet of individual and social existence. It seems to me that humanity is impelled, as it goes through the process of maturation, to aspire to higher and higher degrees of consistency in thought and action across the private and the public sphere. The notion of power that a politically active individual adopts has to become coherent with one implied by a comprehensive conception of human well-being, and vice versa, the powers that reside in the individual and the collective—through the release of which social and material progress is achieved—will have to be consistent with conceptions of power determining political life in general.

Conceptions of Power in Political Empowerment

Although power is a highly contested concept, there is an underlying tendency of many political theorists to associate it with domination. Whether it is "the production of intended effects" (Russell, 1975, p. 25) and the capacity to produce them, or the "probability that an actor in a social relationship will be in a position to carry out his own will despite resistance" (Weber, 1957, p. 152), power aspires to be a quantitative concept that is to be empirically measured in terms of the resistance—actual or potential—that it can overcome. For the concept thus conceived to be viable, conflict, observable or not, needs to be ever present. In other words, conflict seems to emerge in one way or another as an attribute that makes the exercise of power possible; it is intrinsic to power in its actual state. I do not intend to embark on an analysis of power in this form. What I need are insights that allow me to analyze political empowerment,

[3] Rawls' concept of justice as fairness, for example, is, according to Mulhall and Swift, grounded on a political conception of justice, one that does not carry over to the other domains of life: "Justice as fairness, Rawls...claims, is a purely political conception of justice. By this he means that its scope is restricted to the basic structure of constitutional democratic regimes (applying only to their most fundamental social, political and economic institutions, and not, for example, to churches, universities and hospitals); that it does not depend upon the truth of any particular comprehensive philosophical, religious or moral doctrines about human well-being; and that it is formulated only in terms of certain fundamental ideas that are implicit in the public political culture of democratic societies" (Mulhall and Swift, 1995, pp. 107-8).

particularly when it is the aim of an educational process, and then see if I can go beyond it to an expanded concept of power that would enter the notion of moral empowerment proposed in this thesis. Steven Lukes' treatment of three dimensions of power is the first source to which I turn for this purpose (Lukes, 2005). It allows me to examine political empowerment in the context of two examples: citizenship education in liberal democracies and Paulo Freire's account of education as conscientization.

As a prototype of the one dimensional view of power, Lukes cites Dahl's "intuitive idea of power". According to Dahl, "A has power over B to the extent that he can get B to do something that B would not otherwise do" (Dahl, 1957, pp. 202-3). The emphasis is on behaviour, on the exercise of power, rather than on its possession. The analysis of power, its exercise and the extent of its influence, takes place within the context of western liberal democracy and involves the careful examination of a series of decisions. One method entails determining, for a given decision, which participants have initiated alternatives that are finally adopted, who has vetoed alternatives initiated by others, whose proposals have been adopted and whose proposals have been turned down. These actions are then tabulated as individual successes or defeats. The participants with the greatest proportion of successes are considered to be the most influential (Lukes, 2005, p. 17).

To introduce the two dimensional view of power, Lukes draws on the observation that power has two faces.[4] While power is obviously exercised by individuals participating in the making of decisions that affect others, it is also exercised when persons or groups limit the scope of issues to be considered, allowing room only for those matters that are not detrimental to their set of preferences. The one dimensional view of power, then, is concerned with 'decision-making' as a choice among alternative modes of action. The two dimensional view is also concerned with 'non-decision making' as an influence "that results in suppression or thwarting of a latent or manifest challenge to the values or interests of the decision maker" (Bachrach and Baratz, 1970, p. 44). Lukes points out that both views place undue emphasis on observable conflict, be it overt or covert, and both are individualistic in essence. For instance, while the discussion of the two dimensional view of power brings in the idea of the "mobilization of bias"—the operation of sets

[4] See (Bachrach and Baratz, 1970).

of "values, beliefs, rituals, and institutional procedures" (Lukes, 2005, pp. 20-21) which consistently benefit some in the expense of others—it falls short by not acknowledging that such bias is not sustained simply by a series of actions, but also by "the socially structured and culturally patterned behaviour of groups, and practices of institutions, which may indeed be manifested by individuals' inaction" (ibid., p. 26).

Cognizant of the existence of 'unobservable conflict', Lukes argues that it is the hidden face of power in its three dimensional representation that needs to be exposed. Conflict which acts as fuel for the exercise of power in its one and two dimensional sense is transformed into "willing compliance" to domination in the three dimensional view of power.[5] Power operates unseen by securing willing compliance. Certain Marxist philosophers seek to provide an explanation of this phenomenon by elaborating on the theme of 'false consciousnesses'. Gramsci's elaboration underscores the consciousness developed by the subordinated social groups who borrow and internalize their conception of the world from the ideology of dominant groups. Internalization is manifested either in the form of belief in the values such a conception enshrines or in the inability to conceive of alternatives to the prevalent social norms.

A critique of Lukes' radical view of power would have to address certain fundamental questions, for example, how he can reconcile two potentially contradictory conceptions of human beings: as autonomous rational agents exercising power in its first two dimensions and as malleable creatures of social conditions dominated by power in its third dimension (Hindess, 1996, p. 73). However it is not my intention to carry out a comprehensive analysis of Lukes' or any other theory of power for that matter. What is relevant to this inquiry is that while Lukes' three dimensional representation of power does not exhaust the concept, it does offer insights into the views of power implicit in certain educational approaches. There are clear connections, for example, between power in its one and two dimensional sense and some of the objectives of citizenship education. In a liberal democracy, one may assign to citizenship education the task of

[5] Lukes has modified his original view by stating that power is a "capacity and not the exercise of that capacity (it may never be, and never need to be, exercised); and you can be powerful by satisfying and advancing others' interests". Further, he has pointed out that the topic of his radical view of power: "power as domination" is only concerned with "one species of power", and that it is inadequate to confine "the discussion to binary relations between actors assumed to have unitary interests, failing to consider the ways in which everyone's interests are multiple, conflicting and of different kinds" (Lukes, 2005, pp. 12-3).

enabling students to participate actively in the cultural, social and political domains. The focus can vary depending on the views of the dominant social or political group at the time, which may attach supremacy to the market and the operation of individual choice or emphasize social welfare and social obligation. But no matter what the dominant view, there are common values inherent to liberal democracies that the citizen must learn to cherish. All parties would agree, to cite an example, that in order to resolve conflicts and achieve some degree of consensus in a pluralistic society, "appreciation of the paramount importance of democratic decision making" (Buckley and Erricker, 2004, p. 174) has to be cultivated. Citizenship education, of course, does not confine itself to the teaching of democracy; it incorporates "knowledge, attitudes, moral codes, and values, thereby placing spiritual and moral education explicitly within its scope" (ibid.). Yet, irrespective of other moral attributes, the citizen of a liberal democracy is to uphold democratic values; she should be politically empowered to participate in the processes of decision making, to identify those policies and practices that are biased towards certain groups and to bring these biases to the attention of the public. The parameters of this type of empowerment, one can argue, are defined to a great measure by the predominant value placed on 'free and fair competition', and the kind of power with which the citizen is to be invested belongs mostly to one, and occasionally two dimensional realms.

The most notable educational approach which deals with the representation of power in its third dimension is Paulo Freire's. Given that according to this view both the observable and unobservable conflicts are to be considered, any attempt at empowerment would necessarily involve the cultivation of critical consciousness. Freire analyzes in a most insightful manner how the oppressed can defeat the false consciousness they have adopted. Human beings begin in a state of "semi-intransitive" consciousness, solely centered on "survival" on a biological level, lacking "a sense of life on a more historical plane" (Freire, 2000, p. 17). They enter a "transitive" state, as they "amplify their power to perceive and respond to suggestions and questions arising in their context," and as they "increase their capacity to enter into dialogue not only with other men but with their world" (ibid.). However, this is only a "naïve transitive" state in which consciousness of people is still "part of a mass", within which "developing capacity for dialogue is still fragile and capable of distortion" (ibid., p. 18). This state of consciousness is characterized by "an over-simplification of problems; by a nostalgia for the past; by underestimation of the

common man; by a strong tendency to gregariousness; by a lack of interest in investigation, accompanied by an accentuated taste for fanciful explanation; by fragility of argument; by a strongly emotional style; by the practice of polemics rather than dialogue; by magical explanations" (ibid.). Consciousness must progress from a naïve to a "critical transitive" state if it is not to be distorted. The critically transitive consciousness is characterized thus:

> ...by depth in the interpretation of problems; by the substitutions of causal principles for magical explanations; by the testing of one's 'findings' and by openness to revision; by the attempt to avoid distortion when perceiving problems and preconceived notions when analyzing them; by refusing to transfer responsibility; by rejecting passive positions; by soundness of argumentation; by the practice of dialogue rather than polemics; by the receptivity to the new for reasons beyond mere novelty and by the good sense not to reject the old just because it is old—by accepting what is valid in both old and new. (ibid.)

Only when the oppressed have reached a state of critical transitive consciousness will they have the power to act on society. Freire criticizes the type of education he calls 'banking education' as one in which the act of teaching and the relationship between the teacher and the students, perpetuate an intransitive or naïve transitive state of consciousness and helps reinforce the domination exercised by the oppressor. Banking education assumes a dichotomy between human beings and the world: "A person is merely in the world, not *with* the world or with others; the individual is spectator, not re-creator" (Freire, 1998, p. 56); he possesses an empty "mind" passively open to "the reception of deposits of reality from the world outside" (ibid.). For education to liberate, it should become problem posing, allowing students to become "critical co-investigators in dialogue with the teacher" (ibid., p. 62). The problem posing method recognizes a movement in which the "point of departure" constitutes "the situation within which they (men and women) are submerged, from which they emerge, and in which they intervene" (p. 66). For this movement to occur people must not perceive their state as fated and unalterable; instead they need to view their situation as "an historical reality susceptible to transformation" (ibid.). The movement is necessarily one of inquiry. "Any situation in which some individuals prevent others from engaging in the process of inquiry is one of violence" (ibid.). Freire therefore describes this movement of inquiry as one "directed towards humanization—the people's historical vocation" (ibid.). In chapter 8, I will argue that adherence to the dichotomy between banking education and problem posing becomes an obstacle when programmes concerned with moral empowerment look for criteria that would determine pedagogical choices.

Search for an Expanded Concept of Power

With the above two examples in mind, I now need to ask if it is possible to elaborate a conception of moral empowerment that can enter domains not covered by citizenship education and education as conscientization. Clearly, the intention is not to ignore the elements of these and other approaches to empowerment. A programme wishing to foster the twofold purpose at the heart of moral empowerment would also try, for example, to cultivate an appreciation of the paramount importance of consultative decision making and to assist in the movement from a state of semi-transitive consciousness into a critically transitive one. The question is the extent to which the kind of educational process being sought here would need to explore other dimensions of power which could in turn modify the view of power in the three dimensions proposed by Lukes.

It is important to mention that the notion of domination seems to have taken centre stage in most analysis of power in accordance with the assumption that other representations have less theoretical value. Lukes has expressed the view that "revisionary persuasive redefinitions" of power are not aligned with the "central meanings of 'power' as traditionally understood and with the concerns that have always centrally preoccupied students of power" (Lukes, 2005, p. 34). As a result, they end up "concealing from view the (central) aspects of power which they define out of existence" (ibid., p. 34). What are these central meanings of power, one may ask, as traditionally understood? To what extent does Hobbes' legacy continue to exert influence on today's discourse on power? There is no question that "riches joined with liberality", "friends" and "what quality soever maketh a man beloved or feared of many, or the reputation of such quality" (Hobbes, 2011, p. 94) can and have been used as means of yielding a certain kind of power. But how can one justify incessant pursuit of power as the defining factor of the human condition based on such observations no matter how many times and under how many differing circumstances they have been made?

It may be that Hobbes can be sidestepped as an extreme. But the same pattern of thinking can be seen in others who in one way or another attempt to understand human relations in purely materialistic terms. Foucault's declaration that by power he does not mean "mechanisms that ensure the subservience of the citizens of a given state", "the mode of subjugation which [...]

has the form of the rule" or a "general system of domination exerted by one group over another" (Foucault, 1976, p. 92) promises a possible break from the notion of power so closely associated with domination. But as one examines carefully what he claims to be methodological precautions—rules that would help us "eschew the model of the Leviathan" and shift our study of power from the "limited field of judicial sovereignty and State institutions" to the "techniques and tactics of domination" (Foucault, 1972-1977, p. 102)—one begins to see a familiar vision of human existence. Power is omnipresent because it is "produced from one moment to the next, at every point, or rather in every relation from one point to another." Relations of power are not to be seen in "a position of exteriority with respect to other types of relationships..., but are immanent in the latter" (Foucault, 1976, p. 93). Foucault's disagreement with Hobbes does not seem to be on the nature of power and its omnipresence, but the points at which it should be studied—not in its "central location," but at "its extremities, in its ultimate destinations": points "where it becomes capillary" (Foucault, 1972-1977, p. 96). I must admit that a different reading of Foucault may be possible, but while my limited reading of his work clearly indicates the brilliance with which he analyzes power relations, it does not offer me the kind of insight I seek in order to explore an expanded notion of power, one that frees it from its close ties to domination.

What I claim in this brief discussion is that assigning domination such a central role in the discourse on power—with its corollary that conflict is vital to its exercise—is limiting the philosophical investigation of the concept to perceptions and habits that belong to the stage of humanity's childhood. According to Barry Hindess, Western political thought has mostly dealt with two conceptions of power. In the first, power is a simple quantitative phenomenon, nothing more than "a generalized capacity to act". In the second, more complex conception, the right to act also receives attention, "both capacity and right being seen to rest on the consent of those over whom power is exercised" (Hindess, 1996, p. 1). It is true that a government, for example, may 'exercise' power 'over' its people with or without their consent. But it seems legitimate to ask, in the context of a search for an expanded concept of power, why 'being exercised over', although a historical fact, should continue to define in its totality the nature of power. I assume this is the kind of question that led FUNDAEC to look for something more than political

empowerment in the first place. The following statement, although charged with emotion, is indicative of the organization's anxiety over the issue of power:

> That change and transformation entail the operation of power is an undeniable fact. That numerous issues in the field of development have a significant political dimension is also irrefutable. But the premise that political and economic power—interpreted as advantage enjoyed by persons or groups or as an attribute of individuals, factions, peoples, classes and nations used to acquire, to surpass, to dominate, to resist and to win—is the agent that will bring prosperity to the entire human race is untenable. In spite of all claims to the contrary, there is no convincing historical evidence for this supposition...
>
> The rapid expansion of western civilization takes to every corner of the world both the blessings and the curses of the Enlightenment. The blessings include the systematic removal of the veils of superstition. But, unfortunately, this is accompanied by a coarseness of mind that tends to dismiss the ideal and to call real that which is ugly and base. The result, after a few centuries of insistence, is widespread forgetfulness of those many powers of the human spirit that are in fact responsible for some of the greatest accomplishments of humanity's past. Among these are the power of unity, of humble service, of noble deeds, of love, and the power of truth. But even to mention the word 'truth' in respectable discourse has become unacceptable; truth has been dethroned and reduced to something that is negotiable or a mere expression of dominance. The loudest message broadcast by the media all over the world for an entire generation to hear is 'He who is successful is right'. (Arbab, 2000, pp. 162-3)

While the assertions made in these paragraphs clearly require philosophical scrutiny, the passage does suggest a dimension of power absent in Lukes' analysis which needs to be examined in relation to moral empowerment. To begin, it questions a widespread assumption in the field of development that a conception of power that merely values political and economic advantages for which individuals and groups have to compete will ultimately lead to an acceptable degree of prosperity for the majority of the human race. To what extent, I too would ask, did the herculean effort to give to the disempowered masses of humanity access to such power help them free themselves from the yokes of oppression? But the more interesting implications of the passage for my inquiry lie in the introduction of what it calls the powers of the human spirit. The question before me is whether an educational endeavour that seeks to help the students to become effective channels, for example, for the "power of unity, of humble service, of noble deeds, of love," can engender a process that indeed goes beyond political empowerment. Are these not powers at work in the harmonious interaction of individuals, communities and institutions when they do not wish to focus on the conflict of interest that may or may not exist

but are willing to find new channels for the expression of collective aspiration to advance civilization? Will not these powers over time transform the very decision making process from unending cycles of dominance of one individual or group over another into genuine consultation: collective investigation of reality? And will not a movement in this direction require detachment from one's own point of view, one's particular perspective and one's preferences, if the group is to reach maturity of understanding through consultation?

Bahá'í-inspired educational efforts can gain certain insights in their quest for a conception of power more suitable to the age of maturity of the human race in the rich metaphors of their Faith's spiritual teachings, and in fact of many religious traditions: A pure, kindly and radiant heart is likened to a sovereignty ancient, imperishable and everlasting; humility is said to exalt the human being to the heaven of glory and power; a thought of peace is regarded as more powerful than a thought of war; idle disputation to advance oneself over one's brother is seen as unworthy of a human being. Apart from reflections on such spiritual teachings, insights need to be gained from philosophical approaches in which the subject of power is studied in new ways. One such approach involves the analysis of the positive and non-exhaustive nature of power. When viewed as a substance possessed by one or more people, in line with prominent discourses, power is a measurable and circumscribed unit that is distributed. If A gets filled with so much power, B will be emptied of a corresponding amount of it. Even in the case of Lukes' radical three dimensional conception, a process of political emancipation, when successful, takes power away from the oppressors and redistributes it among the oppressed.

There are, however, dimensions to power which draw on resources that are limitless; increasing power in this perspective enhances reciprocity and interconnectedness. When these dimensions are recognized, empowerment can become a process that calls for the development of one's capacity to accompany others and to release their powers and capacities. It advances as power is built, developed and increased "through cooperation, sharing responsibility and working together" (Bellous and Pearson, 1995, p. 54). To describe empowerment in this way is to acknowledge the possibility of power as a concept that is difficult to pin down, one which covers the release or actualization of a wide range of potentialities in the individual and the collective. That it is fuzzy and therefore not possible to capture in measurable terms, in the way power as domination is, is

to its advantage. Hannah Arendt reminds us that power is always "a power potential and not an unchangeable, measurable, and reliable entity like force and strength" (Arendt, 1958, p. 200). It is actualized when people are together "in the manner of speech and action" and when in their being with one another they have reached a state in which "word and deed have not parted company"; "words are not empty and deeds not brutal"; and "words are not used to veil intentions but to disclose realities, and deeds are not used to violate and destroy but to establish relations and create new realities" (ibid.). Power in the sense that Arendt describes is "boundless" and intimately connected to action. It is the condition of plurality that ties power to action: "power corresponds to the human ability not just to act but to act in concert. Power is never the property of an individual; it belongs to a group and remains in existence only so long as the group keeps together" (Arendt, 1970, p. 44). It is this power which is the antithesis of violence. As Arendt writes: " the will to power, as the modern age from Hobbes to Nietzsche understood it in glorification or denunciation, far from being a characteristic of the strong, is, like envy and greed, among the vices of the weak" (Arendt, 1958, p. 203).

Knowledge and Virtue

The conception of empowerment emerging from the above exploration, associated intimately with a vision of the evolution of those essential relationships that define individual and collective existence, although not fully developed, allows me to begin the next task of my inquiry: the identification of the main concepts that would constitute some of the elements of the framework for an educational process that identifies itself with moral empowerment. The premise that humanity is approaching its stage of maturity holds within it claims about the evolution of the collective powers of the species; the conviction that such powers are increasingly manifesting themselves is at the heart of the optimism with which the possibility of something beyond political empowerment has been discussed in the previous section. It is common to refer to the explosion of knowledge as a characteristic of our times, but the sheer quantity of knowledge available to humanity can be taken as a sign of the more profound transformation anticipated here. Particularly, the collective capacity to manifest such powers as consciousness, thought, comprehension, insight, memory and vision—as well as other powers of the human spirit like the power of unity, of humble service, of noble deeds and of love mentioned earlier—must increase enormously. If the metaphor of the human body is to express the desired relationship between the

individual and the collective in a society that reflects the principle of the oneness of humankind, these powers have to manifest themselves in greater and greater measures in both the individual and the species as a whole. Educational processes must emerge, then, that enable a vast number of people to develop intellectual and spiritual powers, already present in potential, to a degree only achieved by exceptional individuals in past generations.

One of the most valuable contributions FUNDAEC has made to Bahá'í-inspired discourse on education is its analysis of widespread oppression in terms of worldwide structures and processes that in the end deny the majority of humanity access to knowledge. Based on this perception, it has proposed that moral empowerment needs to occur in the context of participation in the generation, application and diffusion of knowledge—driven by the twofold purpose of pursuing personal growth and contributing to the transformation of society—and not in the struggle for power *per se*. For such participation to lead to moral empowerment, however, the intellectual excellence associated with the acquisition of knowledge should be freed from the chains of 'self-centeredness'. Knowledge needs to be acquired in light of a profound understanding of social reality not as an outsider, but as one intimately involved in its ongoing transformation. In this sense, 'nurturing understanding'—the way reality is understood, described and acted upon, becomes one of the key concepts of the philosophical framework being sought here. But divorced from certain inner spiritual conditions, knowledge can be used to perpetuate oppression. Therefore, 'fostering spiritual qualities', deemed inseparable from 'nurturing understanding', is another concern of the educational process under consideration.

In exploring the question of knowledge in the context of moral empowerment, it soon becomes necessary to look at the way the framework for the desired educational process would establish the necessary connections among its own normative and cognitive elements. When religious conviction is present, to act in a certain way in a given situation would not be simply desirable because it would increase total happiness, or because it follows the Kantian maxim, although it may fulfil such conditions, but also because it is consistent with a pattern of conduct understood to be prescribed in the scriptures. Yet a rationality that places undue emphasis on a given interpretation of a set of religious teachings is too narrow, and the educational process based on it would suffer from a suffocating rigidity that can only lead to rebellion. Exclusive dependence

on the reading of the 'text', which admittedly must have a place in a system of thought inspired by religion, would distort experience, and the role of science—both its methods and its content—in the educational process would at best become blurred. Given the centrality of the principle of harmony between science and religion in the Bahá'í teachings, such an approach, always in danger of a fundamentalism arising from literal interpretations at war with each other, would be untenable. On the other hand, an approach that considers the insights of religion irrelevant is equally unacceptable. To resolve the dilemma, I examine in chapter 5 the notion of complementarity as advanced by FUNDAEC. The contrast between this notion of complementarity and certain prevalent views of the relationship between science and religion should be noted here.

According to one perspective, whatever truth is expounded by religion about spiritual phenomena will someday be explained by science. Religion in this case is an institution of the childhood of humanity that will finally be made irrelevant by scientific explanation. An opposing view may hold that religion is the outcome of God's Revelation, and that—as God knows everything—scientific truth is ultimately attainable by penetrating the mysteries of religious text. From yet another perspective, science and religion are so distinct that there is no possibility of significant conflict between them. Science studies the material universe. It drives technology which can be employed for the good of humanity or to its detriment. Science in itself does not have the ability to point the way. Religion, on the other hand, is concerned with the spiritual dimension of human existence. Its task is to throw light on the inner life and to engender a code of ethics that can appropriately guide human behaviour. So long as each remains within the sphere of its own genius, they can coexist in harmony. This "view of the harmony between science and religion is valid, but only at the level of application. Ultimately, in this approach, science and religion are separated and allowed to pursue their own ways, and what assumes importance is the interaction between technology and morality" (Arbab, 2000, p. 186). Arguing for complementarity between science and religion as two systems of knowledge and practice with some overlap addresses at a more profound level the harmony between the two. Complementarity also implies that an educational process concerned with moral empowerment has the freedom to look to both sources in order to engender understanding of various dimensions of reality and to cultivate appropriate virtues in the students.

A question that arises naturally once issues related to sources of knowledge are to some degree analyzed is how, in nurturing understanding and fostering spiritual qualities, one brings the objects of understanding from various sources together to create the proper teaching-learning experience that would empower students to pursue their own development and contribute to the advancement of society. I borrow FUNDAEC's concept of 'integration' in the context of which I explore the relevant elements of the philosophical framework being sought here. A major challenge of integration is to move away from a vision of knowledge that largely considers it as a sum of contents and methods of fields and disciplines separated by rigid boundaries—a vision that contributes to the fragmentation of life in a society organized around these separate pieces—without trivializing the content of education. Using social practices as the axis around which educational processes can be organized is a tantalizing prospect. However, Michael Young points out that the trend in curriculum studies focused solely on social practices has led to the marginalization of knowledge, as it does not provide a basis upon which a distinction between curriculum knowledge and everyday knowledge could be made. He identifies two other co-culprits: first, the work begun in the 1970s in the sociology of educational knowledge, to which he himself contributed, sidelining the role of knowledge by conceptualizing subject-based curriculum in terms of social interests that define its content and second, postmodernism with its critique of school curriculum, claiming that it leaves no space for any voice except those of the professional and the academic elite. All three developments, he mentions "collude, albeit unintentionally, with the marketization that now drives educational policy" (Young, 2008a, p. 82). He adds that "in denying a distinctive role for knowledge that transcends specific social practices, interests and contexts, these approaches remove the grounds for a critical relationship between theory and curriculum policy and practice" (ibid.).

Integration as discussed in chapter 6 is concerned with more than issues related to the disciplines of knowledge and social practices. In its attempt to deal with the various dimensions of the challenge of integrating the content and methods of a morally empowering educational experience, FUNDAEC introduced the notion of 'capability'. It used the word in a very specific way, as "developed capacity to think and act in a particular sphere of activity and according to an explicit purpose." Capability refers to "complex spheres of thought and action each requiring a number of related skills and abilities," but its acquisition, in addition to the mastering of skills, is

dependent on the assimilation of "relevant information", advancement in the "understanding of the relevant concepts" and the development of "certain attitudes, habits and spiritual qualities" (FUNDAEC, 2008, p. 47). Others, of course, have used the concept, notably Sen and Nussbaum. At a first glance, this seems to be a coincidence, two unrelated uses of a word in different contexts. But, as I argue in chapter 7, there are common underlying conceptions as well as differences in philosophical frameworks the examination of which sheds further light on the question of moral empowerment.

FUNDAEC's own account of the concept of capability limits it to the area of curricular design. In fact, it speaks of it mostly in relation to the analysis of the content of the programmes it has been developing over a few decades corresponding to secondary education. FUNDAEC's particular focus on the ages between 12 and 18 reveals by itself an interesting view of empowerment. In a world where adult literacy/conscientization on the one hand and universalization of primary education on the other occupied centre stage, the founders of FUNDAEC, after an initial attempt to create an accelerated programme to train generalists in integrated rural development, came to identify youth in their teens as the most promising group whose education could spearhead the social and economic development of the communities in which they were working. This would not, of course, diminish the importance of primary education, but their experience convinced them that all was not lost, as was often said, when children did not go to a 'good primary school'; they encountered numerous youth who, while lacking certain skills typically developed in childhood, possessed the intellectual ability and the spiritual resilience to make up for lost time and advance rapidly in the process that was later to be called moral empowerment. Further, they rejected the prevalent notion that vocational education was the most reasonable answer to the needs of the youth from the so called 'disadvantaged' populations; they reacted with indignation to what they perceived as 'learning to think' for the children of the rich and 'learning to carry out orders' for the children of the poor. They were concerned with the capacity of a given population to apply and generate knowledge as it walked its own path of development and were searching for an educational programme that would equip the youth of the community to participate effectively in such a process and, ultimately, to lead it. Capability has proven to be a sufficiently robust concept to give shape to such a programme. Although capabilities are to be developed in individuals, a major criterion for their selection is their relevance to capacity

building in the community. Not necessarily apparent in the case of every capability, sets of interrelated capabilities are concerned with the essential relationships briefly discussed in the beginning of this chapter, and as such with the transformation of the environment and its structure.

CHAPTER 2: THE SUBJECT OF UNDERSTANDING

The main purpose of this chapter is to look for parameters that would enable an educational endeavour seeking moral empowerment to identify the characteristics of the *subject* of the verb 'to understand'. To begin, I locate the hazard of superficiality in education in the failure to nurture understanding and argue that to do so properly, one must take into account the interconnectedness of the subject, the object and the process of understanding and search for approaches that pay them equal attention. I then examine some features of the 'subject of understanding' implied by computationalism and culturalism as analyzed by Bruner, by the emotivist culture as described by MacIntyre and by subjectivism as suggested, for example, by Kierkegaard. None of the contenders measures up fully to the protagonist of moral empowerment envisioned in this thesis. But each offers a partial view, out of which emerges a sketchy but suggestive picture of who she or he may be.

Understanding

Nurturing understanding is a way to combat the superficiality to which the practice of education has proven itself vulnerable over the decades. The desire to remedy superficiality, of course, has driven the work of a number of educators who have begun their inquiry with the criticism of educational processes that fill the students' minds with facts and pay little attention to the development of their powers. But the remedy does not prove potent enough when the alternatives proposed focus mostly on the transformation and manipulation of information. The blurring of the distinction between assimilation of information and understanding of concepts, on the one hand, and the more or less equal treatment given to profound concepts and trivial ones, on the other, introduce their own brand of superficiality.[6]

The problem becomes exacerbated when understanding is confused with mastering learning techniques. These techniques are often taught with trivial examples, comprehensible through

[6] Bits of information are finite things that are necessary to impart in an educational process. Being finite, they should be assimilated fully in a finite number of steps. Concepts, on the other hand, although not necessarily infinite in meaning and implications, often have to be understood progressively. According to FUNDAEC, "one must ask the question whether, for a given object of understanding, the dimensions [to be grasped] are finite or infinite. Are there certain concepts, for example, that we can understand and be done with? Do all objects of understanding call for the same depth of understanding? Does it make sense, for example, to design an activity the objective of which is for the student to understand precisely and completely a given object of understanding? These are not trivial questions and some kind of answer to them is necessary if we are to design educational activities the purpose of which is to enhance understanding" (FUNDAEC, 2005, p. 28).

straightforward explanations, assuming that their application is the key to the understanding of complex concepts.[7] But even when attempts are made to avoid such superficiality, deeper problems remain unresolved if understanding itself is reduced to mere achievement, and its infinite dimension as a process in which one advances is ignored. In this context, issues related to the powers of the human spirit and the interconnection between understanding and the development of certain dispositions take on particular significance.

Understanding seems to be a notion that defies all manner of definition. It is not synonymous with how the human mind sorts out and processes information; it is not merely a culminating point, at which one arrives upon learning certain facts; it is not simply the conclusion reached after following one or another procedure according to certain rules of logic; and it is not reducible to judgments by way of sound reasoning based on the beliefs one holds.

FUNDAEC begins its exploration of the theme with the innocent statement that "the verb *to understand* assumes a subject and an object" (FUNDAEC, 2005, p. 11). The verb also implies a process through which one advances in understanding substantive concepts, as well as significant moments of insight and the grasp of specific facts and meanings. The process is often likened to moving forward along a path which, though marked by certain milestones corresponding to levels of comprehension of vital aspects of reality, has by no means a predetermined end. With this idea in mind, I suggest that too much emphasis on any one of these three elements—the subject, the object and the process of understanding—at the expense of the others gives rise to problems in education and, in fact, it has done so in some prevalent educational theories. Consequently, it seems imperative that in order to meet the challenge of nurturing understanding educational programmes need to concern themselves with all three explicitly—to ensure that they contribute to the development of the intellectual and spiritual powers of the student, are rich in content both conceptual and informational, and pay attention to the process of understanding itself. That in the case of the programmes developed by FUNDAEC understanding concepts, acquiring spiritual qualities, attitudes and habits, building skills and assimilating information are addressed together in the context of the development of capabilities—as discussed briefly in the

[7] See, for instance, how teachers are advised to teach students concepts in general through an approach called 'concept attainment' using the concept of fruit. (Woolfolk, 2010)

last chapter and in more detail in chapters 7 and 8—is partially a response to the desire to treat understanding in this fuller sense. This way of looking at the challenge of nurturing understanding in education, it seems to me, is a promising one.

Understanding differs from physical action, say, planting a tree and mental occupation in thinking. It is also distinct from mental activity involved in processes such as gathering and sorting information. All these contribute to understanding, especially when carried out purposefully, but they do not make up the process in its entirety. Further, what is required to advance in understanding is not independent of the object of understanding. It makes little sense to say, "I understand" without any reference to what it is that I am understanding. Attempts to reduce the process of understanding of every object to the application of a single approach—cognitive, cultural, empirical, constructivist and so on—is the cause of great difficulty in educational philosophy and the ensuing pedagogies. Moreover, it does not seem reasonable to conceptualize the process of understanding without any reference to the qualities of the subject of the verb 'to understand' or to view it as a mere activity in which she or he is engaged. Nor can the subject be sharply separated from the object of understanding at any given instance. Does not the understanding of a specific set of scientific concepts contribute to the development of certain qualities and attitudes, intellectual and even spiritual, and is not the presence of specific qualities essential to the understanding of a set of scientific concepts?

There has been a longstanding tension between two major positions in the field of education: one predominantly concerned with knowledge and information and another primarily focused on the individual learner. A number of pejorative terms such as 'rote learning' and 'banking education' have been used against pedagogies following the former. The accusations are unfair when we consider, for example, that much of the discourse on liberal education is centred on the subject matter. Implicit in any treatment of liberal education is that exposure to a rich body of knowledge is vital to the development and training of the mind. Richard S. Peters sheds light on what led to this sharp division between the learner and the content of education. The so-called 'child-centred' movement emerged as a reaction to traditional teaching approaches that fill up the brain with items, using coercive techniques, if necessary. The alternative models offered by progressive trends focus on the *manner* rather than on the *matter* of education. Peters argues that

although, on moral grounds, it is only correct that students be accorded respect and their liberty be preserved, the manner in which these principles are upheld cannot serve as a substitute for the content, namely the forms of knowledge which nurture a full range of understanding in pupils. In other words, there is no foundation to the assumption that an emphasis on worthwhile content would have to be accompanied by a "rigid" and "unreflective" method of education. On the contrary, Peters claims that "all the talk about growth, self realization, and the development of the individual potentiality" (Peters, 1966, pp. 35-6), has glossed over what is worthwhile and in the interest of the child to learn.

The 'behavioural objectives model' represents another approach that focuses on content, now in the form of rigid objectives, this in spite of its apparent concern with 'demonstrable changes' in the pupil. In an attempt, as Joseph Dunne has put it, to rescue "teaching from woolly-mindedness and muddle and of constituting it as a truly rational practice" (Dunne, 1992, pp. 4-5), the content of education ends up being organized according to measurable objectives in taxonomies of cognitive and affective domains. The cognitive movement is a clear attempt to get away from the cold mechanical stance towards the learner springing from the stimulus-response of behavioural models of learning. It ousts the outer stimulus as the central factor in learning and assumes that by examining the processes of sorting and encoding information within the brain, the individual can be brought back into the picture in the most worthy manner. However, the 'advance' in learning theory achieved by shifting the focus to the individual learner continues to suffer from mechanistic presuppositions.

This brief reference to the ongoing debate on content-centred and learner-centred views of education illustrates the need for systematic exploration of the complex connections that bind the subject, the object and the process of understanding. To admit in abstract that relationships essentially exist, of course, is not significant by itself. To ensure that they are taken fully into account in an educational process that seeks to nurture understanding is a formidable challenge. As a first step in my attempt to examine the nature of this challenge, I identify some of the characteristics of the subject of understanding suggested by the way the process of understanding is progressively viewed in a particular development of educational thought beginning with the so-called cognitive revolution.

Computational and Cultural Dimensions of Cognition

Jerome Bruner's prolific work in educational psychology, beginning with contributions that gave rise to the cognitive revolution, is a rich source of insight into certain facets of the process of understanding and its subject. In his celebrated work *Culture of Education*, he describes fundamental views that altered "conceptions about the nature of the human mind in the decades since the cognitive revolution" (Bruner, 1999, p. 1). In this context, he considers two major conceptions, the 'computational' view and what he calls 'culturalism'. The computational view is concerned with "information processing: how finite, coded, unambiguous information about the world is inscribed, sorted, stored, collated, retrieved, and generally managed by a computational device. It takes information as its given, as something already settled in relation to some pre-existing, rule-bound code that maps onto states of the world" (ibid., pp. 1-2). The objective of computationalism is to "devise a formal re-description of any and all functioning systems that manage the flow of well-formed information" (p. 3). The human mind is one such system that must necessarily work according to the specific rules and procedures governing the processing of input. To be useful to education, a theory of mind must, of course, go beyond an explanation of how it works; it must "contain specifications of some kind about the 'resources' required for a mind to operate effectively" (p. 8), including mental tools as well as conditions required for effective operations. A computational approach to education, according to Bruner, does at least three things: It restates classical theories of teaching or learning in a computable form; it comes up with a description or protocol of what actually transpires in the process of problem solving or mastering a particular body of knowledge, and then restates it in "strict computational terms"; it takes students through a process of re-description of the output of a prior operation, to "turn around" on the results of a procedure that has worked locally and to re-describe it in more general, simplified terms. In applying this feature of all "adaptive" computational programmes, the learner "goes meta," considering how she thinks as well as what she is thinking about (pp. 8-11).

I have briefly mentioned these features of the computational approach to education in order to clarify that the explanation it seeks for the process of learning, and by implication for understanding, is a highly complex one. Yet, Bruner himself finds it impossible to accept that the rules common to all information systems could cover the "messy, ambiguous, and context-

sensitive process of meaning making" (p. 5). His alternative is culturalism, with the caveat that disagreements between the two have been exaggerated. Culturalism has no difficulty incorporating the insights offered by the computational approach; what it cannot do is to deny meaning making processes that do not meet the rules of computability.

Bruner's analysis of culturalism is rich. The proposal that is relevant here as I explore the characteristics of the 'subject of understanding' is that education, in initiating the young into the culture should "partake of the spirit of a forum, of negotiation, and of the recreating of meaning" (Bruner, 2006b, p. 82). Bruner reminds us that the pedagogy which views education as the process through which knowledge and values are transmitted by the more expertly knowledgeable ignores the social production of meaning. The transmission model presupposes that the young "are underprivileged not only epistemically but deontically as well—lacking in a sense of value propositions and a sense of the society" (ibid.). They are not only "underequipped with knowledge about the world," which needs to be imparted to them, but are also "'lacking' in values" (ibid., p. 83). The truth of such deficits, as expressed in religion or science of psychology, is not the issue. What is at stake is how such presuppositions shape educational practice. These characterizations of the child, "whether driven by Original Sin, by primary process, or by egocentricism" imply that there is something that should be "rooted out, replaced, or 'compensated'" (ibid.). The pedagogy would therefore view teaching as "surgery, suppression, replacement, deficit-filling, or some mix of them all" (ibid.). Through the emergence of 'learning theory' an additional method was introduced: reinforcement with reward and punishment as the instruments of "a new technology" for accomplishing these ends. Moreover, Bruner suggests that developmental theories which regard growth of the intelligence mainly from the inside out and the role of environment merely as one of providing nourishment appropriate to the stage of development are not up to the task of creating an enriched pedagogy. Thus, he concludes: "What we lack, in the main, is a reasoned theory of how the negotiation of meaning as socially arrived at is to be interpreted as a pedagogical axiom" (ibid.).

In his presentation of culturalism, Bruner recognizes that he has to go back and forth between questions having to do with the nature of the mind and the nature of culture; to look at the interaction between the "powers of individual minds and the means by which the culture aids or

thwarts their realization" (Bruner, 1999, p. 13). He, thus, puts forwards nine tenets that would guide a psycho-cultural approach to education. One of them, the "constructivism tenet", is particularly relevant to the present argument. Culturalism, Bruner contends, has a double task. On the macro side it looks at culture as a "system of values, rights, exchanges, obligations, opportunities, power" (ibid., p. 11). On the micro side, it concentrates on how the individuals "construct realities and meanings, at what cost, and with what expected outcomes" (ibid.). Culturalism is concerned with "inter-subjectivity" and should be counted among the "sciences of the subjective" (ibid., p. 12).

Bruner's culturalism adds new dimensions to computationalism's candidate for the subject of understanding who, after all, could not be more than a highly complex computer. Two of its accomplishments are of particular importance for my inquiry: it recognizes the significance of context in the process of understanding, and it acknowledges the collective dimension of understanding. In culturalism, Bruner moves away from an exclusive focus on the workings of the brain; the aim of education includes the creation and recreation of culture. Thus the learner is a participant in forum-like processes of meaning making in a constantly changing environment. Yet, it seems that the constructivist thread running through his account commits him to models of learning in which the learner is either transforming and manipulating information, processing and codifying the representations of the parts of environment with which she interacts, or is negotiating meaning in the everyday practices of life. This, one could argue, represents a tenuous relationship between the learner and reality. That such activity contributes to understanding is not denied; it is that total commitment to constructivism causes one to miss the richness of meaning that emerges from acknowledging, to use Bakhurst's words, "the social dimension of the mind without forsaking a sensible realism in which minded beings inhabit a world which is, to a large extent, not of their making" (Bakhurst, 2001, p. 195).

Bakhurst's criticism of radical constructivism is suggestive of the care one would have to exercise, were one to incorporate certain characteristics of the 'constructivist' in the vision of the subject of understanding in a process of moral empowerment. He warns us that "willingness to fictionalize the self" defeats the objective of bringing back meaning to the phenomenon of mind. Self is then "as much made by meaning as making it" (ibid., p. 188). If we insist that there is no

"aboriginal reality", we would have to conclude that "the world as we encounter it is a product of the organizing power of the mind, of the 'narrative construction of reality'" and "where everything 'real' is, in a sense, an artifact of our modes of interpretation and categorization" (ibid.)[8]. Bakhurst cautions us to be clear that the "mediational means" of "cultural tools" do not "somehow get between us and reality itself. Rather, their use serves to bring reality within our reach" (ibid., p. 195). "Just as the use of a hammer does not remove us from the object on which we are working," he clarifies, "so our concepts, models, theories and so on need not create a barrier beyond which we cannot see. We use them to disclose the world to us, not to obscure it" (ibid.).

Excessive Subjectivism

Another problem with seeing the process of understanding entirely from the point of view of constructivism is the relativism inherent in the knowledge being constructed. This is not to say that aspects of ethical and much of social reality are not constructed by the human mind according to the dynamics of a given culture. Nor is there any intention to deny that theory influences the way even physical reality is observed. It is that the subject of understanding as a constructivist is in constant danger of excessive subjectivism, particularly in relation to views of the moral universe. Bernard Williams' argument against moral relativism strengthens my reluctance to depend too much on Bruner's "sciences of the subjective" in identifying the characteristics of the subject of understanding, the protagonist of moral empowerment. According to Williams moral judgments do not simply describe the speaker's own attitude since the very possibility that the claims they make can be rejected by someone who utters a contrary moral judgment gives such claims substance stretching beyond the mere "autobiographical" account of tastes, feelings and preferences. Further, he suggests that moral outlooks could be right or wrong, in so far as they reflect beliefs and convictions about questions of import—for

[8] Bakhurst would probably agree with Ilyenkov's notion of the ideal for whom "real" does not simply refer to "everything man perceives as a thing outside his own consciousness" and "ideal" to "everything that is not conceived as such a thing" (Ilyenkov, 1977). Ilyenkov points to a much more complex relationship between consciousness, will and human activity. The man within which the ideal exists cannot be understood "as one individual with a brain, but as a real aggregate of real people collectively realizing their specifically human life activity" (ibid.). According to Bakhurst, "Ilyenkov developed a distinct solution to what he called 'the problem of the ideal'; that is, the problem of the place of the non-material in the natural world. The latter involves a resolute defence of the objectivity of ideal phenomena, which are said to exist as aspects of our spiritual culture, embodied in our environment ..." (Bakhurst, 1997, p. 34).

which a certain level of consensus within society should exist—and are not simply expressions of personal likes and dislikes. Even if reasons for holding one set of beliefs as opposed to another were no more than rationalizations for conformity or non-conformity with a particular group, and "our moral attitudes were rarely *determined* by reasons," he goes on to assert, "our model of moral attitudes and moral judgments must at least be complex enough to leave room for the rationalizations. It is only if the position to which a man is led by these forces satisfies some conditions of being the sort of position to which reasons are relevant that we can understand it as a moral position at all" (Williams, 1993, p. 18).

The subjectivist position has been keenly criticized by MacIntyre as well, his account of its modern embodiment in the "emotivist" self being particularly revealing. MacIntyre charts the emergence of emotivism —the doctrine that all evaluative judgments are nothing but the expressions of attitude or feeling—from the late seventeenth century to the present time. He attributes the interminable character of disagreements in the moral sphere to "conceptual incommensurability"—incommensurability pertaining to underlying premises and irresolvable by appeals to a rational set of arguments in support of one or another normative position. In this climate, "argument ceases and the invocation of one premise against another becomes a matter of pure assertion and counter-assertion" (MacIntyre, 1981, p. 8). This interminability in public argument corresponds to the arbitrariness found in the private domain. A "paradoxical air" surrounds the contemporary moral debate in the public sphere which, despite its inherent inability to arrive at consensus, aspires to express itself in a language that strives to appeal to some independent and impersonal standard of objectivity—so much pleasure for so many people, unconditional obligation of the rational being, or the intrinsic duty of someone holding one or another position. For MacIntyre, the notion of pluralism is imprecise as it equally applies to "an unharmonious mélange of ill-assorted fragments" and "an ordered dialogue of intersecting viewpoints" (ibid., p. 10). That "we simultaneously and inconsistently treat moral argument as an exercise of our rational powers and as mere expressive assertion" (ibid.) is symptomatic of "moral disorder".

MacIntyre locates the origins of the emotivist self in Kierkegaard's *Enten-Eller*. The book, despite the vivid descriptions it provides of the individuals embodying the aesthetic and the

ethical, submits in the final analysis to the primacy of subjective choice. It is not the choice between good and evil, but the choice whether or not to choose in terms of good and evil that is significant in the everyday arena of moral discourse and practice. This position has led to the interminability that characterizes so much of our current moral language "as the expression of a criterionless choice" between "incompatible and incommensurable moral premises and moral commitment" (ibid., p. 38). MacIntyre further attributes the rise of the emotivist self to the failure of the enlightenment project and the attempts of moral philosophers, particularly Kant and Hume, to find rational justification for morality outside a teleological framework.

Independent of our evaluation of the accuracy of his historical analysis, we see in MacIntyre's description of the emotivist tradition numerous features of the dominant culture of our time. We, too, see that a "unifying preoccupation" of our time, "is the condition of those who see in the social world nothing but the meeting place for the individual wills, each with its own set of attitudes and preferences and who understand that world solely as an arena for the achievement of their own satisfaction, who interpret reality as a series of opportunities for their enjoyment and for whom the last enemy is boredom" (ibid, p. 24). We have no choice, then, but to admit that the emotivist self exerts an enormous force in our social environment. MacIntyre argues that we ought to confront emotivism in order to overcome the challenge raised by the claim that "all moral, indeed all evaluative, argument is and always must be rationally interminable" (p. 11)[9]. In an emotivist culture, the sense of what constitutes candid and non-manipulative social relations is lost because personal preferences and impersonal evaluation are collapsed together. Sentences are used in debates and arguments to persuade others of the superiority of one's own preferences. In such an environment, the individual does not perceive the discrepancy between meaning and use of sentences. Meaning is no longer the property of concepts but a mere shadow that allows

[9] MacIntyre's argument against emotivism is centred on its theoretical underpinnings. Emotivism has been presented by its advocates as a theory about the meaning of sentences used to make moral judgments. MacIntyre rejects the theory on three counts: First, the theory claims to explain the meaning of a certain class of sentences whose function is to express feelings or attitudes. The two functions of the sentence "this is good"— one that is expressive of the speaker's attitude and another that is designed to influence the hearer's attitude—are however conflated. Moreover the characterization of the feelings and attitudes in question are left out completely. Second, as a theory of meaning of sentences, it does not see any distinction between expressions of personal preference and those of an evaluative nature and therefore it regards sentences that carry a force of reason beyond specific contexts and those that are context-bound as equivalent in meaning. Third, since the expression of feelings and attitude is not the function of the meaning of a sentence but of its use (MacIntyre cites Gilbert Ryle's example of the angry schoolmaster venting his feelings by shouting at the small boy who has just made an arithmetic mistake, '7x7=49!') the theory disregards the incongruity between the meaning and the use of sentences. "Meaning and use would be at odds in such a way that meaning would tend to conceal use" (MacIntyre, 1981, p.13).

the agent to use sentences, albeit unconsciously, to achieve his goals. He could claim he is appealing to independent criteria while all he is doing is expressing his feelings in a manipulative way. The emotivist self is a poor choice for the 'subject of understanding'. On the one hand, lacking the ability to distinguish between preferences and propositional knowledge, it cannot connect properly to an object of understanding, and on the other, its ways of understanding could not be trusted, for it is prone to be influenced, albeit unconsciously, by manipulative means in social relations and to perpetuate them.

MacIntyre's analysis of the emotivist culture and the type of individual that thrives in it is incisive. Having rejected such an individual as a candidate for the subject of understanding, I need to explore the extent to which the characteristics of the 'self' defined by communitarianism would enter the vision of the protagonist of moral empowerment. The relationship between the individual and the collective is a vast subject in itself; it was touched on in the previous chapter and will be examined to a limited extent in the last. It may be necessary to mention here, however, that the contrast between the communitarian view of self and the liberal outlook with which the emotivist self finds some affinity is not as sharp as it seems at first. According to Will Kymlicka, this contrast proves to be ambiguous once the relevant arguments receive closer scrutiny (Kymlicka, 2002). The distinction made between the "unencumbered" liberal self which is prior to any end, project or social commitment, no matter how immersed it may be in them, and the "embedded-self" of the communitarian "constituted by its ends" represents a false dichotomy. Michael Sandel as a communitarian, for example, admits that the boundaries imposed by ends that constitute the self are flexible; they can be redrawn, incorporating new ends and excluding others. He states that "a certain faculty of reflection" and "a certain capacity for self knowledge" are necessary if the subject is to be "empowered to participate in the constitution of its identity" (Sandel, 1998, p. 152). We, therefore, need to regard "the bounds of the self as open" and "the identity of the subject as the product rather than the premise of its agency" (ibid.). On the other hand, the liberal, in response to the critics of the concept of unencumbered self, argues that what is essential is not that we perceive in abstract "a self prior to its ends", but that "we understand ourselves to be prior to our ends in the sense that no end or goal is exempt from possible re-examination." Thus as Kymlicka puts it the differences between the two positions "hide a more fundamental identity; both accept that the person is prior to her

ends. They disagree over where, within the person to draw the boundaries of the self..." (Kymlicka, 2002, p. 227)[10].

Once it is accepted that the self prior to its ends can be understood "in the sense that no end or goal is exempt from possible re-examination" (ibid., p. 225), our view of subjectivism may be modified allowing us to look for certain characteristics of the subject of understanding even in Kierkegaard's account, which MacIntyre considers to be a major source of emotivism. Kierkegaard himself expressed his concern "that in our age, because of the great increase of knowledge, we had forgotten what it means to exist, and what inwardness signifies..." (Kierkegaard, 1941, p. 223). Kierkegaard did not deny an objective reality; in fact, he considered extreme subjectivism as madness: "In a merely subjective determination of the truth, madness and truth become in the last analysis indistinguishable " (ibid.). As Patrick Gardiner points out, Kierkegaard denounced what he considered to be a propensity of his age to "identify with amorphous abstract entities like 'humanity' or the 'public' allowing people to absolve themselves from individual responsibility for what they thought and said" (Gardiner, 1988).

Alarming as the spread of the emotivist culture may be in our times, we must also admit that the propensity to shirk responsibility for one's words and deeds also persists. Kierkegaard's gloomy prediction for the future of education seems to have been fulfilled at least partially: "In fact there are handbooks for everything, and very soon education, all the world over, will consist in learning a greater or lesser number of comments by heart, and people will excel according to their capacity for singling out the various facts like a printer singling out the letters, but completely ignorant of the meaning of anything" (Kierkegaard, 1962, pp. 88-9).

Interestingly, Kierkegaard's view on how *knowing*—of a certain kind—leads to a lost and deserted status of *being* echoes the tension mentioned earlier in this chapter that persists between educational approaches that emphasize content and those that focus on the individual learner.

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[10] Kymlicka questions the consistency of the view that goals and social roles are constitutive of who we are and 'a given' in the sense that we can discover and reinterpret their meanings, but not examine their value. "Perhaps communitarians do not mean to deny that; perhaps their idea of our embeddedness is not incompatible with our rejecting the attachments we find ourselves in. But then the advertised contrast with the liberal view is a deception, for the sense in which communitarians view us as embedded in communal roles incorporates the sense in which liberals view us as independent of them, and the sense in which communitarians view practical reasoning as a process of 'self discovery' incorporates the sense in which the liberals view it as process of judgment and choice" (p.228).

The assertion of a dichotomy between a subjective agent and an objective world does not allow for the type of relationship between the two that must flourish if education is to engender understanding. The 'subject of understanding' must engage in a great deal of introspection and reflection in order to understand. But much of what should be understood is found in fields and disciplines of human knowledge. Moreover, the subject of the verb 'to understand' is not an enclosed entity roaming in complete independence; it is situated within the context of an ever-enlarging circle of physical and social relationships.

My arguments have brought me to a point where I need to pause and examine what I may have achieved up to now. Having identified 'understanding' as a fundamental concept to be analyzed in my exploration of educational processes concerned with moral empowerment, I have looked for insights in the work of several authors to get a glimpse of possible 'candidates' some of whose characteristics would be incorporated into a vision of the subject of understanding in the discourse to which I am trying to contribute. The candidates suggested by these works occupy a wide spectrum ranging from a sophisticated computer to the emotovist self in ascendance in today's society. To decide that any one of them is by itself the subject of understanding being sought would require commitment to one or another educational theory, a commitment I am not ready to make. What I hope the discussion of the various sets of ideas does accomplish is to offer insights into the nature of understanding and, to some extent, its *subject*. It is important, of course, that 'looking for insights' as an approach adopted in this thesis does not become a kind of eclecticism. To escape this fate in my search for a subject of understanding, I must be able to describe, even if vaguely, a picture of a protagonist whose individuality has integrity of its own and who has the capacity to engage in the very complex process of understanding in its many dimensions. But it is too early in the inquiry to achieve such a purpose. A number of other key concepts have to be examined in the ensuing chapters before the goal can be reasonably met. What is needed now is more clarity on the concept of understanding and how nurturing it involves the fostering of spiritual qualities.

CHAPTER 3: NURTURING UNDERSTANDING AND FOSTERING SPIRITUAL QUALITIES

Understanding has an infinite dimension associated with it. The notion of infinity does not imply that human understanding is not limited. What it suggests is that not every aspect of understanding can be circumscribed, for example, in the way computationalism and culturalism seem to propose. There is a boundlessness to be taken into account both in relation to concept acquisition and as an attribute of the human soul with endless potentialities. To explore this infinity, any endeavour inspired by religious conviction must look deep into its foundations where its conception of the human being has taken shape. Here, the physical universe, no matter how vast, is embedded in a much larger reality to which all religious traditions have referred as spiritual. This larger reality has its own existence and is not merely an emergent set of qualities of the physical universe. The scientist, of course, can rightfully choose to ignore spiritual reality and focus entirely on explaining the complex web of causes and effects within the realm of the physical and in terms of emergence. He cannot ever prove, nor should he care to prove, that what emerges does or does not have an independent existence which physical instruments, including a network of neurons, could possibly examine. In this sense, science as a system of knowledge and practice is self-sufficient.

Among FUNDAEC's contributions to the discourse of Bahá'í-inspired educational endeavours is the way it has adhered to a religious view of existence without trespassing the bounds set by science. In a strictly materialistic paradigm, it has argued, knowledge is, in the final analysis, acquired through the senses, this despite all the complexities introduced by the theory dependence of observation, the role of paradigms and/or research programmes in scientific inquiry and the intricacies of culture. Stimuli are received by the senses and processed by the brain—an entirely material object, a collection of highly specialized cells communicating through physical and chemical interactions. Collective activities of these cells are given names, such as short-and long-term memory, cognition and affective responses, and are studied in depth. Yet, the fact remains that there is nothing there but a huge set of atoms and molecules with an extremely complex and immeasurable set of interactions. So the question of who understands

would be reducible in principle to the question of which configuration of atoms and molecules and what set of interactions receive the generic name *understanding*.[11]

This interpretation of reality is rich enough to allow for the most extensive study of the brain and its functioning, as well as the examination of the higher order entity called culture, also the manifestation of interactions among a large number of sets of atoms and molecules over a very long time. Within this paradigm the physical universe as well as social reality can certainly be studied. While the scientist, reluctant to introduce unnecessary elements into the work of science, can engage in numerous lines of inquiry, as educators, we are not bound to the materialistic paradigm. The assumption that spiritual reality has as much an existence as material reality may not add anything to the operation of science. But what if taking it into account does make a difference in our pedagogical choices? What if the nurturing of understanding in the context of pursuing one's own growth and contributing to the transformation of society—a society that, after all, slides every day deeper into a state of moral confusion—does depend on our assumptions about the nature and implications of the existence of spiritual reality? Are we not justified as educators, then, to at least explore these assumptions, taking of course every caution to avoid the close-mindedness and the obscurantism that has historically hampered religion's ability to deal with science?

Nurturing Understanding

For a Bahá'í-inspired endeavour, exploration of the spiritual dimension of human existence necessarily occurs in the context of the Bahá'í view that the reality of the human being is the soul and that the soul is not a material substance.[12] Mental faculties are inherent properties of the soul

[11] According to Bakhurst, there are "two principal styles of anti-Cartesianism on the contemporary scene": The first includes "varieties of naturalism", which "aspire to explain the relation of mind and world by employing only explanatory resources compatible with natural sciences." The extreme version of naturalism in the philosophy of mind seeks to replace "mistaken 'folk psychology'" theory of the mental with a "scientifically more respectable theory cast in neuroscientific terms". The extreme forms of naturalism in epistemology consist of "evolutionary approaches to knowledge that construe matters of justification of belief purely in terms of an organism's strategies for adaptation to its environment". Both extremes are "exercises in revisionary metaphysics in the name of science, in that they seek to engineer fundamental changes in our present conceptions of ourselves". The second style of anti-Cartisianism takes shape in "radical constructivism", whose proponents contend that "it is a mistake to argue that our representations genuinely depict an objective world" (Bakhurst, 1997, p. 38).

[12] Bahá'í scriptures do not support the Cartesian duality of body and mind: "The mind comprehendeth the abstract by the aid of the concrete...It is by the aid of such senses as those of sight, hearing, taste, smell and touch that the mind comprehendeth" (Bahá'í World Centre, 1976, p. 38). The mind is, however, regarded as "the power of the human spirit", as "the perfection of the spirit" and "its essential quality, as the sun's rays are the essential necessity of the sun." It is believed that the rational soul or the human spirit "as far as the human ability permits discovers the realities of things and becomes cognizant of their peculiarities and

as radiation is an essential property of the sun. It is through the powers of the soul that the mind comprehends, imagines, and exerts influence, while the soul is a power that is free. Such a belief, taken as an article of faith, if necessary, can admit that the mind comprehends many an abstract concept with the help of the concrete observed through the physical senses. The computational functions of the brain, as identical as they may be to those of a computer, do not cause difficulty for this point of view. The duality of body and mind with all its inherent problems is not a necessary consequence of belief in the existence of the soul. The ever-presence of evolving culture is not denied as one seeks explanations for individual and collective thought and experience. What does occur is that the language being used becomes broader, opening space for certain powers to be considered and cultivated. Intelligence ceases to be defined as the capacity of the human brain, but more broadly as the combined capacity of a number of interacting faculties of the soul. Objectives of curricula are formulated so as to include the sharpening of these faculties, allowing the powers of the spirit to flow and bring harmony and development to the life of the individual and of humanity as a whole. On a practical level, the introduction of such an assumption points to as yet unchartered terrain in the search for solutions to the ever-evasive challenge of motivation in education. When everything is reduced, explicitly or implicitly, to interactions between material entities, one can only seek sources of motivation either externally, in social and economic achievements, or internally, in ill-defined notions such as self-image and self-satisfaction. But necessary as these may be in specific situations, motivation to learn is best sought in the realm of spirit, as an illumination that excites one or more of the faculties of the human soul.

These considerations add new dimensions to understanding to which I have referred as a process and occasionally as an achievement. Understanding, at least in its infinite sense, will also have to be considered an attribute of the human soul. There will continue to be facets of understanding tied to the world of the contingent, like processing information and negotiating meaning in a cultural context. Yet understanding as a whole will acquire permanence, not in the sense of storing and retaining knowledge in memory, but the kind of permanence that the concept of soul

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effects, and of the qualities and properties of beings..." The human soul "does not descend into the body", because descent and entrance are characteristic of physical bodies. "The spirit is connected with the body, as this light is with the mirror. When the mirror is clear and perfect, the light of the lamp will be apparent in it..." (Bahá'í Publishing Trust, 1981, pp. 207, 239)

brings to the contemplation of human existence. Permanence does not mean static state; understanding will be an attribute endowed with its own dynamics of growth fed by the comprehension of many concepts and facts facilitated by the functioning of the brain.

When this added dimension is acknowledged, it becomes possible to explore the relationship of understanding as an attribute of the human soul with other such attributes, which, in addition to finite manifestations in *doing*, have a more independent existence related to *being*. Underlying this line of reasoning is the assumption that among all the virtues a human being can possess, those in at least one category, to which I refer as 'spiritual qualities', can be considered constituents of our being, and that the development of these is of particular significance to moral empowerment. Whereas in popular discourse, an assortment of characteristics such as punctuality, amiability, alertness—and some modern creations like assertiveness—are discussed as virtues, spiritual qualities are distinct attributes fundamental to our identity as a human being. In fact, by them, a wide range of virtues gain significance. The sharing of one's resources with others in specific circumstances, for example, takes new meaning when it is intimately connected to generosity as a divine perfection that the soul of the human being is to increasingly acquire. A kindly tongue as a manifestation of a kind heart has more substance than the mere habit acquired in conformity with the rules of etiquette. Tactfulness, to take another example, seems superficial when compared to qualities such as wisdom and humility. The immediate task before me, then, is to explore the existence and nature of this special category of human qualities and establish the reciprocal relationship between fostering them and the nurturing of understanding in education.

Virtues and Practice

The exploration being proposed in the above cannot be carried out without an analysis of the concept of virtue in its most general sense. But the theme has been treated at such great depth in philosophy that trying to address it in any systematic way here would be pretentious. The way I approach it is to select one credible and substantial account, in this case MacIntyre's account of virtues and practice, not to be used as theoretical framework, but like the works of other authors examined in this thesis, as a source of insight.

MacIntyre's narrative is well known. There are two concepts crucial to his account: 'practice' and 'goods'. The word practice refers to "any coherent and complex form of socially established cooperative human activity" (MacIntyre, 1981, p. 175). MacIntyre argues that each practice holds within it a set of internal goods which are realized through the achievement of standards of excellence appropriate to and definitive, albeit partially, of that practice. Personal attitudes and preferences need to submit themselves to the authority of the best standards and rules of practice, even though "the standards are not themselves immune from criticism" (ibid., p. 177). There are distinctions between internal and external goods. If motivated by an external good such as a candy, a child playing chess, for example, would have every reason to cheat in order to win. However, he could find a whole new set of reasons for playing if he came to recognize goods that are internal to the game. The child would, for instance, become motivated by how the game develops "a certain highly particular kind of analytic skill", "strategic imagination" and "competitive intensity" (pp. 175-6). External goods, prestige and money, for example, are "contingently" attached to practices; one could always obtain them through alternative means. Internal goods, on the other hand, can only be achieved by engaging in a particular practice and are "identified and recognized by the experience of participating in the practice in question" (p. 176). Those who lack the relevant experience are not competent judges of internal goods.

The discussion of internal goods and standards of excellence enables MacIntyre to present a notion of virtues which wraps them in practices: "A virtue is an acquired human quality the possession and exercise of which tends to enable us to achieve those goods which are internal to practices and the lack of which effectively prevents us from achieving any such goods" (p. 178). Higgins points out that, while for MacIntyre virtues are primarily "dispositions" or "excellences" of persons to achieve goods, they also constitute good in themselves, since they are partly constitutive of our well-being (Higgins, 2003, p. 281).

Although practices are vital to the development of virtues at a fundamental level, they are not the only context within which the concept takes shape. Virtues are rendered "intelligible" against a background of social and moral life. It is only in a particular historical milieu that the exercise of virtues assumes meaning. The list of virtues and their rankings are not constant across eras and traditions. A certain virtue considered significant within one tradition can be non-existent in

another and sometimes even seen as a vice. In this sense, there are "too many different and incompatible conceptions of a virtue for there to be any real unity to the concept" (MacIntyre, 1981, p. 174). Yet, a core conception of a virtue does emerge if one considers three contexts within which the virtue develops: 'practice', 'the narrative order of a single human life' and 'moral tradition'. Higgins in his examination of MacIntyre's moral theory identifies these three contexts as "three levels of valuation"[13], and explains how the virtue of patience, for example, moves through the first two of these three levels. Its exercise would allow the practitioner to draw out the goods internal to a practice and to preserve its integrity. In considering the patience required in each instance, one has to ask "waiting for what?" This question can only be answered in the context of a practice—a teacher is patient with the students and a politician in negotiation. Higgins suggests that the concept of patience is saved from rupturing as varieties of 'patience' are multiplied within different practices through the individual life narrative. A parent, a potter and a politician would each have to find out what role the virtue of patience would play in life outside a specific practice and synthesize different understandings of patience (Higgins, 2003, pp. 281-2).

In the third level, virtues are seen as those qualities the exercise of which lead to the human *telos*. Here "the moral horizon of a tradition", in Higgin's analysis, provides the broadest structure within which virtues can be evaluated in terms of the inquiry into good *qua* human beings. Virtues acquire specific significance and are graded differently across various traditions and within a particular age or cultural ethos. At this level, the virtue of patience, taking Higgins' line of reasoning, would mean something quite different in a modern industrial culture where it can easily be seen as an obstacle to success and in the ancient Chinese culture where it was among the most venerated qualities.

[13] Higgins points out that "MacIntyre's three moral domains are ultimately complementary, indeed interdependent". There is both "an upward and a downward dependence among the three levels". The "upward dependence can be seen as one moves from the level of practices, where goods and virtues are specific and multifarious, through the level of the individual, where some work of synthesis and hierarchisation is already necessary, to the level of the community where fewer, more general goods and virtues are endorsed by all". There is also a downward dependence. Communities rely on practices "to pursue their communal goods"; these goods are structured in terms of the goods internal to particular practices; and the work of integrating them into individual and communal lives is itself a practice. (Higgins, 2003, pp. 282-3)

MacIntyre's account of virtue and practice provides a language and valuable concepts with the help of which I can explore the notion of spiritual qualities. Virtues, whether analyzed in philosophical discourse or addressed in a programme of moral education, denote a wide range of attributes including attitudes, intellectual abilities, habits and mental as well as physical skills. To tie the development of a number of such virtues to specific practices may be highly useful for specific educational programmes. But is the conception of every category of virtue, one must ask, to be so fundamentally linked to practice? There is no doubt that engagement in any given practice does require the development of certain virtues and that these virtues are the means to the achievement of goods internal to the practice in question. And vice versa, every virtue will find expression in one or another practice. But are there not categories of virtues for which the relationship with practices is not so fundamental a feature, but in fact of secondary importance?

MacIntyre himself appears to be cognizant of this problem when, as mentioned above, he incorporates into his account two other contexts within which the concept of virtues become intelligible. Beyond this, he feels obliged to identify virtues of justice, courage and honesty "as necessary components of any practice with internal goods and standards of excellence" (MacIntyre, 1981, p. 178), without which they will only be instruments for achieving external goods.

But, even when the various dimensions of MacIntyre's narrative are taken into account, something more fundamental seems to be missing: the possibility that certain virtues, apart from being instrumental in achieving internal goods in one or more practices, may be essential components of being human. Take, for example, Anscombe's statement that the human being "regarded not just biologically, but from the point of view of the activity of thought and choice in the various departments of life—powers and faculties and use of things needed—'has' such-and-such virtues: and this 'man' with the complete set of virtues is the 'norm', as 'man' with, e.g., a complete set of teeth is a norm" (Anscombe, 1981, p. 38).

There are other difficulties with the tendency to overemphasize the concept of practice in the exploration of human qualities. One difficulty arises in relation to motivation. Achieving internal goods can be a source of motivation for participants in a practice. But what is it in the child that

would recognize the value of the internal goods as opposed to the candy he may receive if he performs well? From the point of view of an educator, at least, being motivated by internal goods is highly desirable. Yet, no matter how much consideration is given to goods internal to a practice, the conditions internal to the learner that give rise to motivation cannot be sidestepped. In the case of the child learning to play chess, "competitive intensity" is one of the internal goods mentioned by MacIntyre. But what correspondence is there, one may ask, between competitive intensity in playing chess and competitiveness as an inner quality? Should competitiveness be nurtured within the child irrespective of how it could undermine certain other highly valued qualities, only because it is considered an indispensable good to a practice?

My intention here is not to argue that educational processes would not be concerned with practices per se. But in doing so, they would have to explore a number of questions that are not immediately answered, at least by MacIntyre's account of virtues. For example, how is the integrity of a practice ensured? The apparent answer is that the authority and standards of excellence in a practice, albeit themselves susceptible to criticism, are to provide the framework. Attitudes, choices, preferences and tastes have to be subordinated to these standards. But other factors such as profound moral convictions, principles and beliefs, which could be considered goods in themselves, also affect the way a practice unfolds. How are these to be treated in helping an individual adopt the required standards of excellence while being initiated into a practice?

It is also necessary to ask how an educational process should deal with sets of internal goods that either conflict or compete with each other. MacIntyre suggests that individuals engaged in various practices each with their own sets of goods could ask themselves "what is my good?" This would involve the ability to put in order the various goods they acknowledge and find for each a place among other goods, presumably in the context of the narrative of their own lives. And they would succeed in this undertaking only if they do it "in company with those who participate with them in various practices and who also participate with them in the common life of the whole community" (MacIntyre, 1994, p. 288). What is being suggested is the formulation of a scheme whereby individuals and communities can determine their own good and organize the structure of goods internal to and between practices. Assuming that such an undertaking is

possible, what would be the standard against which competing goods as well as the relative worth of goods in various practices can be evaluated? What arises here is the troubling possibility of "conceptual incommensurability", this time within practices, which MacIntyre himself views as responsible for the moral disorder of our age. It is doubtful that "participation in the common life of the community" alone can, in the climate of our modern culture, provide the solution to this problem. MacIntyre's description of the concept of 'character'—different to that of 'social role'—shows how a number of 'characters' come to define the culture of a particular period and place. He refers to character as "the object of regard" by majority members of a culture, as morally legitimizing "a mode of social existence" by which the general population come to "understand and evaluate themselves" (MacIntyre, 1981, p. 28). What if we consider the bureaucratic manager he so criticizes as a character of our present culture in the above sense? Whether MacIntyre regards the domain of management as a practice or not, it would be hard not to admit that its authority has dominated the standards of excellence in almost every practice including education and that its goods, among which efficiency ranks high, have transformed internal goods across many a practice. MacIntyre himself charts the rise of the technocratic expert from the search for an ideal social science in the enlightenment era to the goals that inspired social reformers which in turn led to the creation of a class of civil servants and managers, and later to the "theoretical codification" of practices associated with them by sociologists and organizational theorists. Finally "textbooks written by those theorists in schools of management and business schools" were used to shape "the managerial practice of the contemporary technocratic expert" (ibid., p. 83). Why did this development occur? Did not those involved in it "order the various goods" which they acknowledged? What was it in the context of their lives or in their moral tradition that gave rise to their definition and choice of virtues?

It seems to me that, while presenting a highly valuable narrative on virtue, MacIntyre walks too closely to the borders of relativism. Others cross the border with no hesitation. Todd May, for example, who considers practice to lie at the intersection of the individual and the social, defines practices as constitutive of 'who we are'. It is the personal style one develops while engaging in practices and not an illusory secret self, according to May, that explains the uniqueness in each of us. Moreover, any reference to our being, whether religious or philosophical, that does not fall within the purview of practices would equally be an illusion: "an illusion of metaphysical depth"

(May, 2001, p. 31). It is ironic to note that a concept common in the phenomenon of religion across all traditions is that of self-sacrifice. Yet, the concept is intelligible only when *being* is understood in relation to *doing* and the exercise of such qualities as love, justice, and humility, qualities that have the power to transform conventional relationships both within practices and in communities. Achievement of goods within practices as the main motivator for action does not pay sufficient attention to such qualities as essential features of personhood.

Acknowledging the great value of MacIntyre's account, but allowing for other accounts that treat certain virtues like justice and honesty at a much more fundamental level, I believe, increases our ability to resist moral relativism. David Carr, for example, speaks of the danger of attaching virtues to rival moral traditions and points out that the language of virtues is "the cross-cultural currency of humankind" (Carr, 2003, p. 231). Nussbaum also speaks of the non-relativity of Aristotelian virtues in the way they correspond to universal spheres of human experience. Appropriate functioning in each sphere defines virtuous action. This objective morality when further developed will retain the grounding in actual human experiences without losing "the ability to criticize local and traditional moralities" (Nussbaum, 1993, p. 250). It is not that avoiding all relativism is possible, or even desirable, if one is to stay away from rigid orthodoxy. A relativism established in time, for example, helps one to overcome rigidity. Bernard Williams, who differentiates between various forms of ethical relativism, calling a certain form of it "vulgar", recognizes a "relativism of distance". Here 'distance' does not refer to the exotic or to what is elsewhere, but to the distant past or to the future. He perceives two types of confrontation between different moral outlooks: *real* and *notional*. In the case of the latter, the contrasting outlook does not represent a real option for us. While reflection on past value systems might inspire some thought relevant to modern life, we do not live the life of a "Bronze Age chief" or a "medieval samurai" and cannot take on their outlooks. However, confrontations among cultures of today are real, as we are all within the "causal reach" of one another. Williams criticizes the kind of relativism which regards the language of appraisal—good, bad, right, wrong, and so on—as culture specific. The distinction between "us" and "them" according to him "is not merely given", and to "erect it at a certain point involves a political decision or recognition" (Williams, 2008, p. 68). Williams claims that this type of standard relativism arose first in the Western world in the fifth century B.C. when the Greeks "reflected on their encounters" with people who

were not identified as Greeks. "It was in part, perhaps, a reaction against the sense of superiority Greeks typically brought to the distinction." And, "it is no accident that the paradigm expression of the distinction between nature and culture, which contributed to relativism, referred to the despised enemy: 'fire burns the same in Persia as it does here, but what counts as right and wrong is different'" (ibid.). In confronting a "hierarchical society" today, Williams suggests that "we cannot just count them as them and us as us: we may well have reason to count its members as already some of 'us'" (pp. 68-9).

Fostering Spiritual Qualities

The various observations made in the above seem to justify the search for an account, at least of a subset of all virtues, which would overcome some of the difficulties associated with the narrative of virtues wrapped in practices, this in a way that the basic value of the narrative is not lost. But how would Bahá'í-inspired educational efforts go about such a search? Once again, I look to FUNDAEC, which seems to have taken a few initial steps in this direction, to clarify the nature of the task. FUNDAEC begins its search by trying to identify some of the forces that motivate a person to pursue the twofold moral purpose mentioned in previous sections. Two stand out as of paramount importance. The first is 'attraction to beauty' manifesting itself in myriad ways: in love for the majesty and diversity of nature; in the impulse to express beauty through the visual arts, music, and crafts; in the pleasure of beholding the fruits of these creative endeavours; in the stirrings within the human heart of noble emotions in response to the beauty of an idea, the elegance of a scientific theory, and the perfection of character in one's fellow human beings; and in longing for order and meaning in the universe and in social relations.[14]

The world's great religious traditions see this vital force as directed towards the Beauty of the Creator. By acknowledging it, their scriptures awaken and sustain the qualities that are inherent in the human soul. This they accomplish "not only by the standard of behaviour they uphold, the vision of human perfection they disclose, and the laws they promulgate, but also through the

[14] Iris Murdoch refers to occasions in our surrounding for "unselfing" as beauty. Beauty is something that nature and good art share; it gives a "fairly clear sense to the idea of the quality of experience and change of consciousness". There is distinct difference between forced self-directed enjoyment of nature and a "self-forgetful pleasure in the sheer alien pointless independent existence of animals, birds, stones, and trees. 'Not how the world is, but that it is, is the mystical.'" Good art, not self-consoling fantasy art, "both in its genesis and its enjoyment" is opposed to "selfish obsession". "It invigorates our best faculties and ...inspires love in the highest part of the soul" (Murdoch, 1997, pp. 104-5).

beauty of the language in which they express profound truths" (FUNDAEC, 2006, p. 23). FUNDAEC cites the following passage in order to illustrate the sentiments this language can evoke in the human heart:

> O Ye People that Have Minds to Know and Ears to Hear! The first call of the Beloved is this: O mystic nightingale! Abide not but in the rose-garden of the spirit. O messenger of the Solomon of love! Seek thou no shelter except in the Sheba of the well-beloved and O immortal phoenix! Dwell not save on the mount of faithfulness. Therein is thy habitation, if on the wings of thy soul thou soarest to the realm of the infinite and seekest to attain thy goal. (Bahá'í Publications Australia, 2009, p. 31)

The second force identified by FUNDAEC that, together with attraction to beauty, impels moral purpose is 'thirst for knowledge'. It is this force that motivates "every human being to gain an understanding of the mysteries of the universe and its infinitely diverse phenomena, both on the visible and on the invisible planes. It also directs the mind to seek a fuller understanding of the mysteries within one's own self. Oriented by a vision of beauty and perfection, an individual who is motivated by thirst for knowledge approaches life as an investigator of reality and a seeker after truth" (FUNDAEC, 2006, p. 31). The fire of "search, of earnest striving, of longing desires, of passionate devotion, of fervid love, of rapture, and ecstasy"[15] is to be kindled within the seeker's heart and mind, who responding to the dictates of her own noble nature, must be impelled to engage in the investigation of reality.

Before I continue with this line of reasoning, I should pause here and mention a danger inherent in the language being used by FUNDAEC in relation to the two forces it describes. Overemphasis on the powers of the individual is a disquieting characteristic of the so-called positive pedagogy. It is not difficult to confuse convictions about human nobility and potential powers of human spirit with exaggerated notions of self. Beliefs centred on the nobility of the human being, if not scrutinized with care, can lead to unwarranted romanticism about the individual. This romanticism dressed as faith in humanity makes it easy to believe in an array of fashionable statements that keep repeating such phrases as 'providing tools for genuine long range success', 'cultivating imagination', or 'daily educational practice as an adventure in self discovery'. Most involved in educational efforts with which I am familiar find it difficult to weed out ideas whose

[15] See (Bahá'í Publishing Trust, 1978, p. 266)

pretentions mask their meaninglessness. Yet this is an ability they need to acquire if they aim to focus on the true manifestations of human nobility.

With this cautionary note in mind, let me ask if this brief examination of the two forces given such prominence in FUNDAEC's thinking can shed some light on the nature of spiritual qualities as a category of attributes education would need to address. The task is not to define spiritual qualities but to point to some of the characteristics that would make it possible to distinguish them, with some clarity, from other categories of virtues. One statement that suggests itself is that spiritual qualities are those attributes of the learner that are intimately involved in the operation of the two motivating forces, without which, in fact, the forces would lose their efficacy. At the same time, understanding, the way I have tried to depict it here, is like the water that satisfies one's thirst for knowledge and the light that guides one's attraction to beauty. In this sense, nurturing understanding and fostering spiritual qualities need to be considered inseparable goals of education as moral empowerment. There is a clear implication here that one needs to continually develop certain spiritual qualities in order to advance in understanding, and simultaneously, the development of spiritual qualities requires continual advancement in understanding. But I think the connection between the two processes runs deeper.

The Bahá'í writings consider certain qualities such as justice, love, generosity, truthfulness, and faith to be reflections of divine attributes in the mirror of the human heart. In fact, a fundamental purpose of earthly existence is taught to be the acquisition of these qualities, which, as do physical organs developed in the womb of the mother for life after birth, define the capacity of the human soul in its infinite journey towards the source of all beauty and knowledge. Understanding, too, is a crucial determining factor of this capacity in the soul's eternal evolution. It is in this relationship with the divine that the deeper connection between understanding and spiritual qualities would be sought by a Bahá'í-inspired educational endeavour.

For the purposes of this inquiry, I do not need to explore the mystical components of Bahá'í belief, and I have only touched on a few propositions because a Bahá'í-inspired discourse on education cannot ignore them. But emphasis on certain qualities as essential constituents of the human being does not have to depend on mystical arguments. A brief reference to the way

FUNDAEC introduces and discusses the concept of spiritual qualities in a first-level text—remembering that it is to guide a philosophical discussion among young adolescents—may prove useful. The textbook in question is called *Properties* and is the first in a series dedicated to the enhancement of capabilities related to the power of expression, beginning with the examination of words and concepts that help us describe the world around us with clarity. The unit opens with a discussion of concepts and associated words that enable us to distinguish and describe the objects we see: shape, size, position and colour. It goes on to introduce the concept of properties of matter, both general—for example, that it can exist in the three phases: solid, liquid and gas each with its own general properties—and specific to a given substance—for example, specific heat and melting and boiling points. Having explored the concept of property in some detail through simple readings and language exercises, it turns to the human being by asking whether the concept also applies to human beings. Do they have general and specific properties that we can use to describe them? Do they have properties in common with animals, plants and minerals and do they have their own unique properties? In discussing such questions, it suggests that although in describing a person we do not use the word 'property', we do employ terms like attributes and qualities, which convey the same kind of meaning. Having examined briefly attributes such as honesty, courage and generosity, the text asks the students whether honesty or dishonesty, truthfulness or deceit, kindness or cruelty, generosity or greed are properties of the human being. To answer this question, it proposes that human beings possess a higher and a lower nature. When the attributes of the higher are not present, then the characteristics of the lower dominate. "The higher nature must control the lower nature in order for a person to be noble. Nobility is the true property of a human being who is to be characterized by such qualities as honesty, truthfulness, kindness and generosity" (FUNDAEC, 2004, p. 51).

It is not necessary to go into the details of the lessons in question. Being a unit on language, it has ample scope to introduce concepts and words, facilitating, thereby, a rich discussion of spiritual qualities without entering into a religious discourse. In relation to truthfulness as a 'property of the human being', for example, it becomes possible to discuss the difference between lies and errors, the dangers of propagating falsehood unintentionally and of not recognizing one's own prejudice, the possibility of lying to oneself, and how truthfulness, in the final analysis, demands dedication to the investigation of reality. The lesson on justice as another

property of the human being returns to the question of prejudice. "The habit of making decisions without investigating reality breeds prejudice. Prejudices flourish because people spend their lives blindly imitating others. With the help of justice, we can see with our own eyes and not through the eyes of others. Justice is the quality that allows us to distinguish between truth and falsehood" (ibid., p. 59).[16] The lesson on love, reminds the students of how the concept is misused in today's society, confusing it with physical desire. "The basest forms of behaviour are said to be caused by love, and in its name, acts of revenge, jealousy, and infidelity are justified" (p. 63). The lesson then goes on to examine how certain other spiritual qualities such as sincerity, forgiveness, generosity and patience are intimately connected with love.

The idea of transcendence, so closely associated with religious experience, has also been introduced in this unit. Students are asked to explore it as a capacity of the human soul to overcome the limitations imposed on it by nature, for instance, by understanding the laws that govern it and utilizing them. In relation to one's own nature, to give another example, this capacity helps in controlling anger and overcoming disappointment. An attempt to become wealthy by oppressing others is presented as the example of a misguided effort to rise above one's circumstances, to transcend perceived or real limits imposed on one by society. The desire to transcend, not controlled by justice, can lead us to abase ourselves, despite our inherent nobility.

I have dwelt here on these few lessons because their content allows me to illustrate certain characteristics of an account of spiritual qualities with which I believe any Bahá'í-inspired educational programme would be comfortable. A few of these characteristics I discuss below in order to give some shape to this account, and bring the chapter to an end.

Clearly a large number of concepts are connected to each spiritual quality. Nurturing the understanding of these concepts is part of fostering spiritual qualities. In this sense, they constitute a category of 'objects of understanding'. Nurturing the necessary understanding

[16] The statement on justice in the above is based on a passage from the Writings of Bahá'u'llah: "The best beloved of all things in My sight is Justice; turn not away therefrom if thou desirest Me, and neglect it not that I may confide in thee. By its aid thou shalt see with thine own eyes and not through the eyes of others, and shalt know of thine own knowledge and not through the knowledge of thy neighbor..." (Bahá'í Publications Australia, 2009, p. 6).

involves the elaboration of the appropriate language, in this case inspired by insights from religion, a theme that will be discussed in chapter 5 in the section on the complemetarity of the languages of science and religion. As it will be argued there, the language in question will have to embrace an expanded rationality in order to tap the roots of motivation in students. One may ask, what are some of the features of the appropriate language?

First, the language would have to involve the student in an exploration of moral issues but stay away from the relativism of such approaches as values clarification. To achieve this, it has to set a direction—a higher and a lower—but avoid moralizing. In this context, Charles Taylor's account of languages of qualitative contrast offers valuable insight. The language of qualitative contrast, although marginalized by utilitarianism and formalism, acknowledges the "qualitative distinctions we make between different actions, or feelings, or modes of life, as being morally higher or lower, noble or base, admirable or contemptible" (Taylor, 1982, p. 132). Those, for example, who hold integrity, liberation and charity as worthy of pursuit in a special way, incommensurate with pursuit of wealth, position or comfort, are often ready to sacrifice these lesser goods for the higher ones. This contrast can be expressed in a number of ways, through admiration for that which is higher and contempt for the base, through a sensibility to the higher good loosely called 'awe', and through the notion of obligation in relation to ordinary and higher goals: ordinary goals are dispensable in the sense that no one should be condemned for not having them, whereas higher goals, such as integrity, are indispensable—"those who lack them are not just free of some additional instrumental obligations which weigh with the rest of us; they are open to censure" (ibid, p. 136). The languages of qualitative contrast are not restricted to the moral sphere; they are also used, for example, in the aesthetic domain. Although in the case of the former the boundary around what constitutes moral cannot always be neatly drawn, there are instances when indifference towards a certain good is blameworthy and a relatively firm dividing line can be discerned. In this sense, "The languages of qualitative contrast embrace more than the moral" (p. 137). The language "characterizes motivation in a fashion which marks qualitative contrasts and which is therefore not morally neutral" (p. 141).

Second, the language that is to serve as a vehicle for understanding spiritual qualities should convey a vision of human existence that extends beyond the requirements and needs of day-to-

day life. The understanding achieved is to enable the student to distinguish between superficial and lasting results of one's words and actions, directing moral purpose towards that which has permanence. Aspiring toward that which is lasting has too often led to contempt for this world. The understanding of spiritual qualities as vital elements of human existence, it is assumed, can be nurtured in such a way that it leads not to asceticism but to a balanced approach to one's own spiritual growth and one's contribution to the processes that transform society.

An important characteristic of the account of spiritual qualities—of which these paragraphs are only an initial outline and which has to be elaborated through action and reflection by the network of Bahá'í-inspired educational endeavours—is its ability to address simultaneously the autonomous and permanent existence of spiritual qualities and the evolutionary changes in their meanings according to historical context. This would be congruent with the Bahá'í belief that religious truth is relative and revealed progressively. The human heart, for example, is prone to love. In the language used by FUNDAEC, to love is one of the 'properties' of the human being. On what we focus our love varies from occasion to occasion, and how we go about choosing one or another focus is determined by numerous social and cultural factors. In one sequence, for example, love can be expressed in larger and larger contexts, a friend, the family, the clan, the tribe, and the nation. At a given historical moment, love for one's country may be the largest of these contexts and patriotism the highest expression of love, even demanding the sacrifice of some of its other manifestations. But if the hallmark of the age of maturity of the human race is the realization of the oneness of humankind, the potential for a much wider expression of love, a kind of universal love, must be emerging and the fostering of this spiritual quality has to be a concern of education. Other loyalties are not necessarily to be forgotten, but they are to take new meaning in the context of this larger loyalty. Yet, all such expressions of love, even for the entire human race, are limited. In a certain sense, they are finite manifestations of something that is infinite. The account being considered here would see the consciousness of this infinite nature of love essential to the fostering of love as it expresses itself in changing finite contexts.

Another characteristic of the account of spiritual qualities that is to serve Bahá'í-inspired educational efforts is the attention it must give to the principle of moderation. Otherwise the process of moral empowerment is derailed by self-righteousness, and ultimately fanaticism takes

over. The principle of moderation is often taken to mean walking 'the middle way'. However, in the case of spiritual qualities, to speak of moderation as the middle way sounds contradictory. What is too much love or too much justice, if these are the properties of the human being? FUNDAEC, at least, has tried to overcome this difficulty by focusing on another interpretation of moderation, specifically in the way spiritual qualities modify each other. There may be no such thing as too much love but the necessity for love to be modified, for example, by justice. The notion of excessive justice seems to contradict its nature as a property of the human being; yet if justice is not modified by compassion, some of its applications can take on the characteristics of cruelty.

Finally, the understanding of the many concepts that are related to each spiritual quality aids in their development in the context of service to humanity. The concept of 'service', in general, implies activity for the benefit of others and embraces a variety of undertakings. As an element of the framework being explored in this thesis, it refers to acts that are directed by the twofold moral purpose and seek the transformation of some aspect of the essential relationships of human existence—among individuals and groups, between the individual, community, and the institutions of society, and between these and the natural environment. Acts of service are characterized by continuity and growing complexity; they are not disconnected events. They may initially be simple and easily accomplished, but as knowledge grows and capacity develops, the protagonists of moral empowerment are able to take on more demanding challenges. As with understanding, the image of a path captures important features of the conception of service. In fact, it is often used in the Bahá'í community to visualize effort and movement as well as resilience to overcome difficulties. A path of service invites participation, and participants can advance along it at different paces and strides. One does not walk the path alone; there is faith in the capacity of others and joy in their accomplishments. Walking the path of service is contingent on one's state of being. The efficacy of service is not evaluated merely by the perceived success or failure of an enterprise, but also by the extent to which understanding has advanced and the necessary spiritual qualities have been developed. This is not an evaluation carried out from outside, but by every single participant. The path of service is experienced and known not by one or two, but by a growing number of people; an entire population comes to assume ownership of it.

The relationship between spiritual qualities and acts of service seems to have features in common with the way practice and virtues are associated in MacIntyre's account. For example, virtues as internal goods are essential to a practice just as spiritual qualities are indispensable to the integrity of acts of service. But there is a fundamental difference. Standards that are to guide the evolution of practices are usually thought to be within them; acts of service, on the other hand, are not merely regulated by the rules and standards of the specific practices with which they are associated, but more significantly by the moral values that inspire them. Further, the reality of service is not confined to specific actions; it pervades the environment with the potency to transform the relationships that comprise it. Service transforms selfish grumble to selfless joy in giving, greedy exploitation to reciprocity and fairness, and arrogant knowing to a humble posture of learning.

CHAPTER 4: OBJECT OF UNDERSTANDING: THE CONTEXT

If an educational process is to seek the moral empowerment of the student, nurturing understanding cannot limit itself to what happens in the mind of the 'subject of understanding'. She is to act on many an 'object of understanding', although not all, and contribute to a collective effort to transform them. Understanding physical reality allows for transformations that include the creation of technology as a fundamental aspect of human culture. In transforming the physical, the human agent breaks certain laws of nature only in appearance; in reality the laws are such that they permit the transformation in question. That large solid inert objects do not fly in the earth's atmosphere is a feature of the way the physical world works only at a certain level; there are more fundamental laws that make possible the flight of the airplane. If they exist, the laws that govern the evolution of social reality—or of culture—should also allow for transformation to occur in this dimension of existence. Understanding an object of understanding and acting upon it, then, requires of the subject of understanding a certain posture with respect to reality. What is the proper posture and how does an educational process help the student to assume it? It seems clear that some way of looking at reality itself is required before one tries to answer this question; the philosophical framework guiding the educational process must include elements that at least suggest some view of reality, no matter how vague and incomplete. Of course, not every view of reality will do. To insist on empowering the students to actively participate in the transformation of society and at the same time transmit to them a picture of culture as the predetermined outcome of the imposition of the physical environment on human beings, for example, is bound to lead to a host of contradictions. What I need to do, then, is to present a possible approach to physical, social and spiritual reality which could inform the philosophical framework of Bahá'í-inspired education, knowing that the framework will evolve through a process of action and reflection on action.

As far as physical reality is concerned, the framework being sought in this thesis would be based on the premise that the physical universe exists and evolves according to an order the patterns and laws of which, in principle, lend themselves to being comprehended by the human mind. Bahá'ís would hold to this fundamental conviction upon which the edifice of science is built, and would find it supported by the tenets of their Faith. But as mentioned before they would also

assume the existence of a larger reality, in which physical reality is embedded, and to which they would refer as spiritual reality. The contemplation of this reality is an important aspect of religion, particularly its mystical teachings. But this aspect of religion is not the concern of the present inquiry and is not being discussed here. There are dimensions of spiritual reality, however, that do enter into my discussion of moral empowerment. The arguments presented in the previous chapter in relation to spiritual qualities not as mere excellences attached to a practice but as attributes of the human being with their own permanent existence are examples of such considerations.

Presenting the first set of basic statements about social reality presents its own difficulties. Social theory offers a number of accounts of social reality and its evolution; what I seek, however, are accounts that offer insights as to how the subject of understanding is to act on and transform social reality. One such account is set forth by John R. Searle in *The Construction of Social Reality*. In what follows, I will describe briefly some of Searle's views but, important as the insights gained from his work are for my inquiry, there are a number of features of his thought I find problematic. I try to go beyond them, by examining Thomas Nagel's *The View from Nowhere* which proves to be an invaluable source of insight into the way the subject of understanding is to situate itself with respect to reality. This examination is enriched by a brief reference to the concept of "absolute conception" as set forth by Bernard Williams.

The relationship between the subject and object of understanding is a theme that is also addressed in a somewhat different discourse, one that begins by analyzing problems arising from the fragmentation of the knowledge of reality. Fragmentation of knowledge and its ill effects on education have been a source of anxiety for FUNDAEC since its inception and a few of its arguments, far less rigorous than Nagel's or Williams' but insightful nevertheless, are presented in the section that follows the one titled "Positioning the Subject of Understanding". The chapter ends with a section on "Thought and Reality" with a brief discussion of some of John McDowell's ideas, which I suggest speak to FUNDAEC's concerns at a fundamental level.

Constructing Social Reality

Searle provides a description of social reality the structures of which, though invisible, are deeply rooted and emerge from the physical stuff of the universe. He employs examples such as money, marriage, property and the like to show that social reality is constructed, while physical reality, or what he calls its brute facts—mountains, rivers and planets—exists independently of the human mind (Searle, 1995, p. 15). Reality embraces brute facts, as well as facts whose existence is "relative to the intentionality of observers, users, etc" (p. 10). Items belonging to this latter category are either fabricated to perform a certain function or are naturally occurring objects to which an aesthetic, a practical or some other function is assigned. A chair and a screw driver are examples of the first while swimming in the river and using specific types of tree as lumber are examples of the other.

The assignment of functions lifts brute facts out of the world of matter and gives them a social status not built into their molecular structure. Searle argues that nature is devoid of any intrinsic function. It is all about causal relations. It is, for example, intrinsic to nature that the heart pumps blood, and causes it to circulate through the body, a movement that is related to other casual processes having to do with the survival of the organism. But this brute fact is transformed into a different category of facts when we assign a function to it and place it relative to a system of values such as life, reproduction and health, supported by a vocabulary that includes malfunction, heart disease and heart failure. "We do not speak of better or worse stones unless we have assigned a function to stones" (p. 15).

Functions are either agentive or non-agentive. Agentive functions are assigned relative to the interests of conscious agents to fabricated and naturally occurring objects. Non-agentive functions are "assigned to naturally occurring objects and processes as part of a theoretical account of the phenomenon in question" (pp. 21-2). The function given to a screwdriver is an example of the former while the function assigned to heart is an example of the latter. Searle goes on to identify a special class of agentive functions that stand for objects and states of affairs independent of themselves. These representations of activities and objects which are part of the institutional system of language are called 'symbolism' and 'meaning'. I do not need to go into

Searle's description of the relationship between language and social reality here. Suffice it to say that he sees linguistic forms as partly constitutive of social facts (p. 37).

In order to give a more complete description of the construction of social reality, Searle adds two other features to his account: collective intentionality and agreement. Collective intentionality, he argues, should not be equated with individual intentionality coupled with mutual beliefs. He argues that those philosophers who thus reduce it misconstrue collective intentionality as a commitment to a view that "there exists some Hegelian world spirit, a collective consciousness, or something equally implausible" (p. 25). According to him, while it is true that mental life is inside each individual brain, it does not follow that all mental life has to refer to individual intention. The intentionality inside one's head can be individual as well as collective. The violinist playing in an orchestra is doing her part in performing a symphony. There is a collective intentionality, although it is contained in the head of each performer separately. Therefore, "we intend" is an entity that is real[17].

If collective intentionality exists, Searle argues, so does the collective imposition of agentive function on objects. When the function imposed on objects is by virtue of their physical features, say when two or more people would naturally use a log as a bench, it would not be difficult to see collective intentionality at work. However, when the intrinsic physical features of the object are not directly responsible for its function, then the imposition of function requires an additional element: collective agreement (pp. 38-9). Using the example of territorial boundary, Searle asks us to imagine how the concept with its rules and conventions could have evolved from a stone wall built by a primitive tribe to keep intruders out, into a boundary marker—say, the remnant of a wall—performing the same function by the way of collective agreement. The marker, now acting symbolically, is given a function extending beyond its physical features. That a piece of paper is considered to be, say, a twenty-dollar bill is another example. Here is a social fact belonging to a whole category of facts to which Searle refers as institutional. Institutional facts require special human institutions such as language and systems of constitutive rules.

[17] Searle, in response to his critics, states that he needs "an account of collective intentionality which is consistent with methodological individualism" (Searle, 1997, p. 449). His ontology is that of "individual human organisms and their mental states", and not of "a primitive ontology of actual human collectives" (p. 450). According to him, the "collective's existence consists entirely in the fact that there is a number of individual agents who think of themselves as part of the collective." By implication, "We-intentionality can *give rise* to mutual belief, but does not reduce to I-intentionality plus mutual belief" (p. 453).

Constitutive rules in contrast to regulative rules which "regulate antecedently existing activities" not only regulate but also "create the very possibility of certain activities" (p. 27).

With examples such as the above Searle argues that "the key element in the move from the collective imposition of function to the creation of institutional facts is the imposition of a collective recognized status to which a function is attached" (p. 41). There is a collective status attached, for example, to the territorial marker or the piece of paper demanding a whole set of institutional arrangements.

In his description of social reality Searle is clearly trying to establish the logical priority of brute facts over institutional facts. He states that his aim is "to assimilate social reality to our basic ontology of physics, chemistry, and biology", " to show the continuous line that goes from molecules and mountains to screwdrivers, levers, and beautiful sunsets, and then to legislatures, money, and nation-states" (p. 41). To develop "a hierarchical taxonomy of social and institutional reality" is an objective based on the assumption that "social facts in general, and institutional facts especially, are hierarchically structured. Institutional facts exist, so to speak, on top of brute physical facts" (p. 35). "What is true of money is true of chess games, elections, and universities. All these can take different forms, but for each there must be some physical realization" (p. 35). Social reality—in Searle's account—is rooted in the brute facts of an external reality. This external reality is composed of particles in fields of force, some of which form systems. The systems are divided into living and non-living. Some living systems have evolved consciousness to various degrees and human beings are included in this category. According to this ontology, just as the human mind represents a set of higher-level features of the brain, features that are at once 'mental' and 'physical', culture signifies the culminating point of human beings' collective physical evolution. He states that he uses "the 'mental' so construed, to show how 'culture' is constructed out of 'nature'" (p. 9).

This brief description of Searle's conception of social reality points to a few elements of the philosophical framework being sought here. To understand that much of social reality is actually constructed during a long historical process confirms the subject of understanding in her intention to transform it. That we assign functions through collective intentionality and

agreement and that "we intend" has a reality of its own—irrespective of whether this collective intentionality resides in each individual's mind or has an existence akin to "Hegelian world spirit"—bring to light the nature of certain interactions between the subject of understanding and reality. But I find it difficult to reconcile the totality of Searle's account with the narrative of moral empowerment that is gradually being developed. Insights, in the way I am using the concept here, do not arise from espousing an explanation in its entirety. Disagreements also help achieve clarity. Searle seems inclined to reduce purpose in all its dimensions to function and the worldview that emerges from his analysis is largely materialistic. It appears to me that he is proposing a kind of physicalism, perhaps as a solution to the mind-body duality when better solutions are available. Nagel's views to which I now turn expose the unacceptable features of physicalism and establish a relationship between the external and the internal that helps me see more clearly the posture to be assumed by the subject of understanding towards physical as well as social reality.

Positioning the Subject of Understanding

The internal/external tension can to a certain degree be attributed to the claim of objectivity to unadulterated truth, on the one hand, and an equally extreme assertion—as in radical constructivism (Glaserfeld, 1996)—that there is no knowledge to be found beyond individual experience, on the other. Nagel analyzes the notion of objectivity and shows its limitations. He reminds us that objectivity is a method of understanding rather than a standard or test of reality. He then explores the nature of an objectivity that proves to be different from what he calls "physical conception of objectivity". This conception "is not the same thing as our idea of what the physical reality is actually like, but it has developed as part of our method of arriving at a truer understanding of the physical world, a world that is presented to us initially but somewhat inaccurately through sensory perception" (Nagel, 1986, p. 14). It is to this conception of objectivity that certain features of the mind present a real challenge.

Nagel describes the stages through which we gain an objective picture of reality in the physical sense. The first stage involves those perceptions which "are caused by the action of things on us, through their effects on our bodies, which are themselves parts of the physical world" (ibid.). The next stage entails the realization that the perceptual appearances of objects do not resemble

and are thus detachable from their true nature. This awareness comes about as we perceive that "the same physical properties that cause perceptions in us through our bodies also produce different effects on other physical things and can exist without causing any perceptions at all" (ibid.). The third stage has to do with forming a conception of the true nature of things independent of their perceptual appearance. Our particular as well as the more general human perceptual points of view are left out. Models, theories and concepts that are not tied to the human perceptual point of view help us advance our understanding of the physical world.

Nagel notes that the world so conceived is centreless, but he also considers it featureless. He argues that this bleached-out physical conception of reality, though powerful, cannot give rise to a method for seeking "a complete understanding of reality". For the process began with how things appear to us as a result of the effect of the action of things on our bodies. In the course of getting closer and closer to an objective understanding of the world, perceptions and specific viewpoints were omitted as irrelevant. However, they continue to exist along with "the mental activity of forming an objective conception of the physical world, which seems not itself capable of physical analysis" (p. 15). Nagel holds that there is more to reality than what the "physical conception of objectivity" allows for. Yet, "the physical has been so irresistibly attractive, and has so dominated ideas of what there is, that attempts have been made to beat everything into its shape and deny the reality of anything that cannot be so reduced" (ibid.).

There is an underlying "epistemological criterion of reality" in all forms of reductionism—behaviourist, causal or functionalist—"that only what can be understood in a certain way exists" (p. 15). But, unlike the physical aspect of the mental, "the subjective features of conscious mental processes" cannot be understood by the methods employed for understanding "the physical world that underlies the appearances" (ibid.). The question Nagel poses, therefore, is how to include the "subjective in the world as it really is" (p. 16) and whether there is another way in which objectivity can be understood. To put it in the language being used here, a better conception of objectivity entails a continuously enlarging process involving the subject and object of understanding. The subject of understanding places itself in the world by stepping back from the initial view of the object of understanding. A more objective view is then formed which has the old view and its relation to the world as its object. The old view is now "regarded as an

appearance, more subjective than the new view and correctable or confirmable by reference to it" (p. 4). The process can continue to yield increasingly more objective understanding of reality.

Nagel's analysis of objectivity resonates with Bernard Williams' notion of "absolute conception of reality" as the ideal of objectivity in science. A key idea in Williams' philosophical investigation is the possibility of convergence. He argues that "discussions of objectivity often start from considerations about disagreement" (Williams, 1985, p. 132). While there are disagreements, which, for example, arising from purely incompatible personal desires, do not show any failure of knowledge or understanding on the part of individuals involved, there are other disagreements which do reveal lack of understanding of certain shared concepts. There is a tradition to think of disagreements in terms of how they fall on the opposite sides of such contrasts as practical and theoretical, evaluative and factual, ought and is. In dealing with examples of disagreements much work goes into classifying them according to one or another contrast. Williams expresses doubts about exercises that reduce the evaluative to the practical and those that extend the factual to the theoretical. He believes them to be of "positivist inspiration". In examining how disagreements are dealt with, he introduces the idea of convergence as the best explanation of the end of disagreement under the most favourable conditions. Williams does not limit the scope of explanation to dealing with disagreements. Agreements too are in need of explanation but in a different context and with different practical implications.

Williams argues that convergence does not mean the same thing in science and in ethics, which he considers two sharply differentiated areas of inquiry. He urges us not to only acknowledge the distinction but to understand it in the context of convergence. "In a scientific inquiry there should ideally be convergence on an answer, where the best explanation of the convergence involves the idea that the answer represents how things are" (p. 136). In the realm of ethics there is not such "coherent hope", at least at a high level of generality. He points out that the distinction does not have any bearing on the possibility of convergence. Human beings can reach convergence on ethical issues. However, it is important to realize that such convergence, unlike convergence in science, does not come about as a result of being guided by how things actually are. "This means,

among other things, that we understand differently in the two cases the existence of convergence or, alternatively, its failure to come about" (ibid.).

Williams refutes claims made by relativists who suggest that convergence in science is insignificant because the notion of the 'world' either as one which confirms our beliefs and judgments or as one which is prior to our descriptions of it and which all systems of belief and representation are trying to represent is empty, and who argue that in the case of the former, the concept of the world does nothing more than repeat our beliefs and in the case of the latter it refers to something 'unspecified' and 'unspecifiable'. Williams points out that there is a third option: a conception of the world already there "in terms of some but not all of our beliefs and theories" (ibid., p. 138). When reflecting on the external world which exists independent of our experience, we must first concentrate not on our beliefs about it, but on how they represent aspects of that world.

> We can select among our beliefs and features of our world picture some that we can reasonably claim to represent the world in a way to the maximum degree independent of our perspective and its peculiarities. The resultant picture of things, if we can carry through this task can be called the "absolute conception" of the world. In terms of that conception, we may hope to explain the possibility of our attaining the conception itself, and also the possibility of other, perspectival representations. (Williams, 1985, pp. 138-9)

Williams' notion of "an absolute conception" seems to be at once both the ideal of an objective reality that becomes more and more accessible to us and the method which serves to make effective a distinction between "the world as it is independent of our experience" and "the world as it seems to us" (p. 139). Our perspectival views and those that are different from ours can be explained in relation to the conception itself. This conception, Williams states, does not provide an account of knowledge, but "the possibility of a convergence characteristic of science" (ibid.).

The purpose of this brief reference to Williams has been to enhance Nagel's picture of objectivity through a conception for which Nagel himself has ample respect. There is a certain feature of this kind of approach to reality and the process of understanding that is of particular relevance to a Bahá'í-inspired framework for education. By freeing the notion of objectivity from its limited physical conception, it becomes possible to include the subject of understanding in the reality it seeks to understand, but not at the centre of it, and as Nagel puts it, "without

reducing the mental to the physical". Nagel argues, and I assume Williams would agree with him, that we are not part of the world as it appears to us, but as it is in itself, and in this sense we should be able to include ourselves in a conception that is not tied exclusively to our point of view. We are able to "think of ourselves from outside—but in mental and not physical terms" (Nagel, 1986, p. 17). As we place ourselves in the world as it is, we include the existence of appearance in an extended reality. And this reality, like physical reality, is centreless. In order to imagine this extended reality, we need to consider our own minds as instances of something more general. "We must think of mind as a phenomenon to which the human case is not necessarily central, even though our minds are the center of our world" (ibid., p. 18). Further, as Nagel insists, even in its extended version, objective understanding of reality will always be incomplete. "This means that the pursuit of an objective conception of reality comes up against limits that are not merely practical, limits that could not be overcome by any merely objective intelligence, however powerful" (ibid.). Nagel does not find this to be a cause of alarm because "there is no reason to assume that the world as it is in itself must be objectively comprehensible, even in an extended sense" (ibid.). That reality extends beyond the physical does not mean that "all of it is available to some transcendental perspective that we can reach from here" (ibid.).

An important feature of Nagel's argument is that he removes the dichotomy between the subjective and the objective; the distinction between the two becomes more a matter of degree and covers a wide spectrum. It becomes possible to think of reality as "a set of concentric spheres, progressively revealed as we detach gradually from the contingencies of the self" (ibid., p. 5).We can pursue an objective conception of the world, including the mind, as long as we do not assume that everything real can be reached by such a conception. "Reality is not just objective reality, and any objective conception of reality must include an acknowledgment of its own incompleteness" (ibid., p. 26).

Nagel presents a significant criticism of physicalism, "... physicalism is based ultimately on a form of idealism: an idealism of restricted objectivity. Objectivity of whatever kind is not the test of reality. It is just one way of understanding reality" (ibid). This insight into the nature of physicalism is important as I try to discover the elements of a philosophical framework for Bahá'í-inspired educational processes not confined to 'religious education'. As mentioned in my

brief description of Searle's argument, recognizing that many aspects of social reality are built by collective intentionality and agreement and are therefore amenable to transformation is relevant to education seen in terms of moral empowerment. That underneath these constructions one will invariably find brute facts of the physical world does not present any problems to me either. But the question that has to be asked is whether there are other powers working in human existence, as real as the physical ones, which also play a fundamental part in the construction of social reality. Physicalism would try to explain the existence of these other powers, some of which I explored in the context of fostering spiritual qualities in the previous chapter, on the basis of the physical world as well; it would not be content with explaining 'some' or even 'many' observed phenomena in terms of the physical, its ambitious project would be to explain 'all'. That is the reductionism, and the idealism, that Nagel, if I am reading him correctly, seems to reject.[18] The immediate question such reductionism raises in my inquiry is whether the twofold moral purpose of pursuing one's own spiritual and intellectual growth and contributing to the transformation of society—a purpose that provides the impulse for the educational process being investigated here—arises from physical evolution, and in the final analysis, from the fundamental forces that physics believes govern the operation of the physical universe. To be hesitant to take such a leap of faith is not to deny that the theory of evolution is one of the greatest achievements of science, or to suggest the need to introduce into it woolly ideas that would reduce its scientific value. What is at stake is simply this: are the students to be convinced that the extraordinary effort the pursuit of twofold purpose will demand from them is a mere requirement of the 'selfish gene'?

Fragmentation

As mentioned at the beginning of this chapter, some of the issues discussed in the above also present themselves when one looks at the problems caused by the fragmentation of knowledge in education. FUNDAEC's concern with the question originates in observations related to social action. Social action, it reminds its students, does not mean frantic activism, participation in

[18] "The realism I am defending says that the world may be inconceivable to our minds, and the idealism I am opposing says it could not be. There are other more radical forms of idealism than this, such as the view that to exist is to be perceived, or that what exists must be an object of possible experience for us, or that what exists or is the case must be an object of possible knowledge for us, or must be verifiable by us, or that it must be something about which we could have evidence...I believe that they all depend finally on the more general form of idealism." (Nagel, 1986, p. 91)

every project that seems to address one or another social ill. Its main purpose is to transform existing social reality into a higher one and as such depends on an ever deepening knowledge of that reality based on an increasingly more accurate reading of society. But what is the nature of such knowledge and how are we to gain it?

In trying to answer this question in a chapter of a text called *Constructing a Framework for Social Action*, it offers a mixture of its own thoughts and those of David Bohm in *Wholeness and the Implicate Order*. Actually FUNDAEC's affinity with Bohm is limited; its founders are clearly at home with his expressions as a scientist, but wary of the way he introduces a certain brand of mysticism into science. As far as the question of fragmentation of knowledge is concerned, the chapter in question does rely heavily on Bohm's analysis of the subject. The summary of arguments presented below, although not a direct quote from FUNDAEC, is entirely based on its ideas.

According to Bohm, in today's society, the human mind is struggling with a state of confusion arising from a fragmentation that interferes with its clarity of perception and creates an endless series of problems without the ability to solve most of them. Society has been broken up into separate and conflicting parts, and the environment, viewed as an aggregate of separately existing parts, is exploited by different groups of people. Further, each individual human being "has been fragmented into a large number of separate and conflicting compartments, according to his different desires, aims, ambitions, loyalties, psychological characteristics, etc., to such an extent that it is generally accepted that some degree of neurosis is inevitable..." (Bohm, 2002, p. 2). That these fragments exist separately is but an illusion. While one may consider fragmentation of cities, religions, political systems and so on as reality and wholeness only an ideal towards which we should strive, for Bohm "wholeness is what is real, and...fragmentation is the response of this whole to man's action, guided by illusory perception, which is shaped by fragmentary thought" (p. 9).

Bohm admits that in practice it is not possible to deal with the whole of reality at once. It is necessary for the human mind to divide things up in order to reduce problems to manageable sizes. The process of division is a way of thinking that is useful mainly in the practical, technical

and functional domains. When this mode of thinking is carried to how a person thinks of himself and the world in which he lives—what Bohm calls his "self-world view", then he no longer considers the divisions as mere constructs of his mind that are useful or convenient, but rather begins to see and experience himself and his world as actually constituted of separately existent fragments. The fragments assume an autonomous and independent existence:

> Being guided by a fragmentary self-world view, man then acts in such a way as to try to break himself and the world up, so that all seems to correspond to his way of thinking. Man thus obtains an apparent proof of the correctness of his fragmentary self-world view though, of course, he overlooks the fact that it is he himself, acting according to his mode of thought, who has brought about the fragmentation that now seems to have an autonomous existence, independent of his will and his desire. (ibid., p. 3)

In considering Bohm's description of self-world view, one has to acknowledge that human beings have a deep longing for wholeness. How does a humanity looking for wholeness, it has to be asked, end ups in the throes of fragmentation? Bohm appears to be seeking the roots of the problem of fragmentation in fundamental questions of epistemology:

> [F]ragmentation is continually being brought about by the almost universal habit of taking the content of our thought for a 'description of the world as it is'. Or we could say that, in this habit, our thought is regarded as in direct correspondence with objective reality. Since our thought is pervaded with differences and distinctions, it follows that such a habit leads us to look on these as real divisions, so that the world is then seen and experienced as actually broken up into fragments. (p. 4)

I should mention here that the ideas discussed in the above resonate with a statement found in Bahá'í scriptures that the human mind cannot know the essence of things. This idea is fundamental to Bahá'í belief in relation to the 'spiritual world', and particularly to the concept of God referred to as the 'Unknowable Essence'. It is also applied to the physical world: what is knowable is only the attributes of things. This is clear when one tries to think of such fundamental concepts as time, space, matter and energy. But the idea is applicable to social reality as well: No matter how precise and eloquent our descriptions of social systems and processes may be, they are models of reality, not reality itself.

Bohm states that in scientific research "a great deal of thinking is in terms of theories," and looks into the roots of the meaning of the word in Greek to support his notion that "theory is primarily

a form of insight, i.e. a way of looking at the world, and not a form of knowledge of how the world is" (Bohm, 2002, p. 4). That Newtonian theory, which explained so many phenomena with such accuracy, he reminds us, was superseded later by relativity and quantum mechanics does not mean that it was wrong. It means that a theory works in a certain domain, that is, for a certain range of phenomena, and ceases to work outside this range. Bohm uses the words "clear" and "unclear" to express this idea. "The Newtonian form of insight worked very well for several centuries but ultimately (like the ancient Greek insights that came before it) led to unclear results when extended into new domains" (p. 5). In these new domains, relativity and quantum mechanics give new forms of insight and a radically different picture of the world from that of Newton.

> If we supposed that theories gave true knowledge, corresponding to 'reality as it is', then we would have to conclude that Newtonian theory was true until around 1900, after which it suddenly became false, while relativity and quantum theory suddenly became the truth. Such an absurd conclusion does not rise, however, if we say that all theories are insights, which are neither true nor false but, rather, clear in certain domains, and unclear when extended beyond these domains. (pp. 5-6)

Further, Bohm rules out the possibility of a final form of insight corresponding to absolute truth or even a steady series of approximations to it. Rather, he argues that "one may expect the unending development of new forms of insight (which will, however, assimilate certain key features of the older forms as simplifications, in the way the relativity theory does with Newtonian theory)" (p. 6). This requires, however, that our theories be regarded "primarily as ways of looking at the world as a whole (i.e. world views) rather than 'as absolutely true knowledge of how things are' (or as steady approaches toward the latter)" (ibid.).

The understanding that theory is a series of insights into reality, and not absolute knowledge of how things are, constitutes an important element of FUNDAEC's conceptual framework and, I believe, a Bahá'í-inspired discourse on education would easily identify with it. But this is only half of the story. It also has to be accepted, as any move away from positivism would require, that the models and theories we carry in our mind, whether elaborate or rudimentary, influence the way we observe things, what we see and what we accept as indisputable facts.[19] This does

[19] There are, of course, many subtleties to the way observation and theory interact. But the fact itself that observation statements are made in the context of a-priori knowledge is indisputable. A.F. Chalmers, for example, in his introductory book *What is this*

not deny the existence of objective reality. What it does is to distinguish between objective reality as one interconnected whole, and our own models of reality that are necessarily about fragments of it.

Thought and Reality

The notion that our theories about reality are not exact representations of reality as it is, although highly attractive, could also lead to unwanted fragmentation. It could be misinterpreted to imply that we are separating our mind and our thoughts from what we may call objective reality, including the physical universe and its diverse phenomena. In arguing that this danger can be avoided, FUNDAEC resorts to a speculative reflection. In one of its texts it invites students to engage in an exercise of imagination, knowing that the images employed do not represent a model of the mind or the world in any way. Having explained the nature of some of the challenges that phenomena at the quantum level present to science, it asks the students to imagine, as Bohm has done, the possibility that physical reality at its most fundamental level does not consist of particles but actually of a flow—of a movement. What are some of the images that come to mind, for example, in thinking about the flow of a river? As the river flows, numerous structures appear; they last for a certain period of time—some longer than others—and eventually disappear. Small vortices come into existence and then vanish. There are other patterns such as ripples and waves.

> All these structures have their own identity but are also connected to each other in a fundamental way. Their existence and behaviour emerges in the flow of the river. They are "abstracted from the flowing movement, arising and vanishing in the total process of the flow"[20]. They only possess relative independence or autonomy of behaviour, for the transitory subsistence of each one of them in the flow of the stream is very much dependent on the transitory subsistence of the others. Could it be, then, that the particles of matter, for example, are like the vortices that appear in the flow of reality? (FUNDAEC, 1999, p. 113)

The text then asks the students to take one further step and imagine that thoughts, such things as theories and models, could also be various kinds of structure in this same flow. Through this

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thing called Science mentions three "components of the stand on the facts assumed to be the basis of science": a) "facts are directly given to careful, unprejudiced observers via the senses"; b) "facts are prior to and independent of theory"; and c) facts constitute a firm and reliable foundation for scientific knowledge." He presents clear arguments showing that "each of these claims is faced with difficulties and, at best, can only be accepted in a highly modified form" (Chalmers, 1978, pp. 3-4).

[20] See (Bohm, 2002, p. 62).

flow, they too would be fundamentally connected with each other and with the particles of physical reality and the sharp distinction between the mind and objective reality would disappear.

This brief account indicates that, having identified the relationship between thought and reality as a significant question in need of clarification, FUNDAEC has not been able to advance sufficiently towards a well-reasoned answer by looking into Bohm's work. In my search in the philosophical literature, I find that McDowell's *Mind and World* can be a source in which valuable insights pointing to the desired direction can be found. To analyze and express his ideas is not an easy task and I can only present an outline of what is nothing but an inadequate reading of a few elements of his thought. The argument of *Mind and World* seems to begin by looking at the age-old anxiety in philosophy between the plausibility of what McDowell calls "minimal empiricism"—the idea that experience must constitute a tribunal, mediating the way our thinking is answerable to the world—and the frame of mind that makes it hard to see how experience could function as such. He identifies the root of the anxiety with "the possibility of thought" in the empirical sense rather than the possibility of empirical knowledge. The problems of the latter constitute "more or less inept expressions" of this deeper anxiety:

> ...an inchoately felt threat that a way of thinking we find ourselves falling into leaves minds simply out of touch with the rest of reality, not just questionably capable of getting to know about it. A problem about crediting ourselves with knowledge is just one shape, and not the most fundamental, in which that anxiety can make itself felt. (McDowell, 1994, pp. xii-xiv)

McDowell associates the criticism of minimal empiricism with Wilfred Sellars' attack on the "myth of the given".[21] He particularly focuses on Sellars' formulation of the logical space of reasons according to which: "in characterizing an episode or a state as that of knowing, we are not giving an empirical description of that episode or state; we are placing it in the logical space of reasons, of justifying and being able to justify what one says" (Sellars, 1956, pp. 298-9). According to McDowell, Sellars is identifying the natural "with the subject matter of a mode of discourse that is to be contrasted with placing something in the normative framework constituted by the logical space of reasons" (McDowell, 1994, p. xiv). This means separating "concepts that

[21] Givenness does not pertain only to the notion that empirical knowledge rests on a foundation, but also assumes that mental states including private and privileged access to one's own mental states as fundamental features of experience are both logically and epistemologically prior to intersubjective concepts pertaining to inner episodes.

are intelligible only in terms of how they serve to place things in the logical space of reasons, such as the concept of knowledge," from "concepts that can be employed in 'empirical description'" (ibid.), which according to McDowell can be understood as placing things in the logical space of nature. The division leads one, he argues, to the conclusion that the relations that make up each logical space are inevitably different in kind. Those of the logical space of nature "do not include relations such as one thing's being warranted, or—for the general case—correct, in the light of another" (ibid., p. xv). Acceptance of this dichotomy is to place experience conceived as "impressions" and "impingements by the world on a possessor of sensory capacities" in a logical space other than the logical space of reasons—"a logical space whose structure consists in some of its occupants being, for instance, warranted or correct in light of others" (p. xv). Experience, in the above sense, cannot serve as a tribunal: mediating a way of thinking that is answerable to the world.

Two resolutions of this tension immediately suggest themselves. The first is to renounce empiricism, at least the way experience is construed in terms of impingements on our sensory capacities. McDowell sees Sellars' solution in this category, forcing us to abandon empiricism "in the relevant sense". This is because he thinks the logical space of reasons to be of a different nature when compared with the logical space to which "empirical descriptions" belong. However, abandoning empiricism, he is quick to point out, will not explain away its attractions. A second way in which the dichotomy between the two logical spaces could be resolved is to consider the logical space of reason as part of the logical space of nature. McDowell labels the outlook shaped by this approach "bald naturalism". Bald naturalism refuses to accept that relations comprising the logical space of reasons are anything but natural and sets out to reconstruct the normative relations out of the "conceptual materials whose home is the logical space that Sellars, wrongly on this view, contrasts with the logical space of reasons" (p. xviii). McDowell does not deny that the programme upon which bald naturalism is embarked may be executable and agrees that in fact it does exorcise the philosophical tension in question. However he proposes another alternative, which according to him "undercuts a philosophical motivation...for supposing the programme must be feasible. It is not philosophically threatening to suppose there is insight in the thought that reason is not natural, in the only sense of 'natural' countenanced by bald naturalism" (p. xxiii).

McDowell's alternative "holds on to the thought" that the "structure of the logical space of reasons is *sui generis*, as compared with the structure of the logical space within which natural scientific description situates things" (p. xix). Yet, he argues that accepting "the idea of experience" as "the idea of something natural", does not necessarily have to mean that the idea has no place in the logical space of reason. This becomes possible if we do not identify "the dichotomy of logical spaces with a dichotomy between the natural and the normative" (ibid.). McDowell then goes on to consider a second nature which human beings acquire "in part by being initiated into conceptual capacities whose interrelations belong in the logical space of reasons" (p. xx). By remembering that this second nature exists, we can see that "the operations of nature can include circumstances whose descriptions place them in the logical space of reasons..." (ibid.).

In discussing so briefly at the end of this chapter a few insights gained from McDowell, my intention has not been to delve into his profound exploration of *Mind and World*. This is not a challenge I need to, or I am even able to take on. What I have tried to do is first to show how McDowell's ideas help address FUNDAEC's anxiety about the relationship between thought and reality at a profound philosophical level. But in addition there is the question of why a process of moral empowerment would put so much emphasis on the development of capabilities in the realm of science, particularly the natural sciences. One of the underlying claims of my arguments in this thesis is that many intellectual and spiritual qualities and attitudes are common to capabilities in both the scientific and ethical domains. McDowell's statement that "the conceptual sphere does not exclude the world", in other words, "what we experience is not external to the realm of the kind of intelligibility that is proper to meaning" (McDowell, 1994, p. 72), reveals a fundamental relationship between the two. What is an exciting prospect is that in nurturing understanding education need not be confined by the boundaries created around the natural and the normative, realizing that "conceptual capacities, capacities for the kind of understanding whose correlate is the kind of intelligibility that is proper to meaning, are operative also in our perception of the world apart from human beings" (ibid.).

CHAPTER 5: COMPLEMENTARITY

Having identified nurturing understanding as a main concern of educational programmes seeking moral empowerment, I dedicated the previous two chapters to an exploration of the nature of the subject of the verb 'to understand', the object of the verb 'to understand' and the process of understanding itself. These three themes, I have suggested, cannot be studied in isolation from each other, and in my analysis I have tried to take into account their interconnections. The discussion of the object of understanding up to now has been at the most general level of reality in its physical, social, moral and spiritual dimensions. Unless extreme constructivism, in which the only aim is to offer students tools to construct their own knowledge, is to be adopted, education has to draw upon the universe of knowledge that humanity continually gathers, evaluates and organizes about the various aspects of this reality. This chapter is meant to bring me a step closer to the question of how the challenge of integrating knowledge in the content of the educational programmes in question may be met. How are 'objects of understanding' selected, organized and treated in a curriculum which aims to build capacity in students to pursue their own intellectual and moral growth and to contribute to the transformation of society? And, which are the sources of such elements of knowledge and the 'virtues' with which the student is to be endowed?

A starting point for exploring these questions is Paul Hirst's analysis of such concepts as disciplines, fields, and forms of knowledge. In the next chapter, I will examine his ideas in more detail; for now, it is sufficient to refer to the classification he proposed of disciplines or forms of knowledge—mathematics, physical and biological sciences, human and social sciences, history, moral understanding, literature and the fine arts, philosophy and religion—as well as his designation of fields of knowledge as theoretical and practical. Hirst used this classification to examine the planning and practical conduct of liberal education (Hirst, 1974b). But educational programmes with other aims would also look into these disciplines and forms, with all the nuances and modifications introduced later, as sources of knowledge from which elements would be selected for the elaboration of content. The criteria used to determine which elements should be chosen, and in what combination, would depend on the specific aims and the philosophical

framework of the programme. When moral empowerment is a major concern, the way religion would enter as one of the sources of knowledge is a question that cannot be ignored.

A number of issues immediately present themselves in this connection. Hirst simply lists religion[22] along with the other forms; but although disagreements about the contribution each discipline makes to education do exist among educators, the divergence of views on the value and the possible role of religion is of a different nature. Is the study of religion to be carried out in the fashion of humanities as is done in many liberal arts programmes? Is it to be examined as a social phenomenon and studied within the discipline of human and social sciences? What is to be done about the kind of religious instruction bent on shaping the mind according to dogmas that indeed do contradict the logic and the knowledge of the other forms in the above list? An option, one that is followed by a number of programmes, is to leave the inculcation of religious belief to religious communities, incorporate ethical issues in various areas of secular education as needed, and offer 'moral education' separately, drawing on different moral systems as sources of knowledge. A Bahá'í-inspired educational process would not deny the fruitfulness of appropriate avenues for the study of religion, but would strive to find a proper space in its curriculum for religious concepts and insights—from the major religions of the world in general and the Bahá'í Faith in particular—not as seen from the lens of another discipline but as expressed by religion itself, in a way that the contributions of religion to the development of the student's capabilities would complement elements taken from other forms of knowledge. As far as I can see, such a task is next to impossible if a fresh examination of the relation between science and religion is not undertaken. The historical development of the two led to the widespread view that they somehow stand in opposition to each other. The problem here is not simply between religion and the natural sciences. All the other disciplines mentioned by Hirst are accepted to be in accord with human reason in one way or another, but religion, even when deemed reasonable, is often considered qualitatively different, fundamentally built on faith as opposed to reason. Religion, of

[22] Hirst discusses 'religion' as a form of knowledge but also analyzes the value of 'religious education'. He argues for the autonomy of moral knowledge based on rational judgment. At the same time, according to him, understanding ourselves as moral beings allows for the establishment of a positive relationship between morals and religion. Hirst claims that while there exists a domain of religious belief, there is not as yet a "domain of publicly justifiable religious knowledge." As advances are made towards establishing such a domain, the content of education will need to include the corresponding knowledge. What is important is that schools teach 'about' religion-- not necessarily its history or psychology, but its concepts and truth criteria. The purpose is for the students to understand as fully as possible about religion, but this "does not imply belief in or acceptance of what its understood" (Hirst, 1974a, p. 187).

course, is not the same as faith and science is not the same thing as reason, yet the opposition between science and religion is closely associated with an assumed dichotomy between faith and reason. In this chapter I question this dichotomy, suggesting that it is based on a narrow definition of rationality, and argue for complementarity between religion and science—a claim that goes further than the assertion that they are not necessarily incompatible with each other.

That in so many schools of thought science and religion have been held in opposition has enormously influenced the ethical and social environment in which 'modern man' lives. But in the process of moral empowerment students are to learn to contribute to the transformation of the very society in the building of which this modern man has played such a major role. In most societies in which Bahá'í-inspired endeavours are exploring education as moral empowerment, the project of modernization—with all its vicissitudes—was promoted by a worldwide enterprise called development which set out to save the masses of humanity from the throes of poverty and, in the process, managed to impose a particular rationality on these societies.[23] It seems reasonable, then, to begin the discussion of this chapter with a cursory look at the nature of this enterprise, the kind of rationality that initially shaped it and the way it saw—or rather ignored—the spiritual dimension of the life of the populations it was intent on modernizing. The fact that 'development' was the starting point for the work of FUNDAEC will also help me to continue drawing on its experience which was shaped to a great extent by its view of complementarity between science and religion.

The Modernization Project

Contributing to the transformation of society as discussed here is associated with the larger process of humanity's transition to the age of maturity mentioned in the introduction to this thesis, and the advance in both material and spiritual civilization that is envisioned to accompany it. The social and economic development of nations with substantial reduction in the gap that separates the rich and the poor is a significant component of this process. Cultivating the

[23] M.P.Cowen and R.W. Shenton describe how "the positivists' faith in the potential contained within industrial society for the reconciliation of progress and order was only to be actualized, or so they believed, through trusteeship...Trust that industrial society would confer social benefit, rather than, promote self-development of the few had to be made active through the agency of trusteeship, thus the trusteeship of the few who possessed the knowledge to understand why development could be constructive, and were accepted as trustees because they were understood to be already developed, became integral to the intention to develop those who remained undeveloped" (Cowen and Shenton, 1996, pp. 116-7).

capacity of people to become participants in development rather than mere recipients of technological packages and political agendas prepared in centres of power is an important component of the empowerment process being examined in this thesis.

The concept of progress is not new, and words such as 'advanced', 'cultured', 'backward' and 'uncivilized' have existed in human vocabulary for a long time. Yet, the set of activities through which governments and international organizations would collaborate to 'modernize' the entire world took shape in the early 1950s, particularly in light of the successes of the reconstruction of war-torn Europe. Modernization implied rapid and far reaching changes. Institutions had to change in order to allow rational planning and execution of plans; the nation as a whole had to develop the capacity to apply modern technology to augment production, increase mobility, achieve equality of opportunities and make possible higher standards of living. Out of this process, the 'modern man' was to emerge in every country of the world as it had in the industrialized nations. His outstanding attributes were efficiency, diligence, orderliness, punctuality, frugality, scrupulous honesty, rationality, preparedness for change, alertness to opportunities, integrity and self-reliance, and—although it may seem contradictory in light of how most people behave in the industrial world today—willingness to take the long view rather than seeking short term gains.

The first two decades of development strategy focused almost exclusively on 'modernization through economic growth': capital formation, technological transfer, production stimulated by foreign aid, the building of infrastructure including the construction of schools, emphasizing planning at every step of the way. Once the World Bank declared in the early 1970s that the aim of development had hardly been achieved and that the number of people living in absolute poverty had risen to 800 million, confidence in the process was shaken.

The critical examination by the renowned development thinker Mahbub ul Haq in his book *The Poverty Curtain* of the character of the "development planners"—including himself—who worked in the forefront of the enterprise to bring economic growth to their nations illustrates the soul searching that ensued. Referring mostly to the highly motivated technocrats labouring in developing nations, he stated: These were "men who had tremendous confidence in themselves

but little confidence in their own societies which they all wanted to transform in a hurry...They were generally men of good intentions, often products of Western liberal education, who played the game of development with deadly seriousness" (Haq, 1976, p. 12). He characterized the beliefs to which these men held with great conviction in statements such as the following:

> ...it is well to recognize that economic growth is a brutal, sordid process...The essence of it lies in making the laborer produce more than he is allowed to consume for his immediate need...It is immaterial what one chooses to call this surplus—whether "surplus value" as Marx usually did, or "saving" or "capital formation," in the terminology of modern economic analysis...It would be wrong to dub the consequent emergence of surplus values as "exploitation": its justification is economic growth. (p. 3)

These expressions were considered without question as the obvious products of rational thinking. Many of the modified sets of statements that were expressed with equal confidence in the next decades shared this same underlying rationality. And today, as the financial sector firms its grip on the economic life of the world, every effort is being made to convince the 'modern man' of the efficacy of a tough, 'bottom line' approach to the future of humanity, ostensibly a product of the proper use of reason.

It is not necessary to mention in any detail the many changes that the field of development went through in the period following the years to which Mahbub ul Haq refers. Suffice it to say that a great deal of knowledge was accumulated. A number of essential concepts were introduced into both development theory and practice. Basic needs, appropriate technology, participative planning, people centred development, participation of women, environmental protection and human rights, are a few examples. Slogans like 'development is not a package to be delivered by the so-called developed to the underdeveloped' or 'it is better to teach a man how to fish than to give him one' became commonplace. Yet despite all the sophistication in planning and execution, the number of those living in absolute poverty rose steadily.

My inquiry is being carried out at a time when 'development' is not as much a central issue in global discourse as it used to be. The reason is not that gross injustices have been overcome. The crisis of civilization has taken such dimensions that the failure of development is considered only one of the many ills humanity is facing. It is, however, instructive to look into the possible causes of such an evident failure, for example, how the literature of development during its early

years dealt with people's religious convictions, deemed useful only if they promoted some of the abovementioned characteristics of the modern man, but more often considered as obstacles in the path of modernization. Even the notion of solidarity so central to traditional value systems was suspicious, as were the ties of the extended family which interfered with the logic of the market. But although the ideals of modernization have penetrated every society on earth, the transition from traditional to modern has generated so many negative forces that the stability of the entire world is being threatened. Particularly, religion has not gone away. Its resurgence among both the materially prosperous and the poor is an undeniable fact in the early years of the 21st century. That so much of it seeks a particular kind of change with narrowly focussed and, at times, fanatical passion has to be a major concern of educational processes that seek to empower students to contribute to social transformation. Is the answer to misdirected religious devotion, the rationality of the modern man with 'science', 'philosophy' and 'the humanities' at its centre? Or does the experience of the past decades point to the need for another modernity, one in which faith and reason are not held in opposition?

To explore these questions, I adopt and expand on a conception initially introduced into the discussion of Bahá'í-inspired education by FUNDAEC according to which science and religion are examined as complementary systems of knowledge and practice. In a world where religious fanaticism and extreme relativism are simultaneously on the rise, drawing parallels between science and religion is not an easy task. In fact, even talking about religion as a single phenomenon, the way one does of science, is usually frowned upon. "Religions not religion" is the immediate objection raised. I hope the discussion of this chapter will help justify treating religion, at least the totality of the major religions of the world, as a system of knowledge with a diversity of communities of practice. As mentioned in chapter 2, the Bahá'í teachings point to a kind of relativism of religious truth in time. I do not need to draw on the specific narrative of 'progressive revelation' expounded in these teachings. All I need is to suggest that, through whatever means, the expression and understanding of religious truth advances, as do science, technology and the organization of human society.

Scientific Knowledge

The proposition that science is a system of knowledge and practice is a general statement about science that does not depend greatly on the intricacies of demarcation criteria or theoretical stances on how scientific knowledge advances. The question is whether there are parallels between some of the characteristics of this system of knowledge and religion. Once the existence of such parallels is argued and it is accepted that religion can also be examined as a system of knowledge and practice in its own right, then it becomes easier to explore the question of complementarity of the two systems.

The first task, that of looking into parallel—but by no means identical—characteristics of science and religion as systems of knowledge and practice involves a number of steps, some of which have to do with the clarification of the nature of science. This is not a matter to be addressed here in any length; a few points should suffice to demonstrate the plausibility of the relevant arguments. To begin, naïve descriptions of science which adhere to some rigid conceptions of 'the scientific method' leave little room for religion as a rational system. In a somewhat simplistic summary, such conceptions would consist of the claim that science, the occupation of people who have been trained to use their senses, begins with objective observation of phenomena. Repeated observations make possible general conclusions reached by minds educated to apply carefully the principle of induction. Once universal statements are discovered, deduction is used to explain other observed facts and to derive consequences that can then be checked through experimentation. The power of science to make predictions which can be tested is one of its essential characteristics that helps establish its authority. The application of such proven method leads to proven knowledge (FUNDAEC, 2000, pp. 25-6).

Evidently decades of advance in philosophy of science have made this naïve view obsolete. It is, however, possible to argue that more sophisticated explanations of science are not as yet widespread. Too often, even those who must be fully aware of the demise of positivism seem to employ rigid notions of scientific knowledge in opposition to religious belief. Simon Blackburn's rendering of the debate between William Clifford and William James is an

instructive example in this respect (Blackburn, 2005)[24]. Not only does it illustrate the difficulties one faces when one holds to a strict duality between faith and reason, but it also shows how deep-rooted certain attitudes towards convictions of a religious temperament are in rational discourse.

According to Blackburn, in order to establish "the rigor of reason" Clifford begins the debate with the story of a ship-owner who convinced himself, despite the doubts he entertained, that an old ship was seaworthy. He told himself that the ship had been on many a voyage and returned safely. He dismissed his suspicions and put his trust in Providence to protect the emigrant families on board. The ship took to the sea and it sank. The ship-owner received his insurance-money and "told no tales". The story is to demonstrate the danger that lies in faith. Clifford remarks that the "sacred tradition of humanity" consists not in "propositions or statements which are to be accepted and believed on the authority of the tradition", but in "questions rightly asked, in conceptions which enable us to ask further questions, and in methods of answering questions" (Clifford, 1999, p. 91). The rigor of reason lies in its capacity to test things "day by day".

The counterargument offered by William James, Blackburn contends, suggests the promptings of the "passional nature" fed by faith. In his response, James identifies belief as the choice between options. At a particular time, we are faced with a "live hypothesis", a belief that has some chance of being true. We have two alternatives—either to believe it or to avoid believing—and leaving the question open is in itself a "passional decision", with the same risk of losing truth.

> To preach skepticism to us as a duty until 'sufficient evidence' for religion be found, is tantamount therefore to telling us, when in presence of the religious hypothesis, that to yield to our fear of its being error is wiser and better than to yield to our hope that it may be true. It is not intellect against all passions, then; it is only intellect with one passion laying down its law. And by what, forsooth, is the supreme wisdom of this passion warranted? Dupery for dupery, what proof is there that dupery through hope is so much worse than dupery through fear? (James, 2005, pp. 107-8)

Blackburn criticizes James for deploying rhetorical devices and accuses him of objectifying and privatizing belief. He scorns the supposition that when an issue cannot be decided by other

[24] Simon Blackburn in his book refers to William K. Clifford's classic essay, "The Ethics of Belief', and William James's reply to it.

means it is a leap of faith that gives us the "blessings of real knowledge". Suppose, he argues, it occurs to you that the oak tree in your garden might contain the spirit of Napoleon and you convince yourself of it. Where, he asks, does "real knowledge" come in? Further, he reminds us that "against the alleged blessings" of such convictions, we have to lay a "train of social and practical disasters, ready to explode. If the oak tree contains the spirit of Napoleon, perhaps the child contains the spirit of the devil, and the people next door are all creatures of Satan, and need dealing with accordingly" (Blackburn, 2005, p. 11). The intensity of faith—Blackburn agrees with Clifford—is hazardous as it leads to actions that would be disastrous. He sees James playing the battle between faith and reason as if it were a question of costs and benefits of each. "Refusal to believe in something," he observes, and rightly so, "is not a kind of faith" (ibid., p. 13). His concern is the consequences of dogmatic conviction and the habit of taking risks in the name of faith.

> The more such faiths you absorb, the more your risks fail to pay off. You make an expensive partner, but is it any worse than that? Clifford, of course, tells us that it is. Your habit is dangerous. Your disrespect for caution, for evidence, for plausibility may lead anywhere. 'Those who can make you believe absurdities,' said Voltaire, 'can make you commit atrocities.' By contrast, my caution cannot do any such thing. (ibid.)

Blackburn is analyzing and commenting on a sophisticated debate between reason and faith, and there is no doubt that his analysis offers valuable insights into the workings of these two human faculties. It seems to me, however, that the entire argument is based on an assumption about the nature of faith that defines it as lack of knowledge. But can knowledge and faith be so easily separated from each other? The conviction in science that there is order in the universe and that this order allows itself to be understood by the human mind shows how complex the relationship between knowledge and faith can be. Although such a conviction can be the object of philosophical scrutiny and there can even be ways of thinking that doubt its validity, it holds such a foundational position in science that without it scientific practice seems meaningless. No one can, of course, claim that it arises from blind faith. For one thing, scientific investigation confirms it at every step. But to attribute its origins to empirical observation would be to contradict human experience. In fact, the universe does not present itself to the human being in daily life as an ordered entity. The conclusion of the primitive man to assign wilful spirits to everything around him is a more immediate response to what we experience in our interactions

with the physical universe. That there is order in the universe susceptible to discovery is a conviction that humanity acquires collectively; it seems to be driven by something inherent to human spirit, confirmed in well-designed experimental arrangements and refined by elaborate theoretical explanations.

Belief in the existence of a certain kind of order in the universe is only one example of the convictions upheld by science the acceptance of which involves some degree of faith, although not the caricature presented by Blackburn. That the scientific enterprise at any given time cherishes beliefs not open to negotiation is a statement which finds support in current philosophical discourse. The following passage from a commentary by Laudan is one example:

> ...historical and sociological researchers on science strongly suggest that the scientists of any epoch...regard some of their beliefs as so fundamental as not to be open to repudiation or negotiation. Would Newton, for instance, have been tentative about the claim that there were forces in the world? Are quantum mechanicians willing to contemplate giving up the uncertainty relation? Are physicists willing to specify circumstances under which they would give up energy conservation? Numerous historians and philosophers of science (e.g., Kuhn, Mitroff, Feyerabend, Lakatos) have documented the existence of a certain degree of dogmatism about core commitments to scientific research and have argued that such dogmatism plays a constructive role in promoting the aims of science. (Laudan, 1982, p. 17)

Examples cited by Laudan are of nonnegotiable convictions underlying mega theories of nature. But there are also convictions that, when altered, change the nature of the way science as a whole looks at the universe. Today, a basic premise of science, for example, is that the laws of physics are the same throughout the known universe. This is not a provable fact, and indeed before Newton, it was generally accepted that laws governing heavenly bodies and earthly objects were different (FUNDAEC, 2000, p. 26). In a collection of articles published under the title *New Metaphysical Foundations of Modern Science*, the contributors try to look into the nature of the metaphysical commitments of science, a term covering assumptions and convictions of the kind mentioned above. The few statements cited below are simply to demonstrate how different the view of modern science has to be from its positivist beginnings. Willis Harman, for example, points to what he calls "an ontological assumption of separateness" at the heart of science, modified somewhat with the advent of quantum mechanics:

> ...separability of observer from observed, subjective from objective, causes from effects; separateness of organism from environment, man from nature, mind from matter, science from religion; separateness of "fundamental particles" from one another, of things in general unless there is some "mechanism" to connect them ("action at a distance" precluded); separability of the parts of a system or organism to understand how it "really" works; separateness of scientific disciplines, of investigators, competing over who was first discoverer (Harman, 1994, p. 8).

The change this "ontological assumption" should or should not go through is not the point of my argument. That evidence suggests its existence is sufficient to help one move away from naïve representations of scientific truth. A highly insightful article in the collection is by Lynn H. Nelson. She sets out to show that the positivist and the Kuhnian positions do not exhaust the "possible understandings of the relationships between metaphysics and science." Building on the position advocated by W.V.Quine [25] she argues that "metaphysical commitments are incorporated in theories, methodologies, research questions, and hypotheses—indeed in everything we say about that world" (Nelson, 1994, p. 17). Nelson further states that "attention to the metaphysical commitments incorporated in models, methods, and theories needs to become part of doing science" (ibid.). The fact that she substantiates her claim by deciphering the distortions introduced by a "male perspective" in two kinds of theories, "Man the Hunter theories" and "Master Molecule theories" indicates how relevant her line of thinking actually is. For my purposes here it represents another example of the complexity inherent in the notion of scientific truth and of the extent to which the work of science entails metaphysical commitments.

Moving Beyond the Dichotomy of Faith and Reason

What I have suggested so far in this chapter is that before any kind of complementarity between science and religion is contemplated—a notion that takes on special significance when an educational process intends to use the two as sources of knowledge, from which appropriate objects of understanding could be identified and explored in the teaching-learning experience—it has to be accepted that religion too can be seen as a system of knowledge and practice, and that such a conclusion involves staying away from rigid definitions of science that, although rejected

[25] Harman summarizes Quine's position: According to Harman, Quine argued that the "scientific explanation of any phenomenon is embedded in a theoretical network which involves multitudinous assumptions." These include "assumptions involved in the observation of the phenomenon"; " hypothesis about the context of the phenomenon"; "underlying theoretical hypothesis"; "basic laws of the pertinent area of science"; " the accepted nature of the scientific methodology"; "epistemological assumptions underlying scientific inquiry"; and "ontological assumptions about the basic nature of reality" (Harman, 1994, p. 7).

by rigorous scrutiny of philosophers of science, continue to govern much of the thinking in many fields including education. An essential step to embracing more accurate descriptions of science, I believe, is to move beyond a false dichotomy between faith and reason.

Let us consider for a moment Blackburn's analysis of the subject discussed in the previous section. For him the link between faith and action seems to begin with faith, a faith that is blind. It is private; it operates independently of truth[26], and easily leads to irrational action with disastrous consequences. Knowledge is given its own space outside faith, and it is attained through "caution," "evidence" and "plausibility". However, this and similar debates about faith and reason do not give us much insight into articles of faith indispensable to knowledge—not the superstitious belief that Napoleon's spirit resides in a given tree or the deceitful belief of the ship owner in Clifford's story, but articles of faith without which humanity would not have made it through its tortuous evolutionary path. Neither are we given a conception of reason expansive enough to include 'reasonable' convictions present in both science and religion. Faith is reduced to wishful fanciful thinking, while reason is presented as an endless process of questioning. To callously identify faith with superstition can be viewed as the expression of a passion. Would it be unreasonable to argue that, in fact, knowledge leads to faith and faith to knowledge?

The answer to this question can be positive if one agrees to let go of conceptions of rationality that identify it with narrowly defined methods of the 'verification of truth'. Dunne's discussion of J. H. Newman's critique of such definitions of rationality is relevant here. Dunne reminds his reader that the significance of Newman's work "lies precisely in his diagnosis of the problem [of rationalism] as a generic one that required less a defence of religion than a challenge to the paradigm of rationality which would so summarily discredit it—and in his consequent articulation of a rationality which would not only leave room for religious belief but, while doing so, would also do justice to the many ways of being reasonable that are embedded in our social practices" (Dunne, 1992, p. 32). Elasticity is required in the processes of reasoning that leads to assent as Dunne reminds us of Newman's words: "the processes of reasoning which legitimately

[26] Blackburn sometimes uses the terms 'belief' and 'faith' interchangeably. He mentions that for an individual there are times when it is expedient to believe in something untrue as well as occasions when it is uncomfortable and threatening to believe in something true. "Truth", however, "has rights and privileges of its own, and they are not the same as those of utility" (Blackburn, 2005, p. 9).

lead to assent...are in fact too multiform, subtle, omnigenous, too implicit, to allow of being measured by rule" (Newman, 1985, p. 196).

The proposition that education needs to embrace a broad conception of rationality is relevant when considering the role various sources of knowledge are to play in the elaboration of educational content. But it also affects the vision of the subject of understanding that inspires the process of moral empowerment. Earlier in this chapter, reference was made to the modern man in the context of development. A certain kind of rationality is to characterize this individual, the nurturance of which, as the early literature of the field shows, was considered a requirement of progress. Over the years, repeated failure resulted in the questioning of development strategies, but it is not clear whether the inadequacies of this rationality have ever been seriously taken into account. Yet, there are so many indications that this conception of a rational human being distorts our view of human nature, imposing on society the image of the modern man as a soulless entity set on fulfilling its many wants and desires. The moral shortcomings of this entity are becoming increasingly apparent as the crisis of the kind of modernity that has dominated thought for decades deepens. The subject of understanding that I seek here is as different from this 'modern man' as it is from the 'emotivist self', the 'computer' and the 'radical constructivist', the candidates found inadequate in chapter 2. If education were able to move away from the dichotomy between faith and reason, I believe, a clearer picture of the desired subject of understanding would emerge. It is reasonable to hope that such a picture would not be so fragmented. Mind would not be so separated from heart and the relationship between the cognitive and the normative, between intelligence and morals would not be distorted. Dunne reminds us that "in human affairs a merely calculative intelligence is no more capable of truth than it is of goodness—or, rather, that without goodness even the most subtle intelligence will find truth itself beyond reach" (Dunne, 1992, pp. 36-7). He draws on Newman's assertion that the rays of truth "stream in upon us through the medium of our moral as well as our intellectual beings: and that in consequence that perception of its first principles which is natural to us is enfeebled, obstructed and perverted by allurements of sense and the supremacy of the self" (ibid., p. 37). Dunne further brings into focus Aristotle's notion of the indivisible connection that exists between phronesis and being good: " and this eye of the soul acquires its formed state not without the aid of excellence...and this is not evident except to the good man; for wickedness

perverts us and causes us to be deceived about the starting-points of action. Therefore it is evident that it is impossible to have phronesis without being good"[27].

Processes and Methods in Science and Religion

The demonstration, no matter how convincing, that science has its own metaphysical commitments and un-provable premises does not imply by itself that religion can be seen as a compatible, and somehow comparable, system of knowledge. One has to go beyond questions of faith and conviction to examine the processes and the methods through which both science and religion produce, validate, apply and diffuse knowledge. Even when the existence of spiritual reality is accepted, it could still not be claimed that the knowledge making up the two systems is of the same kind; the knowledge of the existence of an even 'unseen' elementary particle is unlike the knowledge a believer confesses to have of the soul and its existence. But apart from the relationship between humanity and the divine, religion is concerned with the life of the human being on earth—a life, it asserts, should be imbued with spirituality and thus qualitatively different from a mere physical existence.[28] As such it is a source of meaningful knowledge about the essential relationships the transformation of which is the focus of the process of moral empowerment. It can be argued that in relation to this kind of knowledge, religion too is characterized by processes and methods that correspond to some degree to certain features of science.

To be open to the possibility of certain similarities between the way the two systems deal with knowledge, one has to bear in mind that while generalization, the formulation of hypotheses, deduction, the testing of predictions and falsification are vital components of scientific methods, they are not carried out mechanically by programmed entities but by scientific communities that work within certain worldviews and theoretical frameworks. These determine the kinds of questions to be asked and the kinds of answers to be explored. The way Thomas Kuhn employed the concept of paradigm may not be universally valid, but it cannot be denied that scientific

[27] See Ross's translation, (Aristotle, E.N., Book VI)

[28] "... religious experience does not suggest a special kind of experience, akin to telepathy or clairvoyance; rather, it suggests a different level of experience made possible by concepts which enable us to understand the fact of a more mundane level of life in a new light" (Peters, 1972, p. 111).

knowledge is accumulative only to some degree; notable advances in science have occurred through pronounced shifts in paradigm, the dynamics of which evoke images of a revolution (Kuhn, 1996). The way co-existing research programmes help advance science is another feature of the scientific enterprise. No community of scientists sets out to answer all the questions in the world; much work goes on to extend the range of validity of theories that have already proven their capacity to explain a significant set of interrelated phenomena. During this process, the main statements of the overall theory are never questioned. Finally, however, the range of validity of any theory proves to be finite and new theories arise to explain new phenomena which have come to the attention of the scientific community. More advanced theories do not necessarily prove previous ones wrong but clarify the limits within which they operate and provide an understanding of why they work inside those limits.

How does religion, we need to ask, deal with the knowledge it acquires—from both the reading of what it considers revealed truth and the articulation of what it learns in its day to day practice—about individual and collective human existence on earth? To see if there are any similarities between its processes and methods in relation to knowledge—albeit according to different dynamics—and those of science, one has to be able to separate religious knowledge from widespread superstition and fanaticism propagated in the name of religion. This is by no means an easy task, but nor is the identification of demarcation criteria that separate science from pseudoscience. The task becomes more difficult when one considers the sensitivity with which it has to be approached; one has to be acutely aware of requirements of freedom of belief and avoid unwarranted judgments of people's cherished convictions. In what follows, I limit myself to the expression of what Bahá'ís are willing to demand of religion.

Induction, deduction and falsification represent the workings of the human faculty of reason; religion as opposed to fanaticism can and should employ them in the generation, application and diffusion of the knowledge with which it deals. The principle of the equality of women and men provides a useful example in this respect. Having embraced as an article of faith the existence of the human soul with no sex, colour or ethnicity, Bahá'ís adhere to this principle as part of their core religious belief. Yet, for such a conviction to become firmly established in their own lives, in their communities and in their efforts to contribute to the transformation of society, it must be

scrutinized by reason. Numerous observations followed by generalizations and deductions, rational argumentation on to the various applications of the principle, and struggle against ongoing efforts by forces of tradition to falsify the principle are all necessary for a belief instilled in a Bahá'í child to become a veritable element of her or his religious knowledge.

This example of the principle of equality of women and men allows me to go further in my analysis of the way religion deals with its knowledge about life here on earth. In broadening my understanding of this principle and the way it has to be established in human society, how would I deal with other religious beliefs that consider women inferior to men? Can I explain disagreements on such a fundamental issue without rejecting the validity of all the teachings of such religions? This I can do precisely if, rather than reducing religion to an assortment of creeds in conflict, I view it as a system of knowledge in evolution. What is necessary is the ability to step back and look at the phenomenon of religion from a historic perspective, the way it has been done in the case of science, not by people who are determined to explain it away but by those who have accepted its existence as a valid system of knowledge. The picture of science that has emerged from such an examination includes the co-existence at any given time of scientific communities each working within a given research programme. It is even possible at a given moment to identify co-existing scientific communities with different worldviews and paradigms, a condition that is quite prevalent in the social sciences (FUNDAEC, 2000, p. 27). Such communities show signs of conflict particularly at the time of the appearance of a new paradigm, although animosity seldom takes the dimensions of the persecutions that occur when the founder of a new religion appears and organizes the perception of spiritual reality in new terms. The repeated appearance of such historical figures, the circumstances under which they appear, and the way their religion flourishes and influences the advancement of civilization, as well as the crises that beset the community of their followers with the passage of time, are historical facts that, when interpreted in a certain way, make possible a vision of religion as a system of knowledge with its own dynamics of progress. In one way or another, these founders of major religious movements all claim to 'reveal' aspects of spiritual reality, and once revealed, their utterances "become the subject of exploration, not only by the individual... but also by entire populations" (Arbab, 2000, p. 184). In this way, a series of "Revealed Texts", or "Chapters of the same Text", define the "paradigms" within which religious communities carry out their

practices. Without them "spirituality would be an expression of personal experience, never to be validated by the intellectual interactions that create social knowledge" (ibid.). And it is important to note that what religious communities have historically done cannot be reduced to administering a set of rituals; they have created and applied knowledge that has influenced the advancement of civilization. Moreover, the process through which they have dealt with knowledge as they have read their revealed texts, applied what they have read and generated new knowledge, is not totally unlike what scientific communities have done in their efforts to read the 'Book of the Universe'[29].

An excellent source of insight into the way knowledge is dealt with in both science and religion is Ludwik Fleck's *Genesis and Development of a Scientific Fact*, in which he examines in detail the emergence and establishment of the following fact: Wassermann reaction, which is a serodiagnostic procedure developed in the 1920s, indicates, within acceptable statistical limits, the presence of syphilis in a patient. In analyzing the history of a "completely 'empirical' finding", he explains:

> Thoughts pass from one individual to another, each time a little transformed, for each individual can attach to them somewhat different associations... Whether an individual construes it as truth or error, understands it correctly or not, a set of findings meanders throughout the community, becoming polished, transformed, reinforced, or attenuated, while influencing other findings, concept formation, opinions, and habits of thought... (Fleck, 1979, p. 42)

Fleck's emphatic statement that "cognition is the most socially-conditioned activity of man, and knowledge is the paramount social creation" (ibid.) has relevance to both scientific and religious knowledge. In the same way that scientific knowledge is not the simple imposition of 'nature' on the human mind, religion as a system of knowledge is not a straightforward reading of 'revelation'; it is based on revelation but elaborated through a continual process of learning through social interaction.

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[29] Charles Taylor offers profound insights into the rise of modern secularism. He explains that "increasing interest in nature...for its own sake, not simply as a manifestation of God" contributed to several historical developments including the emergence of modern scientific outlook. In one narrative, as interest in "nature-for-its-own-sake" grows, "reference to the divine atrophies." The latter emerges as the "natural stance" and the correct one. Taylor disagrees with this narrative, for, the perfection in nature which elicits the "dimension of grace" does not "cancel or set aside" the perfection inherent in nature. The two go together. The "autonomy of nature" does not need to deny the "symbolic or allegorical meaning of things": one "focuses on God's speech acts, the other on the marvellous systematic language which makes these acts possible" (Taylor, 2007, pp. 90-92).

The parallels I have drawn between some of the processes of science and religion in relation to knowledge do not go far enough particularly when the ultimate purpose is to find a way for certain educational programmes to draw on religion as a source of knowledge complementary to science. To evoke the image of paradigms or co-existing research programmes in science in order to explain the existence of the variety of religious beliefs has its own dangers. For one thing, left alone it makes it too easy for fanaticism to operate in the name of religion. In science, not every research programme is believed by the community of scientists to lead to valid scientific knowledge. The way Lakatos describes such programmes gives an indication of the kind of criteria that exist to sort through processes that claim to be scientific (Lakatos, 1978). A "research programme is the sum of various stages through which a leading scientific idea passes" (Larvor, 1998, p. 51). At the heart of every research programme is a "hard core"—"a set of commitments which cannot be abandoned without abandoning the programme itself" (ibid.). There is also "a 'protective belt' of auxiliary hypotheses which shields the hard core from falsification" (ibid., p. 52). This protective belt changes in response to new empirical facts and criticism, allowing the programme to continue extending the central idea. Further, each research programme has its own collection of characteristic problem-solving techniques referred to as its *heuristic*. "Methodology is separated from *heuristics* rather as value judgments are separated from 'ought' statements" (Lakatos, 1978, pp. 103, n.1). Lakatos considered the history of science as one of "extended wars of attrition" between research programmes that are "progressing" and those that are "degenerating". In the former, change comes from its own inner logic, from the use of its own heuristic. In the latter, change occurs in response to external criticism. "A discipline is scientific so long as progressive programmes triumph over degenerating ones" (Larvor, 1998, p. 53). In looking for demarcation criteria between religion as a source of knowledge for moral empowerment and as a promoter of fanaticism—ironically also empowering—one would have to put further demands on religion than those implied by the use of reason; one could, for example, look into a given religion to see if, at the historical stage in which it finds itself, it has the capacity to allow progressive programmes to win over degenerating ones.

One last comment seems necessary to end this section. In presenting the arguments in the previous paragraphs—to justify calling religion a system of knowledge in its own right—I have

focused on knowledge about human life on earth, and have not advanced any claims about the reasonableness of more mystical teachings including belief in the existence of a higher Power significant to that life. I did not wish, however, to imply that such fundamental aspects of religion do not admit the use of reason. In expounding on the kind of rationality that allows for induction to make sense, for example, Nagel states: "Observed regularities provide reason to believe that they will be repeated only to the extent that they provide evidence of hidden necessary connections, which hold timelessly. It is not a matter of assuming that the contingent future will be like the contingent past" (Nagel, 1986, p. 84). He goes on to say that the capacity to achieve higher and higher levels of conscious thought must exist in advance and be constituted by the natural capacity to achieve "harmony with the world far beyond the range of our particular experiences and surroundings" (ibid.). He further explains:

> When we use our minds to think about reality, we are not [...] performing an impossible leap from inside ourselves to the world outside. We are developing a relation to the world that is implied in our mental and physical makeup, and we can do this only if there are facts we do not know which account for the possibility. Our position is problematic so long as we have not even a candidate for such an account (ibid.).

Nagel reminds us that Descartes tried to give us this candidate by "proving the existence of the right sort of God." Of course, he did not succeed, but according to Nagel "Descartes' God is a personification of the fit between ourselves and the world for which we have no explanation but which is necessary for our thoughts to yield knowledge" (ibid., p. 85). Although he has no idea what "unheard-of property of natural order" this might be, the supposition of the need for a basis for our beliefs in something global rather than just human, even if we are not able to discover it, is vital for human knowledge to be intelligible.

Complementary Systems of Knowledge

If the argument so far in favour of the comparability of science and religion in certain of their features is plausible, then the stage is set to explore the question of complementarity between them at various levels. The first has to do with the question of the knowledge of reality itself. Referring back to Nagel's discussion of an expanded reality, to what extent can science in its broad sense—ways of knowing that try to depend exclusively on the senses and reasoning—lead to an adequate knowledge of such reality? Particularly, if there is a spiritual dimension to human

existence and not just one that is constructed from the physical one, is not religion a necessary system of knowledge that complements science? This is not a question that admits a simple answer; the following argument based on ideas proposed by FUNDAEC offers insights into the nature of the kind of inquiry that may be undertaken.

Although the application of ideas from physics to other areas of thought is fraught with difficulties, the way the notion of complementarity is employed in certain interpretations of quantum mechanics can serve as a metaphor that clarifies the relationship between the two systems. The concepts of 'particle' and 'wave' in ordinary physics refer to two entirely distinct phenomena. In explaining these phenomena, two different sets of concepts and vocabulary, inseparable from theoretical constructs and experimental arrangements, are used. Position and momentum are examples of concepts related to particles, and wavelength and intensity examples of those pertaining to waves. Particles need a path available to them and a finite amount of time to go from one point to another; two particles cannot be in the same place at the same time. Waves are not restricted in this way; rays of light can interfere with each other at various points of space producing patterns of light and darkness. In this sense two distinct languages are used, one of waves and one of particles, to describe and explain two distinct phenomena. One would never dream of something being both a particle and a wave. Yet, experiments that observe the behaviour of extremely small constituents of matter, say the electron, show that these exhibit both characteristics. However, the situation is not chaotic; if one sets up one's instruments to look for a wave, electrons behave only as waves and under another experimental arrangement they behave like particles. The answer to this apparently bizarre behaviour of nature, at least according to the most prevalent interpretation, is to abandon the notion of 'either/or' as well as the notion of 'both' and use the concept of complementarity instead. The fundamental constituents of matter are too complex to be described in either the language of waves or the language of particles. The question is not 'what electrons really are', but simply that under certain conditions we can explain their behaviour in the language of particles and under other conditions in the language of waves. Thus, at a basic level, nature seems to require complementary sets of measurements and descriptions. Underlying the arrangement of instruments in experimental setups are theoretical models, basically structures in language. Complementarity as applied to particles and waves seems to be saying something fundamental

about reality and the way humanity can know it. It appears to be an indication of the complexity of nature and the inability of the human mind to comprehend it in its entirety. But if this is true for the physical universe, FUNDAEC asks:

> Is it unreasonable to assume that when the object of exploration is the sum of both spiritual and physical reality, an object far more complex than the material universe, a single description would also prove to be inadequate? Is it not possible that to understand and explain this reality, humanity needs at least two systems of knowledge, each with its own language, which together enable it to penetrate its mysteries?" (FUNDAEC, 2000, p. 71)

Complementarity in Conviction and Action

Moral empowerment demands action on the part of the subject of understanding as an active protagonist of social transformation. In this context, one needs to ask: is the connection between understanding and action in the process of empowerment immediate? It seems that in most cases, if not all, understanding must be first transformed into conviction and that the educational process must face this challenge. If this is true then one may further ask whether scientific and religious convictions do not both need to be cultivated alongside each other in the process of moral empowerment. A brief discussion of what I mean by scientific and religious conviction is necessary here:

In chapter 3, I discussed briefly the content of a few lessons in one of FUNDAEC's texts called *Properties* concerned with the enhancement of capabilities related to the power of expression, beginning with the examination of words and concepts that help students describe the world around them with clarity. Among the concepts that are introduced in these lessons is truthfulness as a 'property of the human soul' and the purpose of the discussion was to show how 'spiritual qualities' could be examined without entering a religious discourse. What I need to query now is the extent to which this type of analysis, say, of truthfulness in terms of related concepts such as truth and lie, accuracy and error, investigation of reality, honesty, and sincerity, actually convinces the student that he should be truthful. The immediate response is that one must go beyond cognition and face the challenge of developing attributes that include appropriate attitudes, skills and habits. But suppose this is done, as I will discuss in later chapters on capabilities. Does not the question persist? Even when understanding is nurtured in the context

of a complex set of capabilities, does it not have to be transformed into conviction before it is translated into consistent moral action? The question can be asked in a different way. Is not conviction an aspect of the kind of understanding that engenders action? Further, would not any conviction such as "I must be truthful" only make sense if it were part of a whole system of knowledge and practice within which the moral nature of a given action would be assessed?

The extended reality proposed by Nagel, seems to be relevant here. In nurturing the belief that "I must be truthful"—not as the habit of a well trained child but as a strong conviction that can resist rampant forces of corruption in the world—we can ask if it is necessary to argue that truthfulness is an element of a reality, one that goes beyond the physical, and if one needs to introduce the concept of a soul as an element of that reality to which truthfulness is somehow attached as a property. Nagel himself sets his limits categorically. He sees no reason for the assumption that a soul exists. He recognizes that the assumption has other implications, for example the possibility of life after death. What is interesting is that the language Nagel uses in this regard is one of belief; he does not attempt, as far as I can see, to prove or disprove the existence of the soul. He simply explains that he does not believe in such a continuation of individual life and, while lamenting death, accepts it as an end to his consciousness. A Bahá'í-inspired educational framework would necessarily disagree with Nagel on this point. It would assume the existence of a soul, although it would not pretend that there is an objective way to understand its nature. In this sense it would venture a little further into the exploration of the non-physical than Nagel seems willing to do. As mentioned before in this document, it would call part of the expanded reality spiritual reality and try to understand some of the attributes associated with it. But it would be wary of speculations about the nature of that reality. It would agree with Nagel that all of reality is not available to some transcendental perspective we can reach. In fact, it would claim that most of it is beyond our reach. Yet it would not be willing to abandon religion's claim that there is a spiritual dimension to reality. It would argue that the exploration of this dimension through religion at least facilitates the transformation that understanding gained through ethical reasoning must undergo to become the kind of conviction that is conducive to moral action.

In the context of science education, Howard Gardner's example of the results of research on the extent to which students of leading American universities mastered what they studied illustrates how ephemeral understanding of scientific facts is if it is not translated into a proper set of convictions. He states:

> In a typical example, college students were asked to indicate the forces acting on a coin that has been tossed straight up in the air and has reached the midway point of its upward trajectory. The correct answer is that once the coin is airborne, only gravitational pull toward the earth is present. Yet 70 percent of college students who had completed a course in mechanics gave the same naïve answer as untrained students: they cited two forces, a downward one representing gravity and an upward one from the "original upward force of the hand". (Gardner, 1991, p. 3)

We could explain away this and similar results of the research, by asserting that the students had not understood things well. But whatever our definition of 'understanding well' may be, we would have to accept that what was operating in the minds of the students was a set of beliefs acquired since childhood, beliefs that scientific knowledge had not been able to replace. In the case of the above example, the belief in question is that "an object cannot move unless an active force has somehow been transmitted to it from an original impelling source (in this instance, the hand or arm of the coin tosser) and that such a force must gradually be spent" (ibid).

Gardner attributes this predicament of American education to the failure of educators to realize that "in nearly every student there is a five year-old 'unschooled' mind struggling to get out and express itself" (ibid, p. 5). Valid as this statement may be, the challenge of education cannot be to empty the mind of the student from 'belief' in order to fill it with 'scientific knowledge'. The constant process of formulation, modification and sometimes destruction and reconstruction of scientific conviction cannot be ignored. Every text of modern science teaches the atomic theory of matter, for example, as one of the grand scientific theories of physics. Teaching the theory clearly involves nurturing the understanding of such concepts as particles, atoms and molecules, chemical bonds and so on. But there is a point at which the understanding of 'matter is made of particles' becomes a conviction; a profound conviction wins over naïve beliefs that seem to contradict it.[30] This is particularly so because the conviction that matter is made of atoms is not

[30] It is true that at a more advanced stage the student of physics recognizes the limitation of the theory, which after all is a model of reality. However, the conviction that matter is made of particles is fundamental to the overall thinking of a physicist. In his celebrated lectures on physics, for example, Richard Feynman states: "If, in some cataclysm, all of scientific knowledge were to

equivalent to the acceptance that, say, such and such a beach is made of innumerable particles of sand. The former does not arise from direct observation but is the result of the ownership of a scientific theory by a person who has internalized its claims. The anti-realist, of course, advocates "an attitude of complete agnosticism towards claims about the unobservable parts of reality" (Okasha, 2002, p. 70). The realist would argue that seeing through different instruments such as glasses, binoculars, and low-and high-power microscopes represents a continuum. While the concept of the observable varies in each case, the sophistication of the device used cannot be the criterion by which one can draw a line between observation and theory. In order to strengthen the conviction about the all-pervading existence of atoms and molecules, then, an educational process would have to, among other things, help develop the mindset of a realist in the student. The same mindset is required when it comes to convictions in the moral realm if search for understanding spiritual reality is not to degenerate into the play of a fanciful and superstitious imagination, if the premise of the existence of the soul—which should be explored soberly—is to exclude the possibility of the belief that Napoleon's spirit resides in a tree. Here is another facet of the relationship between science and religion: Religion without science degenerates into superstition.

Complementarity of Languages

Complementarity also needs to be examined in the context of the languages that characterize various "forms of knowledge". It is possible to think of a number of concepts usually associated with science itself as attributes of its language. In one of its texts, FUNDAEC examines the language of science, not so much as what it is, but in terms of what it seeks, exploring such statements as "the language of science seeks to eliminate ambiguities", "the language of science seeks objectivity" and "the language of science seeks rationality". In this exploration, scientific language ceases to be viewed as a series of exact definitions, precise observation statements, sound hypotheses and unquestionable conclusions reached through flawless logical reasoning. This rigid language would not permit the operation of such faculties as intuition and imagination

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be destroyed and only one sentence passed on to the next generation of creatures, what statement would contain the most information in the fewest words? I believe it is the *atomic hypothesis* (or the atomic *fact*, or whatever you wish to call it) that *All things are made of atoms—little particles that move around in perpetual motion, attracting each other when they are a little distance apart, but repelling upon being squeezed into one another*" (Feynman, 1963, p. 4).

in scientific inquiry. Scientists do find it necessary to speak a language in which words and concepts mean the same to everyone in a given community. Yet, they are not intolerant of ambiguities. They seek to overcome ambiguity through a process of progressive clarification of ideas—a process which allows a notion, vague and intuitive in the beginning, to gradually evolve into a relatively well-defined concept. The process involves sorting out implications and identifying subtle meanings. It demands the ability to see possible contradictions further down the road, and depends on "the capacity of the mind to take creative steps, not chaotic ones but calculated leaps that more often than not allow one to land on surer ground" (FUNDAEC, 2009, p. 40).

This process of progressive clarification coded into the scientific language enables scientific communities to clarify ambiguities and reach agreement in relation to certain concepts.[31] The most common concepts in science have evolved over decades and centuries to mean the same things to all scientists. For a long time, for example, words such as force, energy and power were used by scientists in different ways. As the field of physics advanced, each concept became better and better defined and, today, phrases like solar energy, kinetic energy, gravitational force, or electrical power, have unique meanings understood by all physicists.

The objectivity sought by scientific language is achieved progressively through an iterative process. This process is in accord with Nagel's view regarding objectivity as a method of understanding. Objectivity as the way to detach ourselves from how things appear to us in order to make statements about reality is valid if we are willing to include in a later stage our perceptions as part of a larger reality. Scientific language has to allow for this iterative process. The rationality that scientific language seeks cannot be defined too narrowly either. Not only does it have to include statements that employ such tools of reasoning as deduction, induction, falsification, analysis, inference, contextualization, justification, but it also has to leave room for conclusions that result from the workings of intuition, intelligent guess, and leaps of faith.

The above three characteristics can also be attributed to the language of philosophy which science has to use, at least if it is to reflect on itself. In a sense, it uses the languages of

[31] See Williams' notion of convergence in chapter 4.

mathematics and philosophy to achieve two different objectives. The first allows it to become increasingly more precise, the latter ensures that it does not lose its awareness of context. The use of the language of science, in all its complexity, is not of course limited to the description of elements and properties of the physical universe, it extends its function by exploring social phenomena and the workings of the mind, as well as examining with the help of philosophy its own metaphysical foundations. However, it achieves what it seeks to a lesser degree, or at least with more difficulty, as it moves to aspects of reality less accessible to experiment. Take the question of objectivity. No one has difficulty accepting as an objective statement the sentence "the colour of things is a property arising from the way they interact with light". But in the realm of the social, the statement "the poor are lazy" only has the appearance of objectivity. It can easily be the expression of personal judgment, for example, of someone engaged in exploiting the poor, by paying them low wages, charging them exorbitant prices for the necessities of life and blocking ways in which they could change their conditions. Such a person would be reluctant to make the subjective statement "I like to amass riches at the expense of the poor" or "I will simply squeeze every ounce of energy out of these people". He would be apt to pronounce instead, the apparently objective statement "the poor are lazy; they don't try hard and therefore they stay poor" (FUNDAEC, 2009, p. 62). There is a thin line between a language that seeks objectivity and one that tries to justify one's subjective stance.

Clearly the need for the application of scientific language to the social and the metaphysical cannot, and should not, be denied. What has to be explored is whether the application of this language, though necessary, is sufficient or should be complemented by other languages. Concepts such as 'the power of love', 'the power of unity' or 'the power of humble service' are good examples to consider, for they are all relevant to the question of moral empowerment as discussed in chapter 1. Today, these concepts have entirely different meanings for different groups, the very existence of such powers having little relevance to much of the prevalent discourse on power. Can the same clarification process, one may ask, that allowed scientists to reach agreement on the concept of physical power in terms of the expenditure of energy per unit of time, be used so that statements about these other kinds of power become increasingly clear, objective and rational, and incorporated in a language that can then be employed in an educational process aspiring to be scientific? While, I believe, this is a process worth undertaking,

it would not by itself prove adequate partly because the language of science does not exhaust meaning. It would certainly not enable the students to appreciate the role such powers play in the pursuit of their own twofold moral purpose.

That languages other than the one associated with science are needed to convey meaning is, of course, a rather trivial statement. The languages of the arts and of poetry are clearly indispensable, and an educational process of the kind being considered here has to employ them. "Where science does not reach, art, literature, and narrative often help us comprehend the reality in which we live" (Flyvbjerg, 2001, p. 18). To illustrate this point for its students, FUNDAEC presents them with two statements about the daffodil. The first is: "A daffodil is a species of narcissus with a large bell-shaped corona growing from the perianth, cultivated for its ornamental yellow flowers." The second is a poem by William Wordsworth in which he describes a field of daffodils he saw "as he wander'd lonely as a cloud that floats on high o'er vales and hills." To this "crowd" he refers as "a host of golden daffodils"; "fluttering and dancing in the breeze"; "a jocund company" that would often "flash upon that inward eye which is the bliss of solitude"; and his "heart with pleasure" fill.

The first statement, students are reminded, is only the beginning of a series that would lead to a scientific description of the plant. Such a description would give insights into many aspects of the plant's existence, its evolution, the functions of its various parts and their relationships, its interactions with the environment and its uses; it could even include the fact that the daffodil has been the subject of a poem by Wordsworth. But can this set of statements ever express the kind of meaning that the poem conveys? And vice versa, is the language of poetry an appropriate tool for describing a set of increasingly more complex scientific models of the plant? In reflecting on the characteristics of the two languages, students are asked to avoid simple claims that, for example, the language of poetry is subjective, or that it thrives on ambiguity. Why, it is asked, is not the heart of the poet dancing with the daffodils as much a part of reality as the flower itself?

> After all, once Wordsworth calls our attention to it, we too see the images he had in mind and our heart too is moved by the imagery. Could it not be said that there is inter-subjective agreement on the dance of the daffodils? Yet the agreement is not of the same kind as the one we can reach on a scientific description of the plant. What are the differences? And as to ambiguity...it would not be fair to call the language of the poem

> ambiguous either; it certainly conveys meaning with admirable clarity (FUNDAEC, 2009, p. 66).

The distinction FUNDAEC identifies in the above two languages seems to be present in the way the designative theory of language and the expressivist view of it are viewed in linguistic philosophy. The designative theory treats words as representatives of things and objects and sentences as "unambiguous and incontrovertible statements about the world itself" (Lawn, 2006, p. 78). The task of linguistic philosophy in this case is to test the logical validity of propositions both on their own and in relation to other propositions. The expressivist view, on the other hand, focuses on the "power of language to express, specifically to express what it is to be human" (ibid.). In the arts, for example, the expression of emotions has a central role. As Collingwood puts it, expressing emotions is a prerequisite of being conscious of them: "Until a man has expressed his emotion he does not yet know what emotion it is. The act of expressing it is, therefore, an exploration of his emotions" (Collingwood, 1938, p. 111). By coming at language from the side of expression, it seems as if Collingwood is attacking a certain view of language:

> ...the view that language consists of a set of signs which have or ought to have, clear and precise meanings and whose combinations are, or ought to be, subject to invariant rules—a double 'ought' which at the limit would sanction the abandonment of natural languages altogether as "ill designed for their purposes," and their replacement by a "scientifically planned philosophical language" (Dunne, 1992, p. 64, citations from [Collingwood, 1938, pp. 226-7]).

However, according to Dunne, Collingwood did not envision the expressivist language of arts in conflict with this orthodox view of language as long as the limitations it contains (of grammar, logic and so on) were realized in relation to "language in actual use or as an activity" (ibid.). Collingwood's treatment of language and his refusal to make it an instrument, even for expression, but rather an activity in which we are caught up that is already expressive, is helpful in thinking about various 'languages' students need to be taught. The question being posed here is this: Is it sufficient for an educational process identifying itself with moral empowerment to initiate students in the languages of science and the arts and humanities viewed as activities, or is there need for initiation in the language of religion as well?

The answer to this question, in a Bahá'í-inspired educational framework, would, of course, be positive. Here is how I think one can begin to scrutinize this position: If religion is to be in

harmony with science and not superstition respectably dressed, its language cannot be characterized by irrationality, arbitrary opinions, complete subjectivity and impenetrable ambiguity. It too would have to lend itself to inter-subjective agreement, be able to express a rationality that does not contradict the one sought by science, and be a medium through which progressive clarity can be achieved. It is not difficult to point to numerous passages in religious literature that fulfil these conditions. But religion does not allow itself to be confined by these boundaries and, for example, employs metaphor[32] as well as poetic imagery to convey meaning beyond that which is possible for the language of science. Its value, however, is not simply in its freedom to move from one form of expression to another. The structure of its language, which allows for this freedom, is such that it can express commandments, exhortations, prohibitions, instructions, admonitions, which together with its more descriptive components give insights into the nature and purpose of human existence and elicit response to a set of moral imperatives. When it is not misused to create fear, it is a language that accommodates authority and love so as to nurture understanding in a unique way. This is particularly relevant to education which needs to tap the roots of motivation and arouse the noblest of sentiments. It is not clear whether a combination of science, philosophy, the arts and the humanities can accomplish this task.

In the specific context of ethics, Haydon asks the following:

> Religious beliefs can help to make sense of morality by enabling moral demands to be experienced within a wider framework of meaning, so that, while they can still be seen as independently valid, they are not isolated from other aspects of a person's life. It seems to be true of us as human beings that we can act in a certain way, not just because doing so serves some self-interested desire, or even because it serves non-self-interested desires relating to particular others..., but because it makes sense as part of a life which is itself understood as part of something larger. Religion can provide a set of concepts and beliefs in which the 'something larger' can be expressed. It is worth asking whether there is some wider framework of meaning, within which morality can be located, which might be available to the non-believers. (Haydon, 2006c, p. 126)

He then goes on to refer to the question of language: "Here it is interesting that some modern religious thinking has allowed traditional beliefs about God or the transcendent to be questioned,

[32] Iris Murdoch states that "the development of consciousness is inseparably connected with the use of metaphor." They are not "merely peripheral decorations or even useful models, they are fundamental forms of our awareness of our condition: metaphors of space, metaphors of movement, metaphors of vision". "Metaphors often carry a moral charge, which analysis in simpler and plainer terms is designed to remove" (Murdoch, 1997, p. 99). They can be "a mode of understanding, and so of acting upon, our condition" (pp. 110-1).

while retaining the traditional language; so that the language can still provide a framework of meaning even though it is not interpreted in the traditional way" (ibid.).

A Bahá'í-inspired educational programme, of course, acknowledges the existence of the infinite divine and the validity of religion. But with or without such a belief, a process of moral empowerment has to pay considerable attention to the language that provides the larger framework of meaning proposed by Haydon. But there are practical obstacles we need to overcome in this respect. Chief among them is the lack of convergence on the nature of the language of religion. The language of religion—not the language of salvation, the language of Greek metaphysics, or the language of rituals and sermons—needs to be analyzed in the same way the language of science has been so carefully scrutinized.

The discussion of these two last sections, on the complementarity in conviction and action and of the languages of science and religion, is intended to expand and not to take focus away from the main theme of this chapter, namely the centrality of knowledge from both science and religion, treated as complementary sources, in the process of moral empowerment. The intention of the arguments in this chapter is to support the claim that the word 'knowledge' is in fact applicable to the content of both systems. This does not mean that faith, beliefs and convictions are not also present, admittedly much more in one system than the other. Both systems seek truth and the fact that the human mind can only approach truth in small steps—faith being capable of much larger leaps—does not alter this truth seeking nature of either of the two systems. The knowledge accumulating in both systems is fallible, but so is all human knowledge. In its generation, application and diffusion, the various faculties of the human soul as well as experience enter, often in different manners. Each system has its own ways to test knowledge and reach some level of certainty that allows it to go forward in its practice. Among the characteristics of each system, the language through which cognition as a social activity takes place is of paramount importance. It seems imperative for an educational process that seeks moral empowerment of its students to draw on both languages.

CHAPTER 6: INTEGRATION

This is the third of the chapters in which I try to examine progressively the nature of objects of understanding, first in the most general context, then in relation to the sources of knowledge in which education has to seek these objects, and now from the point of view of the way knowledge needs to be integrated in the content of an educational programme seeking moral empowerment. I began the discussion of sources of knowledge in the last chapter with a brief reference to Hirst's conception of forms of knowledge. In suggesting complementarity between religion and science, I have argued that education should not deal exclusively with one part of reality—consisting of what is accessible to the physical senses and that which the human mind produces in response to it—but should also draw on the abundance of insights to be gained from religion viewed as a system of knowledge and practice concerned with the spiritual dimension of an extended reality.

The dual purpose of pursuing personal development and contributing to the transformation of society—which I have claimed lies at the heart of the process of moral empowerment—requires deliberate and sustained action. The knowledge that students must make their own through education cannot be learned in isolation from the imperative that they are to act on the reality of their own lives and of society. Reality, then, must be studied in a way that results in the understanding of concrete problems faced by individuals, groups and communities and the development of capacity to work on them. Students need to identify the causes of the problems with which they have to struggle and learn to deal with the forces that operate in society, fighting the negative forces of apathy and inaction and aligning themselves with positive constructive forces. How and in what form does knowledge come to play in this complex process, in the education of not only the privileged but also the marginalized peoples of the world? In trying to answer this question one faces an immediate challenge: There is no one-to-one correspondence between the many sets of profound and interwoven social, cultural, political and economic problems that societies face and the content of the disciplines that tend to define educational programmes. The knowledge and skills acquired in careers and professions may include elements critical of the present order, but more often than not, prepare the student to work in a

'normal' mode and not for the change in paradigm—to borrow Kuhn's terminology—that the transformation of society entails.

There are, of course, certain approaches to the generation, application and diffusion of knowledge that try to meet this challenge. One is the establishment of interdisciplinary groups. Governments and organizations of civil society have often brought together groups of 'experts' from the various disciplines deemed pertinent to study a given set of problems and to devise strategies for action. Education itself is willing to put together knowledge from different fields to create new programmes that can deal with emerging realities, for example, by trying to incorporate relevant content from social sciences into technical fields. Disciplines themselves have not been static, they have grown, divided, and have given rise to new fields, as is the case of biophysics or biochemistry.

However, in those areas of endeavour concerned with goals such as overcoming poverty or struggling against oppression, these approaches have not proven entirely adequate. In trying to address the problems of marginalized populations, interdisciplinary groups have often found it difficult to overcome the distance that separates not only the knowledge of experts in different fields but also the ideological positions that seem to characterize them. Emerging new fields often focus narrowly on certain problems, usually those that affect the industrialized world rather than the majority of humanity. The global network of universities, built according to the conception of a university in the industrialized nations, and engaged in the generation and diffusion of knowledge according to that conception, does not appear to have educational programmes that would go beyond a vision of 'modernization' to empower the masses of humanity to contribute to a fundamental transformation of their societies. Faced with this situation, many endeavours have sought answers in non-formal education, consciousness-raising and the delivery of specific training packages. These efforts have certainly had a positive impact on society, for example, by enabling millions of people to participate in struggles against injustice. But the polarization that has been created between such interventions—coupled with a romantic and exaggerated emphasis on 'what people already know'—and the formal education being universalized takes energy away from seeking a coherent approach to the empowerment,

particularly of young people who do wish to attend school and whose families see in education the only hope for improving their condition.

The concept of integration enters the discussion of this thesis in the context of a need for educational programmes, structured and substantial in their knowledge content, that empower students to act on their reality and transform it. This involves the proper choice of objects of understanding as well as their integration into a structured whole in such a way that would enable the students to apply what they learn to complex sets of real problems they encounter as they progressively try to contribute to the transformation of society. That education in some form has to take on such a challenge is by no means a given. Many programmes, including the majority of today's Bahá'í-inspired endeavours, are content with incorporating ethical propositions into a curriculum that follows traditional subject matters of prevalent formal educational systems. Over the years a number of efforts to move away from curricula based on subject matters have also flourished here and there. Some of these have been formulated on the basis of hastily defined notions of 'fragmentation', 'compartmentalization of knowledge', and 'collection of unrelated experiences', on the one hand, and 'wholeness', 'synthesis' and 'unity', on the other. The results include units of instruction that, for example, try to teach physics, chemistry and biology around a theme or help students sort information and develop a few skills and attitudes through the discussion of some social issue. But at this level, integration and fragmentation tend to become a pair of labels implying good or bad for whatever it is—curriculum, method or any other aspect of a specific educational programme—that is either being promoted or attacked. If integration is to mean more than this, the concept needs to be scrutinized at more depth. I will make an attempt to carry out such an examination, in a rather limited way, by first presenting some of Paul Hirst's analysis of the problematic assumptions underlying criticisms raised against traditional subject based curricula which often have given rise to a call for integration. In light of this analysis, I present a few criteria for the organization of knowledge in curricula, showing in the process that replacing 'subject matter' with 'social practice', which is what Hirst himself later advocated, is not an entirely satisfactory solution. Apart from the organization of knowledge, integration needs to be dealt with in the context of the values knowledge embraces, and at a fundamental level, it has to overcome the dichotomy between thought and action. This chapter is intended to prepare the way for me to examine the notion of capability in the next.

Distinct and Interrelated: A Defence of Forms of Knowledge

In the formulation of his original position, Hirst views 'integration' as the term used to attack 'subject-structured' curriculum. He argues that the structure of a subject matter is not "entirely contingent" as it is based on the interplay of logical factors with social and historical forces. The knowledge of the physical world, for example, is different from the knowledge of the mind, and the difference lies in the nature of concepts, logical structures of propositions and the truth criteria involved in each. Based on these three criteria, Hirst identifies "forms of knowledge", to which reference was made in the last chapter, as autonomous entities distinct from other organizations of knowledge including the most longstanding university 'subjects' and 'disciplines'. He asserts that by attacking the logical structure of existing knowledge, the critics of traditional curriculum are in effect attacking the wrong thing: the very nature of what most educators still want to teach (Hirst, 1974a, p. 137).

A given form of knowledge, albeit not immune from change, is irreducible to other forms. Althought different forms of knowledge cannot be unified under the same kind of concepts, they are nevertheless interrelated. The concepts and truth criteria in one form of knowledge may well presuppose the concepts and truth criteria in another. For example, "many moral and religious concepts manifestly presuppose concepts we have for distinguishing features of the observable world. But religious or moral concepts do not thereby become reducible to physical concepts" (ibid, pp. 137-8). The inter-relations between concepts, truth criteria and the logical structures of different forms do not in themselves constitute "an integration of different forms of knowledge", rationalizing "an inter-form or topic structure", just as the "differentiating characteristics" of forms of knowledge do not justify "a curriculum of isolated 'subjects'". What is needed is, "a detailed map of the logical relations between objectives and then the best curriculum structure for attaining these, whatever that is" (p. 138).

This short reference to Hirst's analysis confirms my intention not to deal with the question of integration as a mere reaction to the inadequacies of curricula based on subject matters, a reaction that does not appreciate the complexities, in theory and practice, of a sound interdisciplinary approach. A closer look at the nature of some of the objections made to such curricula and Hirst's answers to them will clarify the issues at hand further. The first objection

which Hirst refutes is expressed as "exclusive focus on abstract knowledge". He argues that the assumption of a division between common sense and theoretical knowledge underlying this objection is based on the mistaken notion that the former is not differentiated into logically distinct forms. It is true that the two types of knowledge represent different degrees of abstraction, but there is continuity in so far as the conceptual schemes and truth criteria in any given form run across different levels from the common-sense to the highly academic knowledge. That a subject structured curriculum is too theoretical for children, then, does not justify a claim for or against integration (Hirst, 1974a, pp. 141-2).

The next criticism which Hirst contests relates to the lack of attention a traditional subject-based curriculum gives to the students' practical and moral concerns. Since the freer ways of organizing knowledge are just as prone to this weakness, the criticism, he points out, misses the cause of the problem. In certain cases, application of knowledge could be dealt with under subject matters by extending the theoretical to the practical. In other cases, where input from different areas is required, a more complex approach would have to be adopted. Certain inter-relations between forms of knowledge rather than their distinctions, for example, become particularly significant when it comes to issues of a moral and practical nature. But such inter-connections in themselves do not indicate the need for a "new non-subject type of curriculum unit". Moral education, for example, could be treated either as a subject that presupposes the knowledge of other forms or in the context of teaching the knowledge of other forms together with moral issues. It is immaterial whether the units that deal with moral and practical issue are called subjects or not. What is crucial is that curriculum units "come to recognize both the differences and the relations that are necessary features of knowledge" (ibid, pp. 144-5).

The third type of objection, the flawed nature of which Hirst tries to expose, rests on a psychological premise. It is claimed that "the mind or consciousness of a person either is, or ought to be, a unity which we distort by the compartmentalization of the curriculum" (ibid., p. 145). But the picture of the mind this conception evokes is, according to Hirst, faulty. The "structure of an individual's consciousness is certainly the structure of the concepts, knowledge, judgments that he has acquired and it has that unity which these elements possess" (ibid.). Education cannot aim at "unity of consciousness" outside these logically organized elements.

Concepts, truth criteria and logical structures are the very elements of consciousness students need to acquire and educational objectives should be organized around them.

Yet another type of criticism, also based on a psychological premise, is expressed in terms of the curtailment of the freedom of mind introduced by the boundaries of subject areas. To condition the mind "to classify situations in pre-determined ways, to entertain limited considerations about them" (ibid, p. 146), it is said, will make it incapable not only of wider unrestricted thought but also of other forms of response and feeling. Hirst rejects this assumption and argues that any level of coherent thought beyond the merely superficial involves "the sustained, persistent use of limited ranges of concepts" (ibid.). Education should develop the ability of the mind to move between diverse forms of knowledge. At the same time, it should train the mind to sustain thought within a given category. Freedom of thought exists "within a rule-governed structure of concepts. Outside such structures freedom is, in general, only freedom to be irrational" (ibid.).

There are lessons from this sketchy outline of Hirst's rebuttal of the assumptions of certain proposals for integration that I will carry forward in my exploration. The main one, particularly relevant in light of much contemporary practice, is that whatever the divisions of knowledge are called—forms, disciplines, subjects—there is a certain logic internal to them that cannot be ignored. To simply make weak connections between pieces of knowledge brought together from various disciplines because they are relevant to a problem or a topic does not create the kind of structure that integration should seek.

Moral empowerment as discussed up to now sets a broad aim for integration. But much has to be said before objectives for curriculum-units are established in programmes that adhere to this conception of educational aim. I will discuss this further in the next two chapters on capabilities and pedagogical choices. In doing so I will need to be mindful of the pitfalls Hirst's analysis brings to our attention. Of particular value, in this respect, is his insistence that such objectives should be grounded firmly in the structure of knowledge. He actually agrees that when there are unclassifiable objectives that fall outside the distinct forms of knowledge, they "offer a basis for curriculum units which will demand some form of genuine integration and thus run counter to the construction of sharp subject divisions" (Hirst, 1974a, p. 143). However, mental activities

and qualities of mind like enquiry, imagination and critical thinking are not constant across the different forms of knowledge and cannot, therefore, be the basis for curriculum integration. There is not a common unit of "imagination" that could apply equally to "imaginative writing" and "imaginative scientific investigation". Where such general qualities exist, Hirst asks: "must they not be first developed within some specific area of knowledge and then be generalized to apply to other areas?" (ibid, pp. 142-3). He also points out:

> ...the concepts on which our knowledge is built form distinctive networks of relationships. If we transgress the rules of the relationships which the concepts meaningfully permit, we necessarily produce nonsense. If we talk about magnetic fields being angry, actions being coloured, beauty having weight, or stones being right or wrong we have simply produced conceptual confusion. (ibid, p. 25)

Criteria for Curricular Integration

This brief examination of Hirst's early treatment of forms of knowledge, his criticism of the reasoning behind superficial conceptions of integration, and the caution with which the subject has to be approached opens the way for an exploration of certain basic characteristics of the process through which the content of curricula may be elaborated in the general context of moral empowerment. A discussion of a number of these characteristics follows:

Structure

There is a wide spectrum of efforts ranging from educational activities in which concepts are loosely organized and content from various areas of knowledge are brought together to address specific problems to programmes that strictly follow subject matters. One could say that the continuum goes from radical constructivism at one extreme to firm attachment to the boundaries and structures of disciplines at the other. Although Hirst's insightful analysis is a warning against schemes of integration that ignore the structure of knowledge, there are a number of difficulties with the concept of structure applied to knowledge. Some of these have been presented by D.C. Phillips and are relevant here. Phillips notes that Hirst's proposal for the anatomy of forms of knowledge falls short of demonstrating the distinction each form supposedly enjoys: There are overlaps between the forms with respect to their distinguishing criteria and there is more than one logical structure within some of the forms. Psychology as a branch of the human sciences,

for example, embraces both Freudianism and behaviourism with dissimilar central concepts, logical relations, tests against experience, techniques and skills (Phillips, 1993, p. 81).

In seeking to ensure that the content of a curriculum does not ignore the structure of knowledge, we need to be reminded that the word 'structure' has different meanings in different contexts. As Phillips explains, it may loosely mean arrangement of parts, elements, or constituents. In this sense, as "most things have parts or constituents, most things have a structure" (ibid., p. 83). But 'structure' carries with it normative connotations as well, which implies that some theory in each instance has to back up the usage of the term. Yet, too often, the underlying theory is not made explicit. Disparate domains become confused or conflated when various types of structure are not kept separate. The result is that "one type of structure is thought of, or discussed, in terms only appropriate to another; modes of measurement that are appropriate for one type of structure are misused in the forlorn attempt to measure other types of structure" (p. 84). Phillips illustrates these difficulties by showing how the successful acquisition of science by a pupil can become "isomorphic" with the structure of science that was learnt, or how the mental model that the cognitive scientist constructs can be considered isomorphic with what is located in the student's head. To do this is to postulate isomorphism between entities that occupy different "universes of discourse" (ibid, pp. 82-6). In research methodology, for example, a method appropriate for structures in one universe of discourse cannot, without some reasonable justification, be adopted in another. The research methodology that would shed light on the cognitive structure of the student cannot be conflated with that which would assist in discovering how well he or she has learned the concepts of a discipline.

While Phillips analyzes all these difficulties, he is not willing to do away with the concept of structure as applied to the content of education. He even seems to hope for some kind of classification in which "ontological elements" and "functional units" are given different treatment. I share Phillips' caution and at the same time recognize that structure should be a distinguishing feature of curricula developed in the context of moral empowerment. As Phillips points out, there is a "heuristic" value to the notion of structure.

> ...human experience...does seem to be orderly; it is not all 'booming, buzzing confusion'. But what is the nature of this order? Will cognitive psychology resolve the mystery?

> What role is played by social forces of the sort that interested Vygotsky? And what role—if any—do the traditional disciplines play in helping me to order my experience? Are these disciplines themselves organized in some way? (ibid, p. 92)

These, as well as the role structured practice would play in this respect, are worthwhile questions that have not yet been resolved. As far as the development of curricula is concerned, however, the mere heuristic value of the concept of structure points to promising directions. One can begin, for example, by examining structures within disciplines but then step over their boundaries to the degree needed and possible in order to organize the curriculum according to specific aims. In this way, it would be possible to retain the rigor of the educational programme—not trivializing the treatment of subject areas such as mathematics, science and language—while allowing sufficient fluidity to open space to deal with relevant theoretical and practical concerns, drawing on knowledge from various fields and practices. This dynamic interplay between an established form of knowledge at a given stage of its development and successful efforts to bend it, not only avoids the ossification of an existing organization of knowledge, but also safeguards against the kind of superficiality of which hasty attempts at integration are rightly accused.

Relevance

The process of integration being examined here needs to be informed of the danger of education becoming an exclusive enterprise. This implies that moral empowerment as a discourse cannot become too attached to the instrumentalism of the industrial world thus ignoring the role its protagonists, constituting the majority of the peoples of the planet, would have to play in humanity's transition to its age of maturity. A criticism of the liberal arts education offered by Richard Pring speaks to this concern. Pring draws on Oakeshott's metaphor of a "conversation" to make his point: We all inhabit "a world of ideas", ideas that make sense of who we are and of our experiences. What is significant is that we all participate in this world of ideas; we form our individual perceptions from sources that are publicly accessible. We thus learn about democratic values through separate experiences, but there is enough in common between them "to enable a 'conversation' to take place about those democratic values—and the conversation itself becomes a part of [each individual's] self-enacted history" (Pring, 1993, p. 52). Education as a transaction between generations of human beings in which newcomers are initiated into the world they are to inhabit, perpetuates this ongoing conversation. In Oakeshott's words, "we may recognize liberal

learning as, above all else, an education in imagination, an initiation into the art of this conversation in which we recognize the voices; to distinguish their different modes of utterance, to acquire the intellectual and moral habits appropriate to this conversational relationship and thus to make our 'debut dans la vie humaine'" (ibid, pp. 52-3). Pring, citing the failure of liberal education to include the voices of the majority in "the conversation of mankind", asks:

> What sort of conversation is it which, dealing with issues that affect us all, excludes so many people? Ought not the topics of conversation to be extended to those which the majority find an interest in? And should not questions about the relevance of education to their future lives (the central concern of most young people) be regarded as legitimate within that conversation? The liberal ideal excludes so many and, unexamined, will continue to do so, for 'relevance' is seen as an irrelevant consideration in an activity which is engaged in for its own sake and for no external ends. (ibid, p. 57)

Important as Pring's observations are, the requirement of relevance has pitfalls of its own, particularly when the notion that educational knowledge is 'socially constructed' is overemphasized. An example presented by Michael Young is instructive in this respect. In post apartheid South Africa it was natural for policy makers to wish to make a break with the past and "hand power to create a new curriculum to teachers, students and more broadly to the 'democratic forces'" (Young, 2008b, p. 110). In the process, however, the social construction of knowledge "became a slogan for opposing the idea that the role of the curriculum is to enable learners to develop their thinking through engagement with specialist bodies of knowledge that are not available to them in their everyday lives" (ibid.). The resulting 'outcome-based' curriculum intended to express broad educational goals of the democratic movement, but it ended up "largely free of content" as it refused to offer to Black South Africans the expertise and specialist knowledge from which they had been excluded under apartheid. Young's example illustrates the dangers of emphasis on narrowly defined notions of 'relevance' in the development of educational content. It points to the importance of the requirement that the integration of knowledge be carried out within an 'inclusive' discourse on education in which the structure of knowledge is respected.

The role of the cognitive

Whatever degree of attention to forms of knowledge the framework being sought in this thesis may recommend, it is important that the role of the cognitive is not exaggerated. In his initial

approach Hirst seems to go too far in making the concern for cognitive development the cardinal feature of curriculum design, hoping that "other objectives can be catered for adequately only by elaborating on a curriculum structure that copes with the cognitive" (Hirst, 1974a, p. 150). In later criticizing this position, he makes explicit the philosophical doctrines that influenced the thinking and practice in education during the sixties.

Hirst's proposal for a liberal education presupposed a certain conception of the human being, whose diverse range of capacities was divided into three main categories: the cognitive, the affective and the conative. The latter two involved emotions, actions and dispositions, and were dependent for their intelligible operation upon "the concepts, beliefs and knowledge achieved by the cognitive capacities" (Hirst, 1993, p. 185). It was through developing these cognitive capacities that justifiable bodies of rational beliefs, rational actions and rational emotions could be acquired. Connected with this notion of what defined a rational person was the ideal form of life to which all should aspire, based on the argument that "there can be no more ultimately justifiable pursuits than the intrinsically worthwhile pursuit of reason in all its forms, and, second, in the successful ordering of all other human concerns in terms made possible by the achievements of reason into a coherent and consistent whole" (ibid.). This conception of a good life was consistent with the ideals of liberal democracy to which freedom of choice was central.

Hirst highlights two main assumptions of this worldview: First, "the development of reason is seen as fundamentally social construction" (ibid., p. 186). Objective judgments are reached through shared conceptual schemes by drawing on cognitive capacities and knowledge formed through the creation of public languages. Second, "society is itself seen as simply a collection of freely associating individuals" (ibid.). Survival and achievement of goals necessitate the organization of human society into families, groups and communities. Bonds are formed primarily through each individual's pursuit of the good life according to rational principles. "It is the good will of each member that holds communities and groups together" (ibid.). It is not difficult to see how this particular view of the rational, autonomous life would provide a coherent framework for the formation of educational aims. Within this framework, the practice of education would be conceived in terms of "rational determination of the end to be pursued", "determination of the best means possible" and "the implementation of the conclusions reached"

(ibid, pp. 186-7). Moral education would be placed in the context of a wider education, at the core of which students are to be initiated into the forms of knowledge distinguished by their internal and logical features. Secondary aspects would contain useful knowledge and skills as well as "personal and social education to promote the developments of character necessary to the conduct of rational living both individually and in social contexts" (ibid, p. 187).

According to Hirst, this rationalist approach to education was criticized for its "philosophical underpinnings" and its "internal contradictions" even as it was being developed. The value of the kind of "disengaged knowledge" it claimed reason would generate—isolated from both the external environment and from all human attributes including reason itself—was being seriously questioned. Parallel to it, the 'utilitarian' approach was gaining stature and power, bringing into focus the practical dimension of the good life. Reason, knowledge and understanding were no longer seen as capable of "determining from a detached point of view the ends that constitute the good life for individuals or society"; they became the very instruments that help us "discern, develop, and order coherently those basically given elements of wants and satisfactions from which the good life is to be composed" (ibid, p. 188). Capacities such as reason and will would have to be directed so that we could properly harness the dominating power wants and satisfactions have over our lives. This instrumentalist view of reason denies it any direct function in motivation. In this picture, society is just "a collection of atomic individuals associating together for their personal satisfactions", and social relations are nothing more than "contingent arrangements that promote personal satisfactions." Individualism is now particularly strong as "all judgments of what is good, and the motivation to attain that, rest ultimately in personal subjective states." In line with these presuppositions, education is a practice "rationalistically planned", and the goals it serves "are ultimately generated individually by rational choice in relation to personal wants and contextual constraints" (Hirst, 1993, pp. 189-90).

Hirst's analysis demonstrates the shortcomings of the cognitive and the utilitarian approaches. The alternative conception of reason he offers, however, does not seem to represent a fundamental shift, but a convergence of the two approaches. He proposes that we should first acknowledge the motivating force behind the exercise of reason. This would mean that satisfaction derived from pursuing and achieving true beliefs and justifiable actions is as

motivating as that of fulfilling our other wants and desires. We should then realize the practical nature of reason and the extent to which it is directed by our interests. Our conceptual schemes discriminate between activities that lead to states of satisfaction and dissatisfaction and "these activities themselves become the objects of satisfaction" (ibid, p. 190). The practical nature of such activities involves know-how, skills and judgments which are often tacit. "Individual objects, situations or events are conceptually distinguished because of their practical significance for our wants and desires" (ibid.). Hirst is, of course, presenting a case for social practices, a topic I will discuss in the next section. Education in his modified proposal is to equip the individual to pursue the 'good life', one that allows each person to seek satisfaction of pursuing and achieving true beliefs and justifiable actions for its own sake alongside the satisfaction of practical needs and desires.

This rationality, autonomous and at the same time directed by interests and desires, it seems to me, is the rationality of the well-educated, well-meaning proponents of modernization to whom I referred, quoting Mahbub ul Haq, in the previous chapter. I have already expressed my misgivings about the rationality of the 'modern man' that makes him a poor candidate for the subject of understanding being sought. In trying to define the role of the cognitive, it is important to ask if an educational process shaped by the rationality at the heart of the approaches described in the above paragraphs, can lead students, particularly the youth of the villages and the marginalized neighbourhoods of the burgeoning cities of the world—a significant pool of human resources that has to be seriously taken into account if meaningful change is to occur—to participate in a process of transformation which, while global in outlook, is set in motion in the context of local community? The answer may well be positive if the task before humanity today is the mere reform of the present world. But will the qualities of mind acquired through such an education be up to the tasks that need attention in the transition of humanity from childhood to adulthood, the inevitability of which I have presented as one of the fundamental elements of the educational framework being explored here? Would such education prepare the kind of "radical" or "revolutionary" envisioned by Marc Belth in the following excerpt to acquire the capacity to contribute to the construction of a new order which humanity's transition to adulthood demands?

> ...man is continuously shaping his experience into a whole which can be recalled readily and used in confronting and explaining new events. In this constant shaping, he borrows

> from everywhere...The ordinary human being, growing up in his own culture, inherits all of the models available to him, and has no alternative but to use them...When he becomes a radical, a revolutionary, he is in fact coming to reject some or all of the models which he has inherited. (Belth, 1965, pp. 61-2)

To determine the proper role for the cognitive in curricula in such a way that students do acquire the qualities of mind called for by the knowledge system that defines the modern world, but at the same time attain the freedom to reject 'inherited models' is not an easy task. In my inquiry, I have tried not to isolate the role of the cognitive in nurturing understanding or to reduce rationality to the satisfaction of wants and desires, no matter how legitimate they may be in a process of moral empowerment. It is for these reasons that I examined in chapter 3 the nurturing of understanding and the fostering of spiritual qualities as an inseparable whole. My attempt to refute narrow definitions of rationality in the context of complementarity of science and religion in the previous chapter was to some extent due to the same concern.

Social Practice

Attention to social practices, using them if necessary as contexts within which to elaborate specific educational content, is another valid criterion for integration. Once again, examining Hirst's views on the subject is instructive. His shift[33] from a view of education centred on forms of knowledge to one primarily concerned with social practices occurred as he identified flaws in the conception of reason in both the 'rationalist' and the 'utilitarian' accounts. To what extent is his conception of the individual and society in the context of social practices substantially different from those found in the two approaches he tries to transcend?

Hirst argues that persons "are necessarily social constructions," and society is a "network of socially constructed individuals who within that network have the capacities for choice for the formation of their own patterns of life and the modification of their social networks" (Hirst, 1993, p. 194). Thus, the good life for the individual is only possible within the networks of existing social relations and traditions. Initiation into practices is vital to the good life of the individual. In a way similar to MacIntyre's, Hirst defines practices as "patterns of activity engaged in

[33] Hirst later advocated that the shortcomings of a disciplined based curriculum are addressed by the priority given to the "consideration of current practice, the rules and principles it actually embodies and the knowledge, beliefs, and principles that the practitioners employ in both characterizing the practice and deciding what ought to be done" (Hirst, 1983, pp. 16-19).

individually or collectively which have been socially developed", as " complex interrelated packages of such elements as actions, knowledge, judgments, criteria of success, values, skills, dispositions, virtues, feelings..." (ibid, p. 195). Education, itself a practice,[34] will have to select practices according to emerging capacities of individuals and their social and physical contexts. Hirst suggests that such practices fall in at least three domains: first "those very varied basic practices necessary for any individual to be rationally viable in their given everyday physical, personal and social contexts," second "practices from that much wider range of optional practices available for the construction of each individual rational life," and third those "second order" practices that constitute "critical reflection" on the first order practices that make up the first two (ibid, p. 196).

I have already discussed in chapter 3 in the context of virtues the kinds of difficulty an educational programme would face were it to anchor moral development solely in the 'internal goods' and 'standards of excellence' found in practices. Hirst's proposal for a practice-centred educational approach, it seems to me, present other challenges. His categorization of practices with which education should be concerned is too broad, and the defining characteristic of each rather vague; as a result it is difficult to see how it would lead to the actual choice of relevant practices and ultimately to 'structured' educational content. But even assuming that such a task can be carried out, how useful is the hierarchy he establishes as an organizing principle of curricular design? A fundamental question to be asked in the context of moral empowerment is whether the aim of education is merely to initiate individuals into certain practices as they are or is it to also enable them to reshape existing practices. If the latter is the case, then one must decide to what extent the student should develop the capacity to reflect critically on the nature of the practice into which he or she is being initiated. Hirst, of course, recognizes the role education has to play in reshaping a given practice, but assigns this function which involves identifying presuppositions within a given practice through "abstracted theoretical study" to that part of education that deals with "initiation into the practices of critical reflection on the fundamental

[34] Dunne agrees with MacIntyre, for whom 'teachers' are involved in a variety of practices and 'teaching' is an ingredient in any practice, that "the end of education is 'the development of the student's powers' *and* that these powers find their most reliable means of development through engagement with well-established practices—with their respective disciplines, standards and excellences—so that in teaching students one also necessarily teaches subjects." But part of what makes Dunne "recognise teaching as a 'practice' is a sense of the importance of a teacher's care for the student as well as—and sometimes even independently of—his or her care for the subject" (Dunne, 2003, p. 355).

substantive practices" (ibid, p. 197). Further he envisions a small minority of people participating in such theoretical practice and suggests that "it is in general impossible for worthwhile education to engage directly in these theoretical pursuits." He places this social responsibility on "theoretical specialists" who should "engage in wide public dialogue about the significance of their work for non-theoretical pursuits, thus providing a context of public critical reflection on social practices on which educators can draw" (p. 198).

That specialized theoretical pursuits involving critical reflection on social practices are desirable is a statement with which it would be difficult to disagree. But that such reflection should be mostly the concern of the relatively few in a hierarchical arrangement is a conclusion based on an unnecessary sharp division between the theoretical and the practical, between know-that and know-how. One important criterion for the kind of integration I am seeking here is the ability to transcend this dichotomy as much as possible. If this is done, theoretical knowledge needed for reflection on the nature of a practice into which one is being initiated would be incorporated in it from the beginning, albeit progressively. This does not necessarily invalidate Hirst's scheme of categorization, but does suggest that better ways of thinking about the role of practices in the design of curricula may be available.

The sharp division between know-that and know-how present in Hirst's theory of forms of knowledge appears again when practical knowledge takes the centre stage. In both cases, insisting on such a dichotomy hides from view essential elements of the desired framework for curricular design. In the case of the former, Paddy Walsh, for example, in agreeing with Hirst's own criticism of his original position, questions the one-way dependence of every kind of development on propositional knowledge and points out that the theory of forms of knowledge ignores "the likelihood that the affective, the moral, and the practical are properly interdependent with the intellectual" (Walsh, 1993, p. 132). As a result, among other things, the effect of the environment, the importance of practice, the role of values, "the engagement of the heart to the propositional in contemplative-appreciative knowledge", and "the common belief that moral insight is as much a fruit as it is a condition of good will and right action" (ibid.) are not addressed. Walsh suggests that such a theoretical stance could legitimize "that distortion of many subjects that has resulted from isolating their propositional from their deliberative, technical and

contemplative elements"(ibid.). He also points to a next level of difficulty: overlooking the possibility that "the relationship of propositions to value and action within forms of knowledge is just as integral to their logic or 'grammar', and just as distinctive in each form and as significant a variable across forms, as those features of propositions," on which the theory stands (ibid.).

As to the consequences of overemphasizing the value of practical knowledge, it seems sufficient to remind oneself that even in the moral, religious and aesthetic domains—areas where initiation into the corresponding practices is an imperative—education achieves relatively little if a good grasp of theoretical and propositional knowledge is not achieved. The statement "a kindly tongue is the lodestone of the hearts of men. It is the bread of the spirit, it clotheth the words with meaning, it is the fountain of the light of wisdom and understanding..." (Bahá'í Publishing Trust, 1978, p. 288) is an example of the kind of propositional knowledge that abounds in religious texts. It contributes as much to the desire to develop a kindly tongue on the part of a religious practitioner as does the practice of speaking kind words in the community in which she or he is a member. The relationship is not one in which the theoretical consideration of moral principles and religious teachings become secondary to the practical or vice versa, but one in which there is a multidimensional web of connections which education cannot disregard.

Rather than choosing either forms of knowledge or practices as the axis of a scheme of curricular integration, it seems to me, the process should pay attention to the dynamic interplay between theoretical and practical knowledge. The mind seems not to move in only one direction. There is the dialectic of 'concrete' and 'abstract' which has to be respected. Young quotes Engestrom in expressing how the dialectic "instead of seeing 'concrete' phenomena as something sensually palpable and 'abstraction' as a conceptual or mentally constructed process," sees the concrete as referring to "the systematic interconnectedness of things. In other words, concrete phenomena are the outcome not the starting point of thinking" (Engestrom, 1991, quoted in [Young, 2008b, p. 55]).

Pring's analysis of the interrelationship between theory and practice clarifies the issue further. He points out that "practical activities are themselves permeated by understandings that can be more or less intelligently held ...There is an embryonic theory contained within intelligent

practice" (Pring, 1993, p. 71). Once the theoretical understandings within practices are made explicit and systematically formulated they can be examined. It is also true that "the way into theory is often best reached through this intelligent reflection upon a practice that might otherwise have been pursued mechanically" (ibid.). Pring offers the example of attempts in theology to theorize about the intimations of immortality: "Theory, and the propositional knowledge which constitutes the theoretical position, are a provisional formulation of a set of ideas through which we make sense of reality, including the practical reality of worship, of work, or of moral struggle" (ibid.).

As Pring points out, the duality between theory and practice is at the heart of the divide that separates liberal and vocational education. To close this gap, the need for reflection is often stressed, along with the idea that it is the process rather than the product that counts. He feels, however, that another false dichotomy is being introduced here. It results from the inability to see that the "process" itself "embodies ideas (bad as well as good) and beliefs (false as well as true) which can be rectified only through engagement with the critical conversation which is the product of other people's enquiries" (Pring, 1993, p. 72). The "doer" can become more intelligent in the doing by drawing on the knowledge of academic disciplines. It is not enough, for example, "to make explicit the quaint ideas of healthy living implicit in one's daily eating habits" without subjecting them "to some form of science-based criticism" (ibid.).

In the context of the kind of curricula being explored here, overcoming the dichotomy between theoretical and practical would help guard against the kind of educational content that too easily relegates the majority of humanity, the very people who are to participate in the processes of change and reconstruction, to the acquisition of a few manual or technical skills. By focusing on the interplay of practical and theoretical knowledge, it will be possible to have the freedom to choose among different available options for integration according to the specific objective of a given set of educational activities. At times, initiation into social practice could be the starting point, but in such a way that the corresponding theoretical knowledge can be incorporated from the beginning so as to enhance the understanding of the students. On other occasions, it would be the logic and truth criteria of a discipline or form of knowledge which would start the process, while drawing on relevant practice in order to ground theory in experience. These two paths,

each in its own way, would bring together *doing* and *knowing*, but doing and knowing cannot be integrated in isolation from our state of *being*. It is in this respect that neither social practice, nor forms of knowledge would suffice to fulfil the aims of integration. It seems to me that truths such as 'the oneness of humankind' and 'the interconnectedness of existence in all its dimensions' correspond to our state of being; their source is neither social practice nor forms of knowledge. Spiritual qualities which I introduced in chapter 3—as distinct from virtues rooted in social practices—are other examples of such truths. These truths are not bound to a practice or a field of knowledge, although both could be used as contexts for the exercise and comprehension of such truths.

Values of Knowledge

Selection of objects of understanding and their organization into some structured but fluid whole requires the examination of values attached to knowledge. This may immediately suggest the often cited dichotomy between knowledge as an end in itself and knowledge as a means to other ends. But one is not obliged to be confined to the longstanding debate on the validity of one or the other. M. Degenhardt, for example, suggests that some knowledge "is valuable neither as a means to an end, nor as an end in itself, but because it helps us to determine our ends" (Degenhardt, 1982, p. 81). If one overcomes the duality, it will be possible to reflect on the values that knowledge itself embraces. Walsh's analysis offers a rich perspective in this regard. He orders four types of values—the possessive, the experiential, the ethical and the ecstatic—in a line of argument that "brings us up sharp against the idea of persons, objects, and aspects of the world having value in themselves as a condition of their being values for us, and of love of the world as a rational condition of our other prizings" (Walsh, 1993, p. 113). He compares the possessive values to those of wealth, status and power, in that all three can be possessed in different amounts and varying degrees of security, and cites unqualified vocationalism and encyclopaedism as manifestations of a rampant possessive instinct in education which he criticizes in a decisive way.

The emphasis in experiential value is on the "richness of experience". Walsh suggests that experiential values should rest on "host values" of truth, respect and justice, as well as an acknowledgement of the independent value of objects of experience. He warns against the perils

of the kind of value placed, for example, by Dewey on experience, rejecting in a sense the proposition that "the objects of experience can possess values in themselves" (p. 109). By retaining the "wedge between experience and the world-in-itself in the notion of knowledge as fundamentally a construction," one destroys the wonder of the paradox that is knowledge: "an assimilation of the world that yet of itself leaves the world as it is" (p. 110).

The ethical value of knowledge is associated with the regulative rationality held up by open-ended formulations and injunctions evoking such notions as respect, care, authenticity and justice. These rational values are to be "added to possessive and experiential values as their ethically necessary corrective" (p. 111). But even a virtue such as respect for persons—defined as that virtue by which we treat people as ends rather than as means—loses its quality of ethical value if it does not "underline its basis in a positive acknowledgement of the independent value of other persons, the paradigm of which is a loving relationship" (p. 113). No amount of generalization and abstraction will lift "respect" from the level of a mere injunction if it is not shown as a "subsidiary to love." A lover's primary response is to the value inherent in the world. For the religious believer "the praise of God, just because He is God" is the "primary religious response—more fundamental than his search for salvation through relationship with God" (ibid.). The scientist, the artist, the historian find respectively that the order of the universe is marvellous, that beauty is to be contemplated because it is there, and that people are everywhere in history and they are in themselves worthy of our interest. "And education can be conceived as, in large part, the loving initiation into these, and other such, mysteries" (ibid.).

In Walsh's argument, "security of possession" is subordinated to "richness of experience", which in turn "becomes a pursuit of one's tail unless, first, it allows itself to be constrained and limited by the demands of truth, respect and justice, and, second, it transcends both itself and a negative conception of its ethical limits, in an acknowledgement of the world that is properly called love" (p. 115). It seems to me that the contemplation of this love can yield many an insight into the values of knowledge that have to be taken into account in elaborating curricula.

Love of the world in its broadest sense—and love of any particular object of understanding—has to be accompanied by consciousness of the interconnectedness of all things and of the oneness of

humankind. Love is always in danger of being individualistic. Love of the world has to help the 'subject of understanding' transcend the possessive value of knowledge fully aware that knowledge gained is not to be guarded as an instrument of power. The self-absorbed lover can easily forget that generous sharing of knowledge and insight is a requisite of understanding. The same is true of experiential values, no matter how embedded they are in the objective world. Focus on the value inherent in the object of inquiry helps save education from the fetish of 'radical constructivism', but it must be wary as well of the individualism that may become attached to independent discovery and mastery of intricacies of knowledge. Empty and generalized ethical injunctions are transformed through a love of the world that is continually deepened by a sense of belonging to the whole. The consciousness of the oneness of humankind breaks the individualistic limits of the values of knowledge and imbues love of the world—and hence love of an object of understanding—with a sense of the collective. What is at stake is not a search for understanding on which we embark individually; it is a journey we traverse together with others. To the extent that we act on the reciprocity the consciousness of the oneness of humankind evokes in us, we are empowered individually and collectively to transform ourselves and the world.

The transformative power of knowledge is another value that is intertwined with the love of the world. In ordinary friendship to want to transform the object of one's love is to be frowned upon; friends are not our projects, we are to love them for who they are. But in the case of the world transformation is a requirement that existence itself demands from us. The transformative power of the physical sciences cannot be extracted and isolated from them; technology is not merely a product of science but embedded in it. Inherent in scientific knowledge of the universe is human ability to transform the physical environment. Placing love for the universe at the heart of one's determination to acquire knowledge of it and constantly being driven by the desire to rearrange its elements need not give rise to contradiction.

The transformative power of knowledge is, of course, a value of great significance to the process of moral empowerment defined in terms of a twofold purpose of personal and societal transformation. At the level, of the individual, self-knowledge—not a mere awareness of one's thoughts, feelings and intentions, but a realistic growing understanding of one's abilities and

potential—has to accompany the transformation of character. Such knowledge is acquired against the background perception of human nature in general and the purpose of one's existence. In the context of a Bahá'í-inspired framework, human nature would be seen as that complex fusion of its material dimension, the product of physical evolution shaped by the struggle for survival, and its spiritual dimension, characterized by such qualities as love, mercy, generosity and justice. That the material nature is necessary and operating in its proper space helps the realization of human potential would not be denied. However, insights into one's own nature would be sought with the conviction that the human being is noble in essence, and to attain true nobility, one has to strengthen one's spiritual nature, recognizing that which leads to "loftiness or lowliness, glory or abasement, wealth or poverty" (Bahá'í Publishing Trust, 1988, p. 35). In the absence of such recognition it becomes impossible to set oneself commendable goals and choose worthy means to achieve them. Further, this self-knowledge is not possible without an understanding of the nature of the relationships that can be forged with other human beings. As D.W. Hamlyn puts it, "a case can be made for the thesis that no proper understanding of the concept of a person can be had in independence of an understanding of the concept of a human relationship" (Hamlyn, 1970, p. 248). The knowledge that empowers us to transform the relationships of dominance and control to those of reciprocity and cooperation impels us to transform our own character and the insights that aid me to have a generous personality are gained as I strive to create bonds of love and fellowship with others.

Thought and Action

I have approached the question of integration first with respect to knowledge itself and then in relation to values of knowledge. It seems to me, however, that integration cannot be achieved if, at a fundamental level, the dichotomy between 'thought' and 'action' is not transcended. The last chapter of this thesis is about the continuity of thought, language and action. A brief examination of the nature of the problem, however, seems warranted here.

Whenever the powers of the individual are fragmented, it is so in correspondence to his or her interactions with the world, not in isolation from it. It follows that there is the complete bodily engagement in our embodied coping that makes us reach the summit of an expert versus the disembodied intellect that is used in de-contextualized thinking. It is claimed that the latter,

which involves the capacity to monitor what we are doing, can only take us to the level of "competence" (Dreyfus, 1980). Dreyfus in his argument against McDowell discloses a dichotomy between 'thought' and 'action' that is present deep in our psyche: As human beings, we have the freedom to step back from our actions and reflect on them, but we also have the freedom to get involved in non-conceptual bodily-coping. There is the world of "propositional structures" and the world of "solicitations to act". Dreyfus, unlike McDowell, sees openness to the world, as a state of "being" in which there is contact with one part of the world and not the other. We must "distinguish motor intentionality, and the interrelated solicitations our coping body is intertwined with, from conceptual intentionality and the world of propositional structures it opens onto" (Dreyfus, 2007, p. 352). McDowell points out in response that he does not consider "ground-floor" embodied coping devoid of rationality, distinct from "upper story" openness to the world characterized with pure reason. On the contrary, he views embodied coping skills to be permeated with "conceptual mindedness" (McDowell, 2007). I find Taylor's negation of the possibility of thought without context useful here: "We can't build our view of the world out of percepts like 'the goldenrod is out,' or even 'yellow here now,' because nothing would count as such a percept unless it already had its place in the world. Minimally, nothing could be a percept without a surrounding sense of myself as perceiving agent, moving in some surroundings, of which this bit of yellow is a feature" (Taylor, 2002, p. 112). Taylor states that "our understanding of the world is holistic from the start. There is no such thing as the single, independent percept. Something has this status only within a wider context which is understood, taken for granted, but for the most part not focussed on" (ibid, p. 113).

It seems Dreyfus's position could easily give credence to the popular view that certain higher powers of thought are entirely removed from context, on the one hand, and that engagement with the world at certain levels is purely mechanical, on the other. The reductive reconstruction of the mind in cognitive psychology's computer model not only consolidates the latter position, but it also extends the model to abstract thought by virtue of the fact that it reconstructs the mind on the same "explanatory principles as disenchanted nature" (ibid., p. 107). That powers of mind are operative in everything we do, even in such actions which seem to require less reflective thought, is only one aspect of the relationship between thought and action. The other more significant dimension, at least for the purposes of this thesis, is the pervasiveness of context in all we

undertake, especially those activities that demand high levels of abstraction. Context cannot be understood by the students only in physical or even social terms, although this would be highly desirable; it should expand to include the extended reality examined in chapter 4. Otherwise, there is always the danger in education of reducing context-bound understanding of complex concepts to a number of predetermined algorithms. Although the many and varied ways in which an individual's powers of mind come into play differ according to circumstances, there is always the background understanding that furnishes each action with meaning. A grasp of this intimate connection between thought and action in a world, itself not broken into a world of 'inanimate causal interactions' and an 'animate', 'enchanted' world of reason, as elaborated in chapter 4, is fundamental to any genuine effort of integration in education.[35]

[35] To illustrate the way students can at an early stage be helped to appreciate the relevance of context to understanding, a lesson from one of FUNDAEC's texts is included as Appendix 1.

CHAPTER 7: CAPABILITIES

My examination of the philosophical framework of an educational process concerned with moral empowerment up to now has been mostly focused on three interrelated themes: the subject, the object and the process of understanding. In my search for the 'subject of understanding', I abandoned a number of candidates proposed, explicitly or implicitly, by various trends in education some of the presuppositions and arguments of which were analyzed. While the exploration so far has brought to light several inadequacies of the candidates I have considered, I have not said enough about the characteristics of the subject of understanding—a participant in the process of moral empowerment and its principal protagonist. It seems apparent that if this protagonist is not to be merely characterized by a set of virtues, competencies and skills, I need a way of thinking that would not confine me to these categories, as well as a language expansive enough to describe the subject of understanding and his or her progress on the path of moral empowerment, a path on which individual growth and contribution to social transformation are inseparably linked. In this chapter, I argue that the concept of capability—the notion that the moral empowerment of an individual may be described in terms of a wide range of capabilities he or she acquires progressively—is central to this way of thinking.

The exploration in this thesis of the characteristics of the subject of understanding, as mentioned before, takes for granted the validity of the claim that humanity as a whole is entering its age of maturity and that during this transition the great majority of the human race will need to acquire capacities that the transformation it must undergo demands from them. In fact, the convulsions of the present day society are viewed according to this outlook, partially as results of the forces that destroy barriers to such realization of potential and while, admittedly, causing a great deal of suffering, give rise to possibilities for the gradual construction of a global civilization of unprecedented material and spiritual achievements. But this vision, no matter how fundamental at the level of conviction, is too general and has to be brought to bear on the immediate concerns of Bahá'í-inspired educational endeavours, key elements of the framework of which I am examining here. The arena of action where the educational process unfolds is, to a large extent, the community in which the student is immersed and many of the educational goals are related to the social, economic, cultural and spiritual development of the community. I already included, in

my examination of science and religion as two complementary sources of knowledge, a brief discussion of 'development' with its emphasis on modernization. As I now turn once again to the theme of the 'subject of understanding', I need to examine further the nature of development as the immediate context within which many Bahá'í-inspired educational programmes would be elaborated. The starting point for the analysis of the concept of capability, then, will be a discussion of its place in the discourse on development.

As I have already mentioned in chapter 1, Bahá'í-inspired efforts adhere to the idea that man's inner life is organic with the environment, and that lasting change can only occur as a result of mutual transformative interaction of the two. However, it is not easy to translate the conviction that the human heart cannot be segregated from the environment outside it into an understanding of the dynamics of the social and economic development of a people. One condition is clearly necessary at the level of thought: An educational programme concerned with releasing the potentialities of individuals to contribute to the betterment of their communities needs to be embedded in an appropriate paradigm that would govern the development of the society in which these communities function. Above all, the subject of understanding imbued with the desired twofold moral purpose is to be a protagonist of the development of his or her people, not according to all theories of development, but those for which the empowerment of the people themselves is a central concern.

Much has been said about the failure of development, particularly the global programmes that began in the mid-twentieth century. At least at the level of theory, the idea is sometimes expressed that the very notions of 'developed' and 'underdeveloped' suggest that nations and people are judged by standards which, claiming objectivity, are formulated by outsiders. The distorted and self-contradictory perception of reality at the heart of such divisions has been vehemently criticized for the way it has shaped the practice of development. Gustavo Esteva, for example, states that underdevelopment began on January 20, 1949 when President Truman in his inaugural speech announced a bold new programme to make the benefits of the scientific advances and industrial progress of his nation available for the improvement and growth of the underdeveloped areas. He remarks:

> On that day, two billion people became underdeveloped...from that time on, they ceased being what they were, in all their diversity, and were transmogrified into an inverted mirror of others' reality: a mirror that belittles them and sends them off to the end of the queue, a mirror that defines their identity, which is really that of a heterogeneous and diverse majority, simply in terms of a homogenizing and narrow minority. (Esteva, 1993, p. 7)

Social and economic development approaches that divide reality in this way and define the identity of the inhabitants of so many regions of the world as underdeveloped people reduced to 'individual units with input requirement', to 'points below or above the poverty line' and to 'mathematical aggregates revealing the rate of growth of a country' are incompatible with the kind of education being discussed in this thesis. If I had to question the suitability of candidates for the 'subject of understanding' suggested by certain educational theories because of the incomplete picture of the human being they painted, how much more will I have to stay away from the type of characterization in which individuals are depicted as immersed in the throes of underdevelopment—a status of malaise from which mainstream development efforts are supposedly trying to save them. In fact, the 'subject of understanding' I am seeking has no resemblance to the social character that, fabricated to benefit from development's global programmes, engraves in the mind images of need and dependency which serve to justify the enterprise and perpetuate it.

Development as Freedom

A notable departure from theories that fail to see the majority of the inhabitants of the planet as potential protagonists of development is Amartya Sen's conception of *development as freedom.* For Sen, development is principally the process through which people's real and substantive freedoms are expanded. By adopting this definition, he distances himself from views that identify development with 'growth of national products', with 'rise in personal income', with 'industrialization', with 'technological advance' and 'social modernization'. These, he points out are means—not the only ones—through which freedoms are expanded, but they are often mistaken for goals. There are other factors that contribute to development, for example, social and economic arrangements that make available education and healthcare, as well as political and civil rights. Sen contends that viewing "development in terms of expanding substantive freedoms directs attention to the ends that make development important, rather than merely to

some of the means that, inter alia, play a prominent part in the process" (Sen, 1999, p. 3). He draws on Aristotle's statement that "wealth is evidently not the good we are seeking; for it is merely useful and for the sake of something else" (Aristotle, E.N,. Book I) in order to argue that ends and means should be distinguished if we are to achieve a comprehensive grasp of the nature of development which cannot be reduced to economic growth.

Placing the concept of freedom at the heart of development thinking moves it in a direction that allows greater focus on the protagonists of the process. It makes it possible to incorporate into the theory such factors as the liberty to participate in political affairs and the opportunity to receive basic education or healthcare not only as contributors to economic growth but more fundamentally as "constitutive components" of development. Freedoms are counted among both the primary ends of development and its principal means. A conception of development as a process through which freedoms are expanded does not neglect poverty, but demands its removal, along with conditions like tyranny, as sources of "unfreedom". It represents a shift from the more traditional approaches that adopt variables like utility, primary goods, procedural liberty and real income as informational base for evaluation. Moreover, expansion of freedoms fosters individual initiative and social effectiveness. It enhances the "ability of the people to help themselves and also to influence the world" (Sen, 1999, p. 18).

These features, among others to be discussed in the next few sections, suggest that Sen's theory of development may serve as a suitable background to the exploration of the characteristics of the subject of understanding in the process of moral empowerment. Yet, to exploit insights from Sen's theory does not imply total adherence to it. There are also causes for uneasiness. Pursuit of individual freedom, even when it is in accord with the highest social ideals, can easily turn into the promotion of individualism. To be fair, Sen avoids the individualistic slant that one would expect from an approach to development with the notion of individual freedom at its core by situating his discourse in the context of the lives of distinct groups, particularly marginalized majorities suffering from a host of deprivations in so many nations. In doing so, he provides a picture of the empirical connections that link freedoms of different kinds. Social opportunities and participation in political processes promote economic security, just as provision of economic opportunities to take part in trade and production contributes not only to the generation of

personal wealth, but also to the enhancement of public life. His treatment of freedom acknowledges, in addition to the people's ability to choose and act, the indispensable role social arrangements and social structures play in providing opportunities for people's participation in the development process.[36]

Notwithstanding the depth of Sen's analysis, an approach that would use freedom as a super-value, an umbrella under which all other values exist without any tension faces certain problems. Nussbaum mentions some of the difficulties in the notion of development as freedom: "Some freedoms limit others" (Nussbaum, 2003, p. 44). For example, the "freedom of rich people to make large donations to political campaigns limits the equal worth of the right to vote... The freedom of the landowners to keep their land limits projects of land reform that might be argued to be central to many freedoms for the poor " (ibid.). Not all freedoms are "desirable social goals" and they cannot be given equal status. Some freedoms "lie at the heart of a view of political justice, and others do not. Among the ones that do not lie at the core, some are simply less important, but others may be positively bad" (ibid.). Sen, of course, would respond that only certain freedoms such as the liberty to participate in political affairs, to achieve basic nutrition or to receive basic education and healthcare, fall in the category of 'substantive' freedoms. But such an argument would only illustrate how, as stated by Gasper and Staveren, Sen "brings values other than those related to the independent self under his language of freedom..." As they explain, when "our agenda is not only evaluation, but also explanation and prescription ... a more differentiated language becomes essential" (Gasper and Staveren, 2003, p. 146).

'Development as freedom' has clearly proven to be a valuable approach to the evaluation of development strategies and goals, as demonstrated by the prominence 'human development' has received over the years. However, in considering the development process itself, and within it the question of education, "explanations and prescriptions" do become necessary and a number of values, either implied by 'freedom' or not addressed by it at all, have to be brought into focus. This seems possible if the analysis of development goes beyond the exploration of enlightened social policies and their relevance to progress in the material realm. Of particular importance, at least as implied by the premises of this inquiry, is the explicit treatment of an extended reality

[36] See chapers 1-4 in (Sen, 1999)

which, as elaborated in chapter 4, would embrace both the material and social dimensions of civilization in the construction of which the protagonist of development will have to participate, a treatment that would pay sufficient attention to the spiritual dimension of human existence. Once such a step is contemplated, I would like to argue, development strategy would be required to seek coherence between the material and the spiritual. And to respond to this demand adequately, it would be necessary to consider religion as more than something one should simply have the freedom to choose. One would also need to avoid the temptation of viewing it as a mere instrument for the achievement of material progress. Yet even a sophisticated theory such as Sen's could assign no more than an instrumental role to religion in the development process.

Dennis Goulet describes how religious beliefs are often viewed as means that could accelerate or slow down the achievement of development goals set by those outside a given value system.

> Even development agents who are sensitive to local values usually derive their goals from outside these values: from development models or the common assumptions of their respective scientific disciplines. Thus, a demographer will strive to "harness" local values to his objective of promoting contraception or achieving zero population growth. Similarly, the agronomist will search for a traditional practice upon which to "graft" his recommendation to use chemical pesticides. Similarly, the community organizer will 'mobilize' a population for political ends around traditionally cherished symbols. (Goulet, 1980, p. 484)

In development strategy, science too is often viewed from an instrumental perspective. It is ever present in name, but mostly in the shadow of technology, an unfortunate condition contributing much to the ascendance of technique over substance.

A common feature of development thinking that is slowly taking shape in Bahá'í communities around the world is the conviction that in seeking coherence between the spiritual and the material, the flow of scientific and spiritual knowledge needs to be the main concern of development strategy. Like Sen's, this kind of thinking does not deny the significance of economic activity but suggests that it should be given its proper place in the context of the production and distribution of means. By focusing on the flow of knowledge, this view of development, the elements of which are barely taking shape in grassroots efforts of the Bahá'í communities worldwide, brings to the fore the role of science and religion as complementary

sources of knowledge in the development process, and regards the participation of a people in the generation and application of knowledge as vital to their progress. This emphasis on knowledge opens ways to examining the subject of understanding beyond that which the concept of development as freedom seems able to do. The assumption is that as a population becomes empowered to participate in the generation, application and diffusion of knowledge, it will be able to create the conditions in which it can exercise the substantive freedoms called for by Sen. But the process would achieve more. It would make explicit within the population the values now hidden under the umbrella of freedom, and would shed much needed light on the concept of freedom itself.

As Bernard Williams has explained, various conceptions or understandings of freedom "involve a complex historical deposit" (Williams, 2001, p. 4). Take, for example, Sen's substantial freedom to participate in political affairs. So much of today's discussion on this kind of freedom is embedded in the political framework of liberal democracy. Such a framework is tied to conceptions of power which can be analyzed and evaluated through sophisticated arguments of political science some of which were included in my cursory treatment of the subject in chapter 1. But development thinking that would accept the complementarity of science and religion, as discussed in chapter 5, would also use the language of religion to gain insights into the nature of both power and freedom. In the language of religion, one can find explanations of the kind of freedom that inspires human beings to transcend various forms of inner bondage resulting in inaction or harmful action in the world. We may, for example, explain the environmental consequences of greed from a scientific perspective, but it is the language of religion that helps us see it as inner bondage, curtailing our freedom. The language of religion confirms the incompleteness of the objective view of reality, no matter how far we advance in that view. With this conviction, we do not only seek external freedom: "the absence of obstacles to doing what we want", as Nagel puts it. We want to be able to detach ourselves from "the motives and reasons and values" that influence our choices and "submit to them if they are acceptable" (Nagel, 1986, p. 127).

Agency

Sen's 'freedom-centred' conception of development represents at the same time an 'agent-oriented' approach. He makes a distinction between his use of the term 'agency' and how it is employed in, say, the economics literature, where it is attached to an individual who is acting on someone else's behalf and whose achievements are to be assessed in light of someone else's goals. Rather, the agent is "someone who acts and brings about change, and whose achievements can be judged in terms of her own values and objectives, whether or not we assess them in terms of some external criteria as well" (Sen, 1999, pp. 18-9). Sen claims that when processes that advance substantive freedoms also provide social opportunities, individuals will be able to shape their own futures; they will no longer be seen as constituents of an "inert population", objects of "fine-tuned 'targeting'" (p. 19) of policy makers and "passive recipients of cunning development programmes" (p. 11). By the same token, the removal of "unfreedom" in its various forms is fundamental as these wipe away people's choices and do not allow them to exercise "their reasoned agency". In the case of women, for example, viewing their rights in a larger context, by including their role as free agents alongside other entitlements related to their well-being, has helped transform the conception of women from "passive recipients of welfare-enhancing help" to "active agents of change: the dynamic promoters of social transformation that can alter the lives of both women and men" (p. 189).

Like freedom, the concept of agency as conceived by Sen helps define development in a way that could admit the notion of education as a process of moral empowerment. It brings into development thinking a conception of the human being as an active rather than a passive entity, as someone able to draw on his or her physical, mental and moral resources to affect change rather than a patient who, bereft of such resources, is waiting to be saved by others. Yet, as in the case of freedom, one has to be aware of the dangers of an individualistic interpretation of social existence. In formulating a conception of education for development, it is necessary to extend the notion of agency to the collective life of humanity. Communities and the institutions of society together with the individual constitute the three protagonists of the development process. The empowerment of the individual must advance in partnership with the other two protagonists. In a world where the individual continuously clamours for more and more freedom and institutions seek more and more control, directly or through propaganda and manipulation, the combination

of agency and freedom as concepts central to the social and economic development of peoples needs to be approached in the educational process with care.

Capability

A third concept closely connected to freedom and agency is 'capability'. Sen laments that the "technocratic sound" of the word does not contribute to the sense in which the expression was picked by him in order to "explore a particular approach to well-being and advantage in terms of a person's ability to do valuable acts or reach valuable states of being" (Sen, 1993, p. 30). For him, the term represents "the alternative combinations of things a person is able to do or be—the various 'functionings' he or she can achieve" (ibid.). Functionings in this context correspond to "parts of the state of a person—in particular the various things that he or she manages to do or be in leading a life" (ibid., p. 31).They embrace such elemental states as being adequately nourished, being in good health, having mobility, as well as more complex ones, say, being happy, achieving self-respect or being socially integrated (pp. 36-7). Here is how Sen defines the concept of capability: "In the space of functionings any point, representing an n-tuple of functionings, reflects a combination of the person's beings and doings, relevant to the exercise [of evaluation]. The capability is a set of such functioning n-tuples, representing the various alternative combinations of beings and doings any one (combination) of which the person can choose" (p. 38).

A primary concern of the "capability approach" is the "identification of value-objects" (Sen, 1993, p. 32). The selection of objects of value is an evaluative exercise and the relative value of objects is determined through further evaluative procedures. The evaluative space in this approach is seen in terms of "functionings and capabilities to function" (ibid.). It includes "a variety of human acts and states as important in themselves" (ibid., p. 33), which are not evaluated merely on the basis of their ability to produce utility or the degree to which they yield such utility. Neither primary goods nor utility provide sufficient informational base for evaluation. Even when the list of goods includes such items as rights, opportunities, income or wealth, "it still is concerned with good things rather than with what these good things do to human beings" (Sen, 1979, p. 218). And, whether seen as happiness and pleasure in the full utilitarian tradition, as desire fulfilment in its more modern formulations or simply defined as

some numerical representation of a person's observable choices, utility, while concerned with "what these things do to human beings," uses "a metric that focuses not on the person's capabilities but on his mental reaction" (ibid.).

According to Sen "the freedom to lead different types of life is reflected in the person's capability set" (Sen, 1993, p. 33); a person deprived of a capability set is not free to lead the type of life she values. His treatment of poverty, not synonymous with low income but as "capability deprivation", demonstrates the power of his approach to the evaluation of development strategy. Income is only one instrument in generating capabilities, and in formulating policy one should be aware that "the instrumental relation between low income and low capability is *variable* between different communities and even between different families and different individuals" (Sen, 1999, p. 88). Variations such as age, gender, social role, and physical location should be taken into consideration in efforts aimed at poverty reduction. Age, disability or illness do not only reduce the ability to earn an income, they also make it harder to convert income into capability. Thus real poverty in terms of capability deprivation may be significantly "more intense than what appears in the income space" (ibid, p. 88). Further, the income approach to poverty pays little attention to the distribution of income within the family. For example, if the family income is used predominantly on boys, then the extent of deprivation of girls will not be adequately taken into account. Such deprivations are better assessed by looking at "capability deprivation (in terms of greater mortality, morbidity, undernourishment, medical neglect, and so on)" (ibid.). Finally, "*relative* deprivation in terms of income can yield *absolute* deprivation in terms of *capabilities* " (ibid., p. 89). A relatively poor person in a rich country may earn a high income in terms of "world standards", but be more deprived in terms of capabilities, including participation in the social life of the community.

As Sen explains, the capability perspective in poverty analysis enhances the understanding of the nature and causes of poverty by "shifting primary attention away from means to ends that people have reason to pursue" (ibid., p. 90). Emphasis is now on the freedoms that enable a person to pursue the desired ends. And deprivation is "seen at a more fundamental level—one closer to the informational demands of social justice" (ibid.).

Sen employs the concept of capability to explore the workings of development policy in impressive depth. He outlines "a fourfold classification of points of evaluative interest in assessing human advantage, based on two different distinctions" (Sen, 1993, p. 35). The first distinction is between "the promotion of the person's *well-being*" and "the pursuit of the person's overall *agency goals*", and the second between "achievement" and "*freedom to achieve*" (ibid.). His analysis sheds light on some of the reasons impelling him to go beyond mere functioning and introduce the concept of capability. He states, for example, that well-being achievement can be assessed by the different functionings—"the constituent elements of the person's being seen from the perspective of her own personal welfare" (ibid., p. 36) which can also include her concern for others. Functionings are thus seen as "central to the nature of well-being" (ibid), and the evaluation of a person's well-being takes the form "of an assessment of these constituent elements" (ibid., p. 37). Functionings, however, do not prove adequate for all evaluation purposes. One needs to look at capabilities when one moves from "well-being achievement" to "agency achievement." That Sen defines development goals in terms of capabilities rather than actual functioning points to the value he places on the exercise of choice. Freedom is intrinsic to one's well-being achievement and agency achievement. "Acting freely and being able to choose" is directly conducive to well-being because "choosing is seen as part of living" and "'doing x' is distinguished from 'choosing to do x and doing it'" (ibid., p. 39).

In Martha Nussbaum's treatment of capabilities—somewhat different from Sen's—the question of choice also receives particular attention. Nussbaum employs Aristotle's conception of political distribution, the aim of which is not the simple allotment of commodities, but the enabling of people to function in certain ways. Sen adopts the concept of capabilities in order to define the space within which quality of life is assessed; Nussbaum uses it "as a foundation for basic political principles that should underwrite constitutional guarantees" (Nussbaum, 2000, pp. 70-1). She, unlike Sen, defines a list of "central human functional capabilities", emphasizing that any such list cannot be but "a proposal put forward in a Socratic fashion, to be tested against the most secure of our intuitions as we attempt to arrive at a type of reflective equilibrium for political purposes" (ibid, p. 77). The list covers capabilities having to do with life, bodily health; bodily integrity; senses, imagination and thought; emotions; practical reason; affiliation; other species; play; and control over one's environment, political and material. The composition of the list is,

according to Nussbaum, of "separate components" all of which have "central importance" and are "distinct in quality" (p. 81). Although the items on the list are interrelated in many ways, the increase in one item does not make up for the deficiency in another below a certain basic level.

Nussbaum identifies the capabilities of practical reason and affiliation as paramount since "they both organize and suffuse all others and make them truly human" (p. 82). Her emphasis on practical reason—the ability to form a conception of the good and to engage in critical reflection about the planning of one's life—is particularly significant as it relates to 'choice'. Practical reason is the activity that is common to all functionings in a truly human sense. She points out that from an Aristotelian perspective there is "something less than fully human about a life devoted to pleasure alone, the life that many humans claim to want. It seems to leave out something that we think a human life should have. This something is hinted at in the work of 'choosing', ...namely the exercise of choice and practical reason" (Nussbaum, 1987, p. 44).

Building Capacity

Having discussed the concept of capability in the context of development as freedom, I can now turn to the task I set for myself in the beginning of this chapter: to examine the claim that the moral empowerment of the individual may be described in terms of the progressive acquisition by the student of a wide-range of capabilities. To analyze this claim, however, I will need to describe these capabilities in a language that is not identical to the one used by Sen and Nussbaum. It is not that their treatment of the concept of capability does not have meaningful application in the field of education. Nussbaum, for example, states:

> ...an education for human development...has a twofold purpose. First, it must promote the human development of students. Second, it must promote in students an understanding of the goals of human development for all—as goals inherent in the very idea of decent, minimally just society—and it must do this in such a way that when they are empowered to make political choices, they will foster those capabilities for all, not only for themselves. (Nussbaum, 2009, p. 8)

As to how education can accomplish this aim, she elaborates on the significance of three key abilities: the ability for critical thought, the ability to "see oneself as a member of a heterogeneous nation—and world—and to understand something of the history and character of

diverse groups that inhabit it" (ibid, p. 11) and the ability to feel sympathy. The type of education to nurture these abilities is one in which through "carefully crafted instruction in arts and humanities" students are brought into contact with "issues of gender, race, ethnicity, and cross-cultural experience and understanding" (p. 13), and one in which critical thinking "informs the entire spirit of a school's pedagogy" (p. 11). She mentions that these abilities are being developed well in the liberal arts colleges and universities in the United States, while they are poorly treated in earlier stages of education, in the years K-12.

Important as these insights are, such arguments deal with a set of heterogeneous ideas that are not easily translatable into actual curricular objectives and content. Moreover, they should be approached with caution. Attributes such as critical thinking and sympathy and outcomes such as choice and freedom have their place in education. But, as mentioned in the discussion of Hirst's conception of integration in the previous chapter, focusing on them—along with qualities of the mind like creativity and imagination—as key goals determining educational content and methods is not as fruitful as it may seem at first. As far as I can see the capability approach to development provides an appropriate background to the formulation of an approach to moral empowerment that employs the concept of capability to make appropriate pedagogical choices. To advance towards such a formulation, however, the notion of capability has to be recast in terms that are of more immediate use in education. In doing so, I turn once again to FUNDAEC's experience. Unfortunately, a straightforward account of how the organization developed the concept of capability is not easy to come by; its treatment of the concept is scattered and incomplete. What I will do is to draw on some 25 units[37] constituting the content of a two-year programme to prepare 'Promoters of Community Well-being' and relevant statements I can find in documents elaborated by the organization in order to analyze the notion of capability and its relation to moral empowerment. The next chapter will be dedicated to the examination of certain pedagogical implications of the concept of capability as advanced here.

[37] Units are used here generically to refer to a combination of materials to be studied and discussed by a group with the aid of a tutor, as well as the corresponding 'guided action research in the community', analysis of results and reflection on the nature of activity being undertaken.

As already mentioned in chapter 1, FUNDAEC has used the concept of capability as "developed capacity to think and act in a particular sphere of activity and according to an explicit purpose" (FUNDAEC, 2008, p. 47). Capabilities in this particular sense refer to "complex spheres of thought and action". A capability is not something a student either has or does not have; it is developed progressively as one acquires a set of interrelated skills and abilities, assimilates the necessary information, advances in the understanding of relevant concepts, and acquires certain attitudes, habits and spiritual qualities.

The conclusion I have reached after attempts to define the concept with more precision is that the exercise is counterproductive. FUNDAEC insisted from the outset that it would use the concept mostly as a heuristic device, a way of thinking about educational objectives and content, a strategy that would help organize elements of a curriculum according to a specified overall aim. I entered this inquiry believing that I could firm up the definition of the concept. But having examined the work of Sen and Nussbaum and then reflecting on the way an ongoing discussion of capabilities has assisted FUNDAEC to tackle the challenges of integration in determining curricular content and methods, I have come to realize that to be useful in making pedagogical choices, a given capability would not need to have a definable or measurable existence as might a skill, an attitude or the knowledge of something. The attributes that would contribute to it—the skills, the assimilated information, the understanding of concepts, the attitudes, habits and spiritual qualities—would not be its components; they would somehow interact and take on collective meaning in the context of action in the community. A capability would not be reducible to a list of such attributes.

Language, of course, allows the word capability to be used in a wide variety of ways. To be capable of doing something may refer to a simple skill or to a most complex set of functionings, one of the n-tuples proposed by Sen. One could be considered capable of identifying types of nutrients in foods being bought in the market, or could be called capable of critical thinking. To be useful in formulating objectives corresponding to a given educational aim, only capabilities in a certain range of 'sizes' and certain levels of specificity would be admissible. For example, 'typing' is too small and would be relegated to the realm of skills; 'critical analysis' would be too broad and the capabilities that assist in its realization would each be formulated in relation to

a specific objective. Again, no formula would exist for determining the range; 'rules of thumb' would emerge through action and reflection in the elaboration of educational content.

I have already explained in the introduction to this chapter that the overall vision of a civilization manifesting the powers of humanity in its stage of maturity gives rise to the more immediate concerns of education in terms of the development of the community in its social, economic, cultural and spiritual dimensions. In the life of the individual student these concerns can be organized around the concept of 'service to the community'. As mentioned in chapter 3, the image being used widely in Bahá'í communities worldwide is that of walking a path of service. Walking the path implies study, action and reflection on action. As one advances on the path of service, one acquires progressively the set of capabilities that 'pursuing personal growth' and 'contributing to the transformation of society' necessitate.

Various kinds of capabilities are always present in a given set. A first category consists of capabilities that have to do with the moral dimension of the path of service. In any programme of the kind being explored here, the students would have to become increasingly capable, for example, of building unity, of participating in collective action, of managing personal and community affairs with rectitude of conduct, of engaging in conversations that make explicit the knowledge and experience of the local community, and of accompanying others in their efforts without imposing their own preferences. These and other similar capabilities are essential requirements of a path of service associated with moral empowerment. They also seem to be of the 'right size' to be included among the objectives of an educational programme, knowing that the objective would never be the definitive acquisition of a given capability, but advancing in it. The objectives of each unit would be expressed in terms of contributing in some measure to the understanding of the concepts, the assimilation of the information, the development of the skills, the habits, the attitudes and the spiritual qualities that together make advancing in some set of capabilities possible. A few words about one example, building unity, may be helpful here. To assist the students advance in this capability, the educational process would have to ensure that they give sufficient thought to such fundamental concepts as unity, diversity, unity in diversity, unity versus uniformity, unity of purpose, unity of thought, and unity in action—sometimes in theoretical discussions but often in practice in the context of the actual work for which they are

being prepared. Skills and habits would include those of listening carefully to others, of identifying elements of agreement in a given situation upon which unity can be built without trivializing differences, and of avoiding false dichotomies. A necessary attitude would be detachment, and one to be avoided at all cost a posture of superiority. General discussions as well as personal and collective reflection on the effectiveness of specific acts of service would contribute to the acquisition of the appropriate attitudes, but they would be fragile unless they are established on the firm foundation of certain spiritual qualities representing profound states of being such as love, humility and selflessness, and to these the programme would have to pay ample attention. Finally, the development of the capability would also imply a profound knowledge of the community based on a great deal of accurate information accumulated systematically in the context of various acts of service.

A second category of capabilities to be addressed consists of those having direct bearing on the acts of service that help define the aims of a given programme. To move from an aim, no matter how well stated, to the identification of the needed capabilities calls for a definite procedure. In the case of the 'Promoter of Community Well-being' programme—community meaning a village or the neighbourhood of a city in a micro-region with clearly definable social and economic problems—FUNDAEC proceeded in the following way. It considered the chains of activities that people carry out in the micro-region and tried to conceptually organize them in what it called processes of community life. Examples of the wide range of such processes are production in small farms, preservation and improvement of the physical environment, socialization of small children, formal education of children and youth, individual and community healthcare, secondary production such as the processing of food, the buying and selling of primary and manufactured goods, artistic expression and cultural enrichment. In every micro-region, FUNDAEC observed, the processes of community life are being shaped by the forces of integration and disintegration characterizing the age of transition of humanity from childhood to maturity. In so many communities the destructive forces, generated globally or locally, are the strongest, disempowering the population and maintaining or deepening material poverty. FUNDAEC proceeded to set in motion, initially in one micro-region, learning processes alongside each of the processes of community life. These consisted of research and action close to the grassroots in which the population itself would increasingly participate. The purpose of

these learning processes was to apply and generate knowledge, thereby creating forces that would empower the population to take ownership of its own social and economic development. The moral empowerment of the promoters of community well being, the students of FUNDAEC, would involve acquiring capabilities that would enable them to engage in these learning processes, to promote them through acts of service, and to help individuals and groups in the micro-region to participate in them.

A brief look at the problem of environment helps illustrate this approach. If a community is moving towards prosperity, people within it would be engaged in chains of activity that would not only maintain but, in the long run, improve the quality of the physical environment. In most communities of the world forces both from inside and outside are reversing the direction of this process leading to progressive environmental deterioration. A promoter of community well-being should be able to promote the kind of learning within the population that leads to effective environmental action. One needed capability, FUNDAEC decided, would be that of raising the consciousness of a community about environmental issues, and another closely related to it the capability of making a diagnosis of the state of an ecosystem and participating in search for possible solutions to its problems. Again these capabilities are of a 'size' so as to become objectives of units of curriculum that would impart sufficient knowledge of environment, nurture a deep enough understanding of the relevant scientific and social concepts, and cultivate desirable skills, habits, attitudes and spiritual qualities. As already mentioned, the objective of such units would not be the definitive acquisition of these capabilities. All that a student can do is to advance in them, and the units could only contribute to this advancement. The capabilities themselves cannot be limited. The knowledge, the skills, the attitudes, the habits and spiritual qualities required of the promoter capable of raising the consciousness of the local community about environmental issues, for example, represent the beginnings of what would be needed if life were to take him or her to become the executive of a sophisticated agency concerned with environmental policy at the national level.

A short mention of a few other capabilities directly concerned with acts of service in the 'Promoter of Community Well-being' programme may shed further light on the nature of the approach undertaken. To participate in and promote effectively the learning process on

production of food on small farms would require that the promoter be capable of both designing and cultivating certain plots suitable for the ecological, social and cultural conditions of the micro region, and of using these plots as educational tools for the propagation of appropriate agricultural practices. Through extensive research, FUNDAEC developed over some two decades a methodology for the development of what it called "diversified high efficiency plots", applying the latest advances in the science of agriculture and animal husbandry, but with due regard for the rationality of small farmers and not in the manner of large commercial enterprises. Based on the results of its research it elaborated units of text focused on the development of the above two capabilities. In relation to the process of the education of children and youth, to take another example, one aspect of the learning process set in motion by FUNDAEC had to do with preschool education. Relevant capabilities in this respect range from those needed by preschool teachers and administrators all the way to those required of individuals engaged in educational research and the development of curricula. In the training of promoters of community well-being, it was decided, two capabilities would have to be addressed. The first would include concepts, information, skills and qualities that would enable them to carry out informal educational activities with small groups of children and the other the attributes that would enable them to converse with parents on issues related to the education of young children. Two units under the title *Nurturing Young Minds* focus on the development of these two capabilities. Similar lines of reasoning lead to the identification of other capabilities related, for example, to primary healthcare, the strengthening of the local economy, and theatre and other performing arts—both as powerful tools for raising social consciousness and as elements of the learning process related to the enrichment of culture.

A significant characteristic of FUNDAEC's approach, and one that can be deduced from my discussion so far to be an essential element of the framework being explored in this thesis, is that the development of capabilities in the two categories described above does not take the student far enough on the path of moral empowerment. There are a large number of capabilities associated with the intellectual heritage of humankind—say, associated with the forms of knowledge described by Hirst—some of which would have to be carefully selected and addressed according to the specific aims of a given programme. Without these capabilities, it would be difficult to achieve a proper balance between *knowing* and *doing*, and between

information, skills and attitudes, on the one hand, and understanding and spiritual qualities, on the other. A few examples may be necessary to illustrate this point.

In the case of the promoters of community well-being, an intimate knowledge of the micro-region requires classification of a wide variety of things, from flora and fauna of the region to the occupations of its inhabitants. Classifying things is a capability built on certain basic mathematical concepts and logic, the understanding of which creates a foundation for its development. A unit dedicated to the enhancement of this capability, using the language of mathematics, mostly of set theory, containing an extensive treatment of taxonomy and guiding students in the collection and classification of data about the various physical and social features of the micro-region is among the first to be studied. The promoter would need other capabilities, also belonging to the realm of mathematics, that would, for example, enable him or her to make numerical statements of various degrees of precision about the world—capabilities that begin developing when a child learns to count and reach extraordinary levels of complexity in the application of mathematical equations to the workings of the universe. Another example is the capability of applying arithmetic, including operations with fractions, to the analysis of data. One of the units that contribute to this capability treats systematically the subject of fractions as any good text of arithmetic would do, but now in relation to a rather extensive survey of the state of health in the community. Such an analysis contributes to the development of other capabilities related to primary healthcare.

That the promoter of community well-being is not to be a mere technician who applies formulae to a process of transformation demanding much more than technique gives rise to the need for another set of capabilities: capabilities of a scientist such as those of making organized observations of phenomena, of seeking patterns in data gathered about a phenomenon, of designing experiments to test a hypothesis and even of creating models within a theoretical structure. I will refer to these capabilities in the next chapter in the discussion of pedagogical choices. Here it suffices to mention that they are not treated superficially during the course of other activities but in units that teach science at the appropriate level of rigor, in the context of scientific inquiry as an essential component of the promoter's work. Another area in which the students have to develop a number of capabilities is language. The question of language, of

course, arises in a number of ways in relation to the aim of moral empowerment; I have treated the subject in chapter 5 in the context of the complementarity of science and religion, and will come back to it in the last chapter. Capabilities to be developed by promoters of community well-being in this area—and in any other programme that focuses on the twofold moral purpose explored in this inquiry—include those that have to do with describing the world around oneself, precisely when needed and in metaphors if required, with formulating ideas and expressing them clearly, with reading the literature of relevant fields with good comprehension and with describing events and processes in their historical contexts.

Having described the nature of capabilities in the three broad categories—those related to the moral dimension of the path of service, those that have a direct bearing on the acts of service which help define the aims of a given programme and ones associated with the intellectual heritage of humankind—as outlined here, I can turn to the examination of certain pedagogical issues in the next chapter. Before bringing the present argument to a close, however, one point needs to be emphasised: The universe of concepts, information, skills, habits, attitudes and spiritual qualities is not being divided here into subsets each corresponding to a capability. Capability, as mentioned in the beginning of this chapter, is used heuristically to allow for a way of thinking about the attributes of the subject of understanding and their interconnections as one tries to formulate objectives and elaborate a curriculum for a programme of specified aims. There is no call for a taxonomy of desired attributes. A given attribute clearly contributes to more than one capability; thus there is overlap among capabilities. Relationships, however, are not simple. The treatment of an attribute, say, understanding a certain concept or possessing a certain quality, changes as one focuses on different capabilities. For example, the quality of honesty has to be addressed in the context of the capability of managing personal and public affairs with rectitude of conduct, together with related concepts, skills and attitudes as well as the knowledge of issues involved in specific situations. Developing the same quality needs to be treated together with other sets of attributes in the context of unity building or the capabilities that enable one to engage in scientific inquiry. In the totality of these contexts, honesty as a spiritual quality is endowed with far more meaning than when it is addressed in the context of a single capability. If an appropriate pedagogy is developed and adopted, capability can serve as an effective strategy to integrate theoretical and practical knowledge. This is of particular

importance when it is recognized that the way the concept is being used does not confine it to the space of functionings—in which a person should have the freedom to choose doings and beings that are of value to him or her—but brings in the space of learning in which *knowing*, *being* and *doing* are integrated in the context of a dual process of individual and social transformation.

CHAPTER 8: PEDOGOGICAL CHOICES

The previous chapter was dedicated to a general discussion of the concept of capability, first in the context of development following the ideas set forth by Sen and Nussbaum, and then as a strategy to analyze and organize educational programmes concerned with moral empowerment. Throughout this inquiry, I have confined myself to insights gained from relevant literature so as to make explicit elements of a conceptual framework for such programmes, and have said little about the teaching-learning experience per se. It seems necessary at this point to enter the fuzzy area that separates philosophy and pedagogy[38] in order to clarify the nature of some of the challenges that I have already identified, particularly in dealing with the question of integration.

Even when it is taken for granted that the concept of capability provides a valuable way of thinking about the organization of the teaching-learning experience and the formulation of objectives, there is no guarantee that its use will lead to a curriculum conducive to moral empowerment. For one thing, as it stands, the notion is too vague and can easily transmute into other concepts, for example, competencies or life skills. Numerous pedagogical choices have to be made if the proper experience is to be created. A full discussion of such choices is beyond the scope of this thesis; what I can do is to select a few pedagogical issues of significance for my inquiry, hoping that by so doing I will be able to make explicit some features of the desired teaching-learning experience. But first a few words about the way I envision progress in pedagogy to actually occur, at least in the space created by the expanding network of Bahá'í-inspired organizations. The approach that is gradually finding acceptance by these organizations calls for groups of educators working at the grassroots to identify educational needs, consult on them, develop a coherent set of ideas and create ongoing teaching-learning experiences in which these ideas are put into practice. Each group is to see itself engaged in a systematic process that involves action—carrying out educational activities and evaluating them—reflection on action,

[38] I use the concept of pedagogy here in the broad sense of the term, as everything that has to do with the teaching-learning experience, rather than simply the act of teaching a student by a teacher. The term covers several interrelated sets of issues: One set has to do with the functions of the teacher including her knowledge of content and approaches to teaching, communication with students and the manner of assistance provided to them, integration of instruction in one subject area with others, and reflection upon and revision of personal practice. Another set of issues concerns educational materials designed to structure learning. Yet another set of issues is focused on the student and the kind of environment that enhances his or her learning. Participation in learning, however, extends beyond the classroom; students are members of society and interact with its other members, its institutions, and the many forces operating within it.

consultation and the analysis of advances in educational theory, not as a linear sequence but often in parallel, leading to repeated modification of ideas, methods and materials. In this way, through a series of approximations, curricular elements emerge to be shared with others in the network engaged in a similar process. The development of these elements, it is accepted, does not need to await the emergence of a comprehensive theory of education for moral empowerment; the process itself contributes significantly to theoretical advance as long as action is carried out within an evolving conceptual framework, and the knowledge being generated from various experiences is systematized and shared, and theory, no matter how well established, is considered a source of insight and not a statement about reality as it is.

The attitude towards theory being promoted by this approach has its roots in the belief that search for a pedagogy seeking moral empowerment will only be successful if those involved in the practice of education set aside a number of deeply-rooted dichotomies. Dewey expresses the challenge succinctly:

> Mankind likes to think in terms of extreme opposites, it is given to formulating its beliefs in terms of Either-Ors, between which it recognizes no possible intermediate possibilities. When forced to recognize that the extremes cannot be acted upon, it is still inclined to hold that they are all right in theory but that when it comes to practical matters circumstances compel us to compromise. (Dewey, 1938, p. 17)

In the field of education, this habit of thought seems to exert undue influence on theory, and even when not explicitly stated, certain dichotomies are able to engender endless debate on a host of other opposites. 'Development from within' against 'formation from without' is one such dichotomy as is its parallel 'progressive education' vs. 'traditional education' mentioned by Dewey. The concept of capability as elaborated and used by FUNDAEC has the potential to harmonize different elements related to subject, object and process of understanding, elements which educational debate has often held in opposition to each other. By bringing together, for example, the acquisition of skills, the assimilation of information and the understanding of profound concepts in the formulation of each objective it helps one get away from such categorical statements as 'schools must not aim at imparting knowledge but focus on offering tools for in-depth understanding and thought' or 'schools should reduce the amount of material students are required to learn and teach them how to think'. In an approach where theories are to

be treated as sources of insight and not positions to be defended at all cost, it seems more useful to consider sets of related ideas with all the tension that naturally exists among them and see how a pedagogy is built out of their interactions. In this chapter I will only discuss two such sets of ideas.

Banking Education and Problem Posing

A number of ideas to be sorted out in the search for a pedagogy centred on the development of capabilities are related to a dichotomy which is often expressed in terms of Banking vs. Problem-posing education or rote learning vs. critical thinking. In my analysis of the notion of power in relation to the aims of an educational programme concerned with moral empowerment, I referred to the work of Paulo Freire and his exploration of the kind of education that would cultivate critical consciousness. In that context, he described masterfully a contrast that helped him criticize certain approaches to education and examine the characteristics of an alternative which proved to revolutionize thinking about adult literacy. But the two notions problem-posing education and banking education took on their own lives, and gradually became, as such extreme contrasts tend to do, synonymous with good and bad education. To make valid pedagogical choices that would allow the concept of capability to show its potential, any kind of debate that pitches process against content in education needs to be set aside.

Freire's account of banking education does not simply refer to its substance and method, but more significantly to the interactions between the teacher and the students. He seems to suggest that the role assumed by the teacher determines the nature of banking education. The teacher in this case is a narrator whose task is to 'fill' the minds of students with the contents of his narration. Such contents, whether concerned with social, moral or physical dimensions of reality become "detached from reality, disconnected from the totality that engendered them and could give them significance" (Freire, 1998, p. 52). Students receive, file and store what teachers deposit in them and are themselves in the end "filed away through the lack of creativity, transformation, and knowledge..." (ibid., p. 53).

Freire argues that inquiry and praxis are what makes us human and that knowledge "emerges only through invention and re-invention, through the restless, impatient, continuing hopeful

inquiry human beings pursue in the world, with the world, and with each other" (ibid). The process of inquiry cannot begin when knowledge is considered a gift bestowed by the so-called knowledgeable upon the so-called ignorant. In such a relationship, the teacher "presents himself to his students as their necessary opposite; by considering their ignorance absolute, he justifies his own existence. The students, alienated like the slave in the Hegelian dialectic, accept their ignorance as justifying the teacher's existence, but, unlike the slave, they never discover that they educate the teacher" (ibid). The contradiction is deeply ingrained in banking education and is reflected in the attitudes and practices that characterize oppressive societies. So, "the teacher teaches and the students are taught"; "the teacher knows everything and the students know nothing"; "the teacher thinks and the students are thought about"; "the teacher talks and the students listen meekly"; "the teacher disciplines and the students are disciplined"; "the teacher chooses and enforces his choice, and the students comply"; "the teacher acts and the students have the illusion of acting through the action of the teacher"; "the teacher chooses the programme content, and the students (who were not consulted) adapt to it"; "the teacher confuses the authority of knowledge with his or her own professional authority, which she and he sets in opposition to the freedom of the students"; "the teacher is the Subject of the learning process, while the pupils are mere objects" (ibid., p. 54).

In banking education, the teacher dulls students' critical abilities and stifles their creativity because he first grasps "a cognizable object while he prepares his lesson in his study or his laboratory", and then he expounds "to his students about that object" (Freire, 1998, p. 61). The students do not "practice any act of cognition, since the object towards which that act should be directed is the property of the teacher rather than a medium evoking the critical reflection of both teacher and students" (ibid.). The students merely memorize what the teacher narrates. Education, therefore, in the name of "preservation of culture and knowledge", creates "a system which achieves neither true knowledge nor true culture" (ibid.).

Freire calls for an education that frees human beings of their state of passivity and enables them to be active participants in the transformation of oppressive structures. Such liberating education "consists in acts of cognition, not transferals of information. It is a learning situation in which the cognizable object (far from being the end of the cognitive act) intermediates the cognitive

actors—teacher on the one hand and students on the other" (ibid, p. 60). He sees problem posing as the approach that would allow acts of cognition to take place and the solution to the teacher-student contradiction to be found. It is in problem posing education that vertical patterns are broken and "dialogical relations—indispensable to the capacity of cognitive actors to cooperate in perceiving the same cognizable object" (pp. 60-1), are fostered. The teacher is no longer the absolute authority, neither is she "merely the one who teaches, but one who learns in dialogue with the students, who in turn while being taught also teach" (p. 61).

No doubt, Freire's criticism of the practice of education he encountered is insightful, and the banking analogy imaginative. It is difficult to find fault with his analysis of the inability of such education to liberate oppressed peoples of the world from structures that imprison them. The success of his work in adult literacy testifies to the theoretical and practical contribution he has made to the field of education. For Freire, a problem-posing educator is a cognitive being and at no point assumes the role of a narrator. Objects that are to be problematized—cognizable objects as he calls them—are reflected upon in dialogue between the teacher and the students. The teacher "constantly re-forms his reflections in the reflection of the students" who are "critical co-investigators in dialogue with the teacher" (Freire, 1998, pp. 61-2). The role of the teacher in this sense is "to create, together with the students, the conditions under which knowledge at the level of the doxa [opinion and magic] is superseded by true knowledge, at the level of the logos" (ibid., p. 62). This transformation corresponds to the passage of an individual from the state of semi-intransitive to that of critical transitive consciousness (see chapter 1), a state in which the oppressed can no longer be manipulated by the internalized reality imposed on them by the oppressor. In the context of the political empowerment of Brazilian peasants, this formulation of an educational process, with its accompanying techniques such as the use of generative words and selected pictures, works extremely well. Yet, freedom from oppression is but one step in a people's path of development. It remains to be seen if a pedagogy so heavily dependent on problem posing is ever able to empower the students to deal with the complex reality they have to understand and transform. I find no evidence that a people thus liberated have been able to build a better society simply by the power of their new consciousness. Further, Freire and many others inspired by him have attempted to base even formal education in schools on the pedagogy of the oppressed. While it is easy to accept that in any kind of empowering education problem

posing as a method will be employed judiciously when the occasion calls for it, giving it a central position in the overall conception of education, particularly one addressing the development of a wide range of society building capabilities which is my concern here, seems unwarranted. I would like to raise two points in this respect, one having to do with sources of knowledge and the other with consciousness.

In relation to educational materials that would act as both a "problem-situation" and "an antidote to the domesticating power of propaganda—from advertising commercials to ideological indoctrination" (Freire, 2000, p. 57), Freire gives the example of how the problem of cigarette advertising could be addressed by facilitating a discussion among a group of men who would "perceive the deceit in a cigarette advertisement featuring a beautiful, smiling woman in a bikini (i.e., the fact that she, her smile and her bikini have nothing to do with the cigarette)" (ibid.). They develop the ability to recognize subtle associations of unrelated ideas as a strategy of propaganda in contrast to their own discussions as a method of liberating education. In this example, the state of transitive consciousness reached by these men enables them to take definite steps towards confronting the problem, to begin by not allowing themselves to be fooled by such propaganda, consciously resisting what advertising tries to do to them. But looking for solutions to most problems requires far more complex actions, which in turn require knowledge. Where should one look for the knowledge that enables 'subjects' with a newly developed consciousness to participate in processes of transformation? In schools of thought akin to Freire's emphasis is on the knowledge already possessed by the people. He advocates, for example, that "popular education" should turn to "epistemological research, antecedent to or concomitant with teaching practices, especially in peasant regions." The purpose, he recommends, is "to know how rural popular groups, indigenous or not, know—how they organize their *agronomic* knowledge or science, for example, or their medicine, to which end they have developed a broadly systematized taxonomy of plants, herbs, teas, spices, roots" (Freire, 1995, p. 133). He observes with great interest that "they integrate their meticulous taxonomy with miraculous promises—for example an herbal tea that heals both cancer and the pangs of unrequited love, ..." (ibid., pp. 133-4). He notes that "research in Brazilian universities has verified the actual medical usefulness of certain discoveries made by popular wisdom", and "to discuss with peasants this ongoing university-level verification of their knowledge is a political task of high pedagogical

importance" (ibid, p. 134). To hold that respecting such knowledge is a requisite of the education of the masses, and that, even in schools, a proper pedagogy would not neglect what the students know and a good teacher would interact with them as possessors of valuable knowledge seems entirely valid to me. It represents a pedagogical choice that should definitely be made in the development of many a capability. But care has to be exercised not to give the impression, by the emotional content of the dialogue, that the knowledge of the medicinal effects of certain local herbs, for example, can replace the accumulating knowledge of humanity in the field of biology, chemistry and medicine. When valuing what people know and helping them develop critical consciousness in the process of political empowerment gives way to an exaggerated romanticism about local knowledge and its transformative power, a kind of paternalism sets in that does not do justice to the oppressed.

Not all approaches to the cultivation of critical thinking, of course, have the tendency to underestimate the value of knowledge organized in specialized disciplines and fields. Ira Shor, for example, suggests that the problem-posing approach "views human beings, knowledge and society as unfinished products in history, where various forces are still contending" (Shor, 1992, p. 35). According to him Freire's emphasis on "problem-posing as a democratic way for students to take part in the contention over knowledge and the shape of society" does not imply "that students have nothing to learn from biology or mathematics or engineering as they now exist" (ibid.). "As long as existing knowledge is not presented as facts and doctrines to be absorbed without question," he states, "as long as existing bodies of knowledge are critiqued and balanced from a multicultural perspective, and as long as students' own themes and idioms are valued along with standard usage, existing canons are part of critical education" (ibid.). But even this statement, it seems to me, does not go far enough to clarify the function of various sources of knowledge in education. Knowledge is not merely an instrument through which problems are posed. An individual who is learning to examine his or her physical and social reality at a less and less naïve level of consciousness would need, using Hirst's terminology, a grasp of concepts, logical structure, truth criteria of relevant forms of knowledge to achieve "depth in the interpretation of problems" and "guard against belief in magical explanations": ends that were

sought by Freire. But drawing on such knowledge requires 'cooperation'[39] with the source and not simply criticism. All the values represented by the knowledge of disciplines and subject matters cannot be contained in a series of contentious questions the purpose of which is to help students think critically. The "contention" suggested by Shor is, of course, connected with other elements of the thought he expresses in the few lines I have quoted. I would question the relativism underlying the conception of a human being as an unfinished product who has a claim on knowledge by virtue of his or her own perspective. And, why should all existing forms of knowledge be balanced and criticized from a multicultural perspective? An acceptable pedagogy will surely help students question what they are being taught, and there is certainly a place for problem posing and the cultivation of critical consciousness in education. But this does not justify enlarging the domain of the corresponding methods beyond reasonable limits. When views about the human being and knowledge are not shaped by extreme relativism, the teacher's role is not limited to that of a facilitator of dialogue who poses questions; he or she can also be a narrator and expounder of meaning.

The second point I would like to raise has to do with the notion of consciousness. The atrocities that have occurred throughout human history were not perpetrated by individuals with a semi-intransitive consciousness, but often by those who understood the forces operating in society, knew well what they wanted and strove to accomplish their aims. In seeking a pedagogy that would cultivate capabilities associated with the twofold moral purpose of individual and collective transformation, a transformation that would not simply make oppressors out of the oppressed, one has to take into account that consciousness can be distorted. Consciousness "shares in the bipolarity of all thought: it has an intrinsic responsibility to be truthful while at the same time it can succumb to falsehood" (Dunne, 1992, p. 57). The possibility of the corruption of consciousness is for me another reason not to overemphasize the value of consciousness-raising in education. In a certain sense, the way capabilities have been conceptualized here allows one to resist the temptation to generalize and express educational objectives mainly in terms of critical consciousness.

[39] M.J.Adler has treated this concept under the unfortunate term 'docility'. But his two essays on docility do give insights into this aspect of the relationship between the teacher and the student, for example, its contrast to subservience, passivity and a propensity to be indoctrinated (Adler, 1990).

One more thought about the dichotomy introduced by Freire is worth mentioning. The very image of a banking education, useful as it is at the time of initial diagnosis, creates difficulties when it is gradually extended to capture the totality of each and every educational process that intends to impart knowledge. It is true that "restless, impatient, continuing hopeful inquiry" generates knowledge. But knowledge is not just generated; it is also applied and diffused, processes that imply the transference of knowledge. Clearly in education, imparting knowledge should not be done according to banking procedures; a sophisticated pedagogy that trains the many complementary powers of the human heart and mind is needed. To cite an example, memory and comprehension are two such faculties. They complement and reinforce each other. Consequently, memorization is not the antithesis of cognition. In so many cultures the memorization and recital of poetry and meaningful passages has been the vehicle for collective deliberation on meaning. As stated in the previous chapter the assimilation of relevant information does play an important role in the development of capabilities, but the educational approach would have to meet at least two challenges. First it would have to pay due attention to sophisticated accounts of how information is assimilated, and second, it would have to associate the assimilation of information with the understanding of concepts. Within any given capability these two, while distinct, reinforce each other and are closely interrelated. It is not possible to think of one without the other. And care must be exercised not to reduce the latter to the former.

Bruner's computational and cultural account of the mind, mentioned in chapter 2, provides an example of the kind of approach that can be adopted in education in order to address the first challenge. In this approach, Bruner associates assimilation of information with mastery of techniques. In evolution the selection process has favoured the use of technology and it is this ability that provides the means for future growth of the human being. The powers of intellect, therefore, are to be measured in terms of the skills that link them either to the amplifiers of human capacity, or to the toolkit of culture. In the computational approach, processing information is equivalent to the mastery of the technique of establishing coding systems, and the skill of generating new information based on available data; the learner crosses the barrier from storing facts into thinking by creating generic codes. Representations of the environment too depend upon techniques that "serve to amplify our motor acts, our perception, and our ratiocinative activities" (Bruner, 2006a, p. 68). In culturalism, capacities are unlocked by

techniques that allow "exposure to the specialized environment of a culture" (ibid., p. 87). Story telling, theatre, the forms of science and protoscience, even jurisprudence are all techniques for inflating the "forum-like" feature of culture, which education according to Bruner should imbibe (Bruner, 1999).

But the manipulation and transformation of information to create more information cannot constitute the end of cognition. The second and more significant challenge noted above would need to be addressed. In this context, the mastery of the relevant techniques is more appropriately considered a necessary step towards the more challenging goal of advancing in understanding. One of the examples given by Bruner is helpful here:

> It would have been possible for Galileo to have published a handbook of the distances traversed per unit time by falling bodies. Schoolboys for centuries thereafter could easily have been tortured by the task of having to remember the Galilean tables. Such tables, cumbersome though they might have been, would have contained all the necessary information for dealing with free-falling bodies. Instead, Galileo had the inspiration to reorganize this welter of information into a highly simplified form. You recall the compact expression $s = 1/2\ gt^2$: it not only summarizes all possible handbooks but organizes their knowledge in a way that makes manipulation possible. (Bruner, 2006a, p. 25)

Yet, Bruner himself would have not been happy with a pedagogy that presents this 'formula' to the students and teaches them how to apply it to many situations of falling bodies, in tedious exercises, until they have mastered this coding of an infinite set of information. If the objective is the development of capabilities, in this case those associated with scientific inquiry, in parallel to acquiring the ability to work with information, students would need to 'understand' such concepts as acceleration, distance and time and what it means to measure them, and be able to place the expression in the historical discourse of science, appreciating its significance in breaking away from the Aristotelian version of free fall—a version that is suggested by every student's initial intuition.

The Logical Order and the Psychological Method

The second set of ideas I would like to discuss revolve around another dichotomy, not unrelated to the first. It is clear that in making pedagogical choices, one necessarily has to deal with

accumulated human knowledge as well as the attributes of the mind to be developed through education. Dewey points to some of the challenges that arise in the process by the contrast between teaching according to the logical order of the subject matter and through the "psychological method." He argues that "the *intellectual* (as distinct from the *moral*) end of education" is "*the formation of careful, alert, and thorough habits of thinking*" (Dewey, 1991, pp. 57-8). This end cannot be achieved, however, if it is assumed that there is no relationship between an individual's psychological tendencies and his logical achievements. Ignoring this relationship leads to a perception of logical training as "something to be engrafted upon the individual from without" (ibid., p. 58). Dewey points out that schools of thought in education which are polarized on this question suffer from the consequences of this wrong assumption: In one way of thinking, "mottoes are freedom, self-expression, individuality, spontaneity, play, interest, natural unfolding, and so on," and *method* is conceived "to consist of various devices for stimulating and evoking, in their natural order of growth, the native potentialities of individuals" (ibid.). The other school of thought relies on, "*subject-matter*—upon matter already defined and classified", and its "mottoes are discipline, instruction, restraint, voluntary or conscious effort, the necessity of tasks, and so on" (ibid, pp. 58-9). Method in this case consists of devices that would imprint the logic of subject matters on the mind of the individual. Dewey argues that one should see logical order from the standpoint of subject-matter as representing the goal, "*the last term of training, not the point of departure*" (Dewey, 1991, p. 62). When this is not done, the perfected form of knowledge acts as a stumbling block for the learner, whereas a method of teaching based on "problems selected from the material of ordinary acquaintance" allows the student to gain "independent power to deal with material within their range" (Dewey, 2007, p. 162). A good teacher would understand the "real problem of intellectual education" to be the "transformation of natural powers into expert, tested powers" (Dewey, 1991, p. 62).

In developing curricula that employ the concept of capability as a strategy one has to pay attention to Dewey's analysis of the logical and the psychological, but avoid a step that will finally lead to adopting the psychological as the basis of pedagogy, leaving the logical for later when the aim is to create experts. It is too easy to interpret Dewey's words to mean that the purpose of learning should be a personal or 'psychological' organization of knowledge rather than a 'logical' organization appropriate for research specialists. This ignores the very continuity

that Dewey identifies between "earlier and later stages" of "normal growth". The challenge of finding a balance between the logical and the psychological appropriate for each stage of development persists even after Dewey's analysis is taken into account. When the "psychological method" becomes a sign of "progressive education", the pendulum swings too far towards the first of the two opposing schools of thought, which Dewey himself has rejected. Hirst made a similar observation early in the development of his own thought when he argued that if "our teaching methods are not to remain the hit and miss business they are at the moment, a more careful, detailed analysis of the logical features of the content matter is required" (Hirst, 1974c, p. 130).

Focusing on capabilities in the formulation of objectives and the organization of curricula, it seems to me, facilitates the search for balance between the logical and the psychological. To begin, there is a shift from the 'knowledge the student has to acquire' to the 'attributes of the student'. But the way these attributes are integrated into the concept of capability does not allow curriculum to be developed in the context of personal or group experience alone. Capabilities are concerned with *doing* and *being*, and *being* is viewed not only as 'functioning' but also in terms of the dynamics of advancing spiritual qualities together with *knowing*—the assimilation of information from relevant fields and the understanding of concepts that give structure to knowledge in that field with the nuances mentioned in chapter 6 in the context of integration. A brief discussion of FUNDAEC's attempt to incorporate content from the natural sciences into its two-year 'Promoter of Community Well-being' programme may prove useful here. Clearly the purpose of this thesis is not to argue the effectiveness of any of FUNDAEC's programmes. That a number of evaluations have been performed and, in general, have been positive is a mere fact in the background. Repeated reference to FUNDAEC's educational efforts is for me a way of illustrating not necessarily accomplishments but attempts to approach formidable challenges in developing curricula.

The 'subject of understanding' in this example is the member of a group consisting of ten to fifteen students and one tutor that meets some 20 hours per week to study and to design, carry out and discuss the results of action and research in the community. The students are youth trying to balance their lives between an education they highly value and whatever work is

available in order to fulfil some of their obligations to their families. The tutor is not a teacher in the traditional sense, but neither is she a mere facilitator of discussion. She has received university level training and is considered a collaborator of FUNDAEC in its effort to engage the population of the region in the generation, application and diffusion of knowledge so as to take ownership of its own social and economic development. All the activities of the educational programme are guided by units of written text, in the form of a dialogue between FUNDAEC as an institution of research and education and the group of students, the tutor being a member of both. The objectives of any set of activities are formulated in terms of contribution to the development of capabilities from the three categories mentioned in the previous chapter. A primary function of the tutor is to accompany the students as they 'walk a path of service'. But acts of service are not seen as the 'practice component' or 'practical application' of a theoretical study; on the contrary, it is the experience being created along the path of service that engenders the need to develop certain capabilities, to gain insight and to acquire the associated knowledge.

Among the capabilities the necessity of which arises naturally as experience advances are those associated with participation in scientific inquiry. The capability of making accurate observations and organizing the corresponding statements and data in a way that lends itself to rigorous examination, for example, is one that students soon come to see as a requirement of their work as promoters of community well-being. In this context, experience does not refer to haphazard occurrences in the students' lives, nor artificial situations created to facilitate some specific learning, but something that is being built systematically in the context of the transformation of processes of collective life in the micro-region, a transformation that admittedly is not scientific in a strict sense but must involve the use of scientific knowledge and its methods. In this connection, then, a narrative of what scientists do in general becomes gradually woven into the dialogue with the students; the narrative, or aspects of it, gets repeated time and again and becomes more sophisticated with each repetition. In its rather simple initial formulation it is something like the following:

Scientists start with certain common observations that answer some of their questions and raise new ones. As questions become more complex, their observations need to become more sophisticated and this includes the development and use of instruments to make increasingly

precise measurements. Observation and measurement are not carried out haphazardly; scientists select one or more systems in which they can observe some aspect of the process they are exploring. Thus observing, measuring, coming up with questions and partial answers are not things they do once but repeatedly and not always in the same sequence. Intermingled with these activities are the important tasks of elaboration and clarification of concepts; ideas may begin vague but over time have to be cast in a language that is as unambiguous as possible and as rational and objective as the human mind permits. Another aspect of scientific work is the identification of patterns in the data collected on some aspect of the process being studied. When patterns keep appearing consistently one may discover a law that governs the unfoldment of the process. But scientists are not satisfied with the identification of patterns. Their main task is to make models of reality. Models are sets of statements that explain observations related to a part of or an entire system or process. One can have models, for example, that explain what happens when water boils or when ice melts. But these models are always based on theories that are sets of profound statements about the nature of reality. In the example of a model explaining the boiling and freezing of water, the underlying theory is the atomic theory of matter (FUNDAEC, 2007).

The pedagogical choices before FUNDAEC in relation to teaching science have had to do with the way students develop the capabilities that enable scientists to do what is briefly described in the above passage: which combination of information and concepts, skills and abilities, attitudes, habits and qualities would have to be addressed and in what manner so that an educational activity can contribute to the development of one or more of these capabilities? The most immediate answer, of course, is that the challenge should be addressed in the very development activity in which the student is engaged in the community. To begin working in the area of health, for example, students are asked to carry out research on the knowledge the inhabitants of their micro-region already possess about how to maintain the health of their small children as well as the operation of health services available to them. Here, the development of the capabilities of a scientist is one of the themes explicitly treated in the corresponding text, which does not shy away from presenting the knowledge of biology relevant to the health issues being investigated. The same holds for actions related to agriculture and environment. But what is important for my exploration is that FUNDAEC has found this aspect of its pedagogy necessary but insufficient in

relation to its goal of enabling promoters of community well-being to engage in scientific inquiry as an integral part of their work. It has felt that while acts of service related to the development of the community are valuable instances of learning about science in practice, they do not lend themselves to the kind of focused treatment of science that a systematic development of the desired capabilities requires. It has convinced itself that a step by step study of some areas of scientific knowledge respecting their 'logical order' is necessary for its purposes, albeit without ignoring the importance of the student's own experience.

When it comes to bringing the students' experience into the teaching of science, there are not that many choices readily available. As Reiss puts it, most attempts leave the students with a "very narrow understanding of what science is and how it is carried out" (Reiss, 2001, p. 6). Children do not learn "to ask the sort of questions that scientists actually ask or to ask the sorts of questions that the rest of us ask and to which science can make a contribution" (ibid.). Instead, pupils are restricted "to mind-blowingly dull questions about the bouncing of squash balls or the dissolving of sugar in what are misleadingly termed 'scientific investigations'" (ibid., pp. 6-7). Such an approach persuades "most people that they aren't good at science" (ibid., p. 7). FUNDAEC seems to have held similar views regarding the materials and methods associated with what has come to be known as 'learning by discovery'. It has observed that much of the experience artificially created for the student in the name of 'scientific investigation' often leaves the student with the impression of science as a collection of imaginative, and almost magical, discoveries. It is worth noting here that even Bruner whose article, 'The Act of Discovery' (Bruner, 1961), seems to have given the idea a boost became disillusioned with the direction it took over the years. Early on he had argued:

> ...emphasis upon discovery in learning has precisely the effect upon the learner of leading him to be a constructionist, to organize what he is encountering in a manner not only designed to discover regularity and relatedness, but also to avoid the kind of information drift that fails to keep account of the uses to which information might have to be put. (Bruner, 2006a, p. 60)

In a follow-up essay he distanced himself from the excesses that had set in. He confided that "I am not sure any more what discovery is" and complained that "discovery was being treated by some educators as if it were valuable in and of itself, no matter what it was a discovery of or in

whose service" (Bruner, 1966). Here again the popularization of an idea had led to extremes, to unwarranted slogans, for example, learning by doing vs. book learning.

It seems that any attempt in education of science that tries to connect the logical order of the subject matter to the experience of the student would do well to reflect on Vygotsky's insightful treatment of everyday and scientific concepts. His suggestion that the development of the child's spontaneous concepts may be seen to be proceeding upwards and the development of his scientific concepts downwards creates an image of the way the two are connected:

> The development of a spontaneous concept must have reached a certain level for the child to be able to absorb a related scientific concept...In working its slow way upward, an everyday concept clears a path for the scientific concept and its downward development. It creates a series of structures necessary for the evolution of a concept's more primitive, elementary aspects, which give it body and vitality. Scientific concepts, in turn, supply structures for the upward development of the child's spontaneous concepts toward consciousness and deliberate use. Scientific concepts grow downward through spontaneous concepts; spontaneous concepts grow upward through scientific concepts. (Vygotsky, 1986, p. 194)

In the example being considered here, the students were not children but youth whose commitment to pursue their own moral and intellectual growth and to contribute to the transformation of their communities was being firmed up in an empowering educational process. They were becoming increasingly conscious of the need to develop capabilities among which those associated with scientific inquiry were of particular value for the work ahead of them. Their experience, apart from the usual occurrences of daily life, included systematically guided activity that generated a wealth of concepts in need of "structures supplied by scientific concepts" in order to move towards "consciousness and deliberate use". This for me is an important justification for FUNDAEC's decision to dedicate a part of its curriculum to the treatment of a few areas of science according to their 'logical order'.

The approach is briefly as follows: FUNDAEC chose the atomic theory as the context within which the students would move time and again through the series of steps suggested by the narrative on the nature of scientific inquiry, each time by examining one familiar process. The first process is the heating and cooling of matter which can be studied in some depth within the context of the first and most general statement of the atomic theory, namely that matter is made

of extremely small particles in constant motion. The corresponding conversation organized in written text takes the students through an inquiry into the nature of the process: everyday observations are remembered and organized; a substantial number of questions are generated; ordinary concepts such as heat, temperature, force and pressure are clarified and are moved 'upward' towards their scientific definitions (see Appendix 2); instruments for measuring these quantities are introduced as an aspect of the upward movement; measurements are made, data is collected and patterns are observed; the relationship between volume, temperature and pressure in an ideal gas is 'discovered' and discussed as an example of a law in science; a model of matter in its three phases—a solid as an organization of small particles bound together and oscillating around a point of equilibrium, a liquid as an aggregate of particles more loosely bound to each other and able to 'slide' over each other as do the particles of fine sand; and a gas as the aggregate of particles moving in all directions and bouncing against each other—is presented and used to explain as many observations made about the process and the patterns identified among them, as possible. Although at this early stage certain fundamental philosophical issues cannot be explicitly addressed, care is taken not to create notions of science in the mind of the student that later have to be erased. For example, the theory dependence of observation is clearly emphasized as is the finite range of validity of any set of theoretical statements. The study of the process ends with a discussion of the Aristotelian view of the universe in terms of the four elements of fire, air, water and earth. It is shown how that theory also explains certain observations about the process of the heating and cooling of matter; yet the explanatory power of even the first statement of atomic theory is far greater. In the study of three other processes, the growth of a plant, the transfer of energy, and photosynthesis, new statements are added to the atomic theory—the division of particles into atoms and molecules, the structure of atoms, the nature of chemical bonds, the transformation of energy from one form to another, the properties of photons and electrons—making it possible to create a number of theoretical models as sets of statements about the workings of such systems as the root of a plant, a cell or an electrical circuit.

In addressing the development of capabilities associated with scientific inquiry, directly in an exploration of science as a "form of knowledge", the experience of the student in the community is not neglected. The approach is similar to the way these capabilities are treated in the texts concerned with areas of 'service' such as health and agriculture. There, science was brought in as

needed; here, constant reference is made to systematic action in the community showing the significance of scientific concepts, information, skills and attitudes being acquired. This is, of course, not the place to discuss and compare approaches to science education. My intention in presenting this brief account of one aspect of FUNDAEC's curriculum in a specific programme has been to demonstrate the way an approach based on capabilities lends itself to the resolution of a set of dichotomies revolving around the contrast between the 'psychological method' and the 'logical order' of subject matters.

In general, one could argue that any effective pedagogy should deal with the kind of difficulties to which the two sets of dichotomies mentioned above as well as a host of others—child-centred vs. subject-centred, process oriented vs. outcome based, moral vs. intellectual development, skills vs. cognition, just to mention a few—give rise. That so many of the popular pedagogies fall on one or another side of rigidly defined opposing camps indicates that finding the necessary balance is not as easy as it may appear. In this chapter, I have not argued that using the concept of capability by itself meets this formidable challenge. What I have suggested is that the approach is conducive to the kind of thinking that pays simultaneous attention, say, to the child and the subject matter, to the acquisition of skills and cognitive development, to the process and the outcome, to the intellectual and the moral. But achieving this requires that capabilities are not taken apart and analyzed in terms of their 'components'. The understanding of a set of concepts, the assimilation of relevant information, the acquisition of some skills, and the development of certain spiritual qualities, attitudes and habits all contribute to the enhancement of several interrelated capabilities, but at the same time, the capabilities give meaning to these attributes, serving as the context within which they are acquired. A given curricular element, of course, will necessarily focus on a few attributes—as little as one or two skills and a small set of related concepts—but in the context of the much larger set of attributes that contribute to the desired capabilities. Adopting such a discipline in the elaboration of curricula involves the acceptance of a certain claim that the many attributes to be developed in the mind and the heart of the individual do lend themselves to fluid arrangements that somehow correspond to definite states of *being* and *doing* to which capabilities refer. But, there seems to be a premise underlying this claim indicating that capabilities may not be mere arbitrary constructs. The correspondence with actual states of being and doing, however, is not a simple one. For one thing, these states are

moving in constant development. Those involved in the elaboration of curricula would have to be aware of the inadequacy, over time, of any description of a capability in terms of a given set of attributes that contribute to it. While focusing on one such set may be sufficient to help the student advance in a capability at a certain point, once a new state of *being* and *doing* is achieved, further movement may require additional attributes to enter into the description of the capability.

CHAPTER 9: CONTINUITY OF THOUGHT, LANGUAGE, ACTION

The last two chapters were dedicated to an exploration of the promises and challenges of an approach that would use a particular interpretation of the concept of capability to organize the teaching-learning experience in educational processes aimed at the moral empowerment of the student. To illustrate the approach, certain features of a specific Bahá'í-inspired programme for the education of promoters of community well-being with notable achievements in certain areas of the world were presented. In that context, three categories of capabilities to be progressively acquired by the promoters were mentioned, those directly concerned with the moral dimension of empowerment, those pertaining to the realm of action as the promoters create for themselves a systematically growing body of experience through acts of service, and those related to humanity's accumulating knowledge in its various forms. Most of the discussion, however, was limited to the latter two categories; the only statement of consequence about the first was my claim that the development of the corresponding attributes—the understanding of concepts, the assimilation of information, the skills, attitudes, habits and spiritual qualities—would have to be addressed in educational activities concerned with capabilities in the other two categories as well and, not necessarily, in a separate part of the curriculum dedicated to moral education. I should now go further and explore a few major considerations that must inform the cultivation of attributes directly related to the moral dimension of empowerment.

To begin, I would like to argue that, in an educational process aimed at moral empowerment, moral capabilities need to be developed in the context of what I have referred to as essential relationships in chapter 1—between human beings and nature, among individuals, between the individual and the institutions of society, and among the many elements of the community—relationships that define the individual, the community and the institutions of society as protagonists of the immense transformation that entering the age of maturity implies for the human race. As mentioned before, the morality called for here is not a passive one focused on functioning in the world as it is today. Desirable as it is, for example, to work constructively in unity with others and avoid being a cause of conflict and dissension, it is the capability of building unity—briefly mentioned in chapter 7—that needs to be addressed by the empowering educational process. Honesty and truthfulness are qualities to be enhanced by any attempt at

moral education, but those capable of organizing personal and collective affairs with rectitude of conduct are in need of attributes that make them, for example, champions of justice and effective participants in struggles against corruption. To pursue happiness without harming others is a significant moral goal, but to be capable of bringing joy to others seems to be a challenge that presents itself at a more active level of morality. These and myriad other capabilities of the same kind seem to be directed among other things towards the creation of environments[40] within which the essential relationships characterizing a mature human race are to take shape and manifest themselves. What are some of the ideas essential to any educational programme hoping to enhance such capabilities?

It seems that foremost among the challenges of a curriculum concerned with the development of moral capabilities is how to treat the question of language. Clearly, students engaged in an empowering educational process need to develop a language that will allow them to progressively articulate their thoughts and experience with clarity. The language becomes refined and acquires depth as students are able to express more and more accurately and completely a range of moral concepts and their interrelationships. This refinement needs to take place in the ongoing reflection of a group of students on its experience in pursuing a twofold moral purpose. However, this is not a theoretical exercise aimed at extracting general principles from particular instances of action. Profound collective reflection on action needs to be expressed in words that endow action with meaning and transform activity in the minds of the students from routine or dull performance of duty to that which is intrinsically linked to their aspirations and goals.

The phrase "growing into our language" which Dunne uses in his analysis of Gadamer's work is relevant in this respect. Growing into our language is a process which introduces "differentiation and order into our world" (Dunne, 1992, p. 143). Gadamer states: "Experience is not wordless to begin with, subsequently becoming an object of reflection by being named, by being subsumed under the universality of the word. Rather, experience of itself seeks and finds words that express

[40] In the case of the 'Promoter of Community Well-being' programme, discussed in previous chapters, the immediate environments in question are those of groups with which the student interacts in the context of the community. These exist in a larger world of ideas that form the ethical environment. The concept of ethical environment has been examined in its complexity by Haydon who has also explored the way values education has to take account of it (Haydon, 2006a). The development of the kind of capabilities suggested here presents one approach by the aid of which education can intervene in the ethical environment.

it" (Gadamer, 2004, p. 417). Dunne points out that "this seeking and finding is, in fact, the primary process of concept formation which keeps pace with the growing complexity of the way in which we are to experience the world" (Dunne, 1992, pp. 143-4). In the example of the promoters of community well-being, the students' arena of action is the community in a micro-region, with its physical, social and moral environment. As the students each advance in the relevant capabilities at their own pace, they "grow into a language" that increasingly corresponds to the complexity of the world they experience and the conditions of which they endeavour to transform. The development of the power of expression in this sense is rooted in the experience that is being generated in the community. On a personal level, it reflects the continuity between thought, language and action. On a collective level, it lends impetus to the gradual elaboration of a shared framework which increasingly draws together the goals and aspirations of a growing number of people within a specific population.[41]

I have already touched on the question of language in the context of science and religion as two complementary sources of knowledge. In that discussion, I argued that in addition to the language of science, an educational process concerned with moral empowerment needs to employ the language of religion which, with the rational, the normative and poetic forms of expression at its command, would speak to the heart and the mind in ways that are not easily accessible to the other one. At the time, I did not address the question of the arts in the kind of process being discussed here. The arts, of course, enter into education in their own right as essential aspects of humanity's cultural heritage. Depending on the nature of a given programme, the development of certain artistic capabilities, contributing to such faculties of the human mind and heart as creativity and imagination would constitute an important part of the totality of the objectives of the programme. In exploring in this final chapter the continuity of thought, language and action, I should at least mention that, beyond their own intrinsic value, the various forms of art expand human ability to express experience and need to be taken into account in the exploration of the language into which students 'grow' as they advance in a given set of capabilities. One reason is that feelings and emotions have an important role to play in moral choices and acts. The language of science, or philosophy, is clearly not the most effective

[41] The main characteristic of modern life according to Charles Taylor is the failure to find a believable framework which brings with it a quest for meaning intimately connected with language: "... the invocation of meaning ... comes from our awareness of how much the search involves articulation. We find the sense of life through articulating it" (Taylor, 1990, p. 18).

instrument for the expression of emotions, although it can help analyze and understand them. The language of religion certainly deals with the affective sphere, but it does so in its own way, at a level of transcendence and authority. But this does not exhaust the demand feelings lay on expression. The power of expression that the student needs to develop in the process of moral empowerment involves a complex interaction between the languages of philosophy, of science, of religion and of one or more forms of the arts.

In what follows I would like to argue that, in order to address continuity of thought, language and action, an educational process concerned with moral empowerment needs to resolve at least two sets of issues. The first has to do with the question of 'heart and mind' and the second with the 'individual and collective'. The lack of resolution of these two sets of issues, it seems to me, perpetuates an illusory tension regarding the role science and the arts play in education and contributes to the vision of a fragmented self in its various formations—an emotivist, a computer, a modern being motivated by self-interest, a calculating rationalist or a smoothly functioning piece in the machinery created by the state or the market, among others—which I have already rejected as candidates for the subject of understanding in the kind of educational process under consideration.

Oneness of Heart and Mind

Feelings and emotions, up to now, have not entered explicitly into the exploration of the concept of capability, although they are clearly present in considerations of spiritual qualities, attitudes, habits and, somewhat differently, in understanding concepts. The decision not to treat emotions directly at the level of educational objectives, as is done for example in Bloom's taxonomy, but indirectly through attributes that define capabilities, has important philosophical underpinnings that I need to make explicit. What is being questioned is the division of the subject of understanding into the 'emotional' and the 'rational' attached to the heart and the mind respectively. To seek unity between the heart and mind, of course, is not to deny the value of virtues traditionally associated with the heart. An approach is needed that addresses the cultivation of desirable emotions without creating a false duality, thus safeguarding the integrity of the individual and resisting alienation from the world. The language in which moral capabilities are conceived and discussed needs to counteract the language of modern life in

which strong undercurrents contribute to ever separating fragmented spheres of being. Such a language was described to some extent in chapter 3 in the discussion of spiritual qualities as a particular category of virtues constituting properties of the human soul. Fostering spiritual qualities would be a fundamental concern in the development of every capability, independent of its particular emphasis on the intellectual, the social or the moral.

The division of virtues into the intellectual and the moral—the former identified with the rational and the latter with the nutritive and desiring parts of the soul—has made it difficult to see in education the many unifying threads that if strengthened would contribute to the student's wholeness of character and organic unity with the world. Some would attribute the origins of this separation to Aristotle's words: "contemplative wisdom, understanding and practical wisdom being intellectual, generosity and temperance moral", and his suggestion that the growth of the former requires teaching, while the latter "come about as a result of habit..."[42] Randall Curren reminds us that this widespread distinction is too simplistic an account of Aristotelian virtues, since " he also holds that no one is fully virtuous or has true moral virtue without having the intellectual virtue of wisdom,...and that no one can become practically wise without first possessing natural and habitual moral virtues, ..." (Curren, 1999, p. 68). Yet the crude interpretation persists in many a practice of education[43].

According to Midgley, "...many things on the current intellectual scene tend to make us disconnect feeling from thought, by narrowing our notions of both, and so to make human life as a whole unintelligible" (Midgley, 2003, p. 3). She points to the tendency to use words like "heart" and "feeling" to "describe just a few selected sentiments which are somewhat detached from the practical business of living—notably romantic, compassionate and tender sentiments—as if non-romantic actions did not involve any feelings" (ibid.). Mean and vindictive action, she reminds us, "flows from and implies mean and vindictive feelings, and does so just as much when it is considered as when it is impulsive" (ibid.). She further argues that while there is the possibility of tension between thought and feeling, and between feeling and action, they are nevertheless

[42] See Ross's translation, (Aristotle, E.N., Book I)

[43] There are, of course, more nuanced definitions of virtues available. Haydon, for example, refers to them in these terms: "Virtues, whatever else may distinguish them, are complex dispositions of human beings which involve feeling and motivation as well as perception and reason" (Haydon, 2006b).

interwoven: "We are in fact so constituted that we cannot act at all if feeling really fails. When it does fail, as in cases of extreme apathy and depression, people stop acting..." And, "feelings, to be effective, must take shape as thoughts, and thoughts, to be effective, must be powered by suitable feelings" (ibid., p. 4).

The most obvious connection between feelings and action is motivation—the former motivate the latter. But this is only one aspect of the relationship between emotions and actions in which thought and language play essential roles. Some of the emotions that move us to act with fear or anger, for example, are temporary; learning to eliminate them when unwarranted and to manage them when justified, as would be anger towards injustice, can be an outcome expected from an educational process. Other feelings such as jealousy and greed can become permanent features of character and need to be taken into account accordingly. But all of these belong to the category of "self-referential" emotions. "Our interpretation of the world is inveterately self-referential," Peters has observed. "We find difficulty in peering out and seeing the world and others as they are, undistorted by our own fears, hopes and wishes" (Peters, 1975a, p. 90). Addressing feelings in the process of fostering spiritual qualities and cultivating understanding obliges an educational programme to pay attention to the development of "self-transcending emotions"—corresponding to "appraisals which lack this self-referential character, notably love, respect, the sense of justice and concern for truth." This, according to Peters, is "probably the most effective way of loosening the hold on us of the more primitive, self-referential ones" (ibid.).

Focusing on "self-transcending emotions" requires the critical examination of a common assumption that everything which has anything to do with rational thought is abstract in its pure form and only later is it applied to concrete situations. In the realm of morality, principles are "products of reason" and are considered affectively neutral and inert. Thus "fairness" and "considering people's interest" are assumed to be abstractions for which meaning has to be found in concrete traditions (Peters, 1981, pp. 63-7). Conversely all emotions, whether rational or irrational, are situated in particular contexts infused with subjective states. For example, Nel Noddings mentions that "caring", which is essentially "nonrational" as "it requires a constitutive engrossment and displacement of motivation", may be gradually or abruptly "transformed into abstract problem solving" (Noddings, 2003, p. 25). She advocates that "rational-objective

thinking is to be put to the service of caring"; suggests that "we must at the right moments turn it away from the abstract toward which it tends and back to the concrete" and argues that at times we must "suspend" rational thinking "in favor of subjective thinking and reflection, allowing time and space for *seeing* and *feeling*" (ibid., p. 25).

This contrast between reason and emotion is misconceived. Peters' use of the word appraisal in relation to emotion is significant. He argues that in so far as emotions involve a certain type of cognition in the form of appraisals, they are, "basically forms of cognition" (Peters, 1975a, p. 77). Another way to see cognition at work in the expression of emotions is via the operation of virtues[44], particularly the category referred to as spiritual qualities in this thesis and incorporated into the notion of capability. None can dispute that virtues of this kind have emotional and attitudinal dimensions which when distorted will obstruct their inherent powers from manifesting themselves. 'Kindness' with an attitude of superiority becomes paternalism, and 'generosity' with feelings of pity could be a vehicle for the perpetuation of dependence. However, appropriate emotions that safeguard the integrity of virtues from distortion are not blind. Moral acts of benevolence, of courage and fortitude, even when manifested habitually, are not bereft of thought. And the seeing that endows those acts with significance does not require the suspension of rational thinking as Noddings suggests.

A concept that I find helpful in seeking unity of mind and heart is 'perception'. While I cannot undertake the task of examining adequately the concept in the context of moral empowerment, I would like to suggest a possible line of inquiry. I have already argued against the duality of the 'subjective' and the 'objective' in chapter 4, and have tried to position the subject of understanding in an extended reality. Within this reality, there is a spiritual as well as an intellectual dimension to perception in which both reason and feeling take part. To become increasingly empowered, the student stands in need of ever expanding 'moral perception' and a language in which it can be expressed. Moral perception in the sense being used here is akin to McDowell's "sensitivity" to a "certain sort of requirement which situations impose on behaviour"

[44] MacIntyre explains, for example, that the process of transition from infantile intelligence to independent practical reasoning is one in which the impulse to satisfy purely personal desires gives way to an informed desire to pursue good. The "qualities that a child must develop, first to redirect and transform her or his desires, and subsequently to direct them consistently towards the goods of the different stages of her or his life" are "the intellectual and moral virtues" (MacIntyre, 1999, p. 87).

(McDowell, 1979, p. 142), which he identifies as perceptual capacity. The example he offers to clarify his point is kindness. The "reliably kind behaviour" of a kind person "is not the outcome of a blind, non-rational habit or instinct" (ibid.). On being kind in each occasion, the kind individual has a reliable sensitivity to the requirement which the situation imposes on behaviour. McDowell holds that "the deliverances of a reliable sensitivity are cases of knowledge" and "the sensitivity is, we might say, a sort of perceptual capacity" (ibid.).

Enhancing this perceptual capacity in the subject of understanding, I feel, is an essential task of an empowering educational process. The task is enormously challenging. It demands the adoption of an expanded rationality as discussed in previous chapters, in which reason and faith are not held in opposition to each other.

Another point worth mentioning is that it is difficult to conceive of the kind of active morality a process of moral empowerment is to engender, without passion. It is often said that to think rationally one needs to examine issues and situations dispassionately. But is the expanded rationality to be developed in an educational process concerned with moral empowerment divested of passion? According to Peters, "there are attitudes and appraisals which are the passionate side of the life of reason" (Peters, 1981, p. 68). Science and any other rational activity presuppose normative standards such as consistency, relevance, impartiality, truthfulness, accuracy, clarity and respect for evidence and other people. These standards are "intimately connected with the passion for truth which gives point to rational activities" (ibid., p. 67).

In Peters' view, even distinct disciplines of knowledge are "more precise articulations of the more generalized passions which begin to exert an influence when reasoning of a less precise sort gets under weigh", when, for example, "primitive constructiveness passes into the love of order and system" (Peters, 1975b, pp. 76-77). The same is true in the moral realm. In helping students to enhance their moral capabilities, the educational process needs to ensure that the acquisition of moral perception goes hand in hand with the transformation of passion from lower to higher forms. Both developments go forward when, in the process of enhancing capabilities, ample attention is given to the nurturing of understanding and the fostering of spiritual qualities as an inseparable whole.

Interplay Between the Individual and the Collective

Those capabilities that bring to the fore the moral dimension of *knowing*, *being* and *doing* are to a great degree shaped against a background of concepts and notions that define personhood within a complex web of communal and social relations. Capabilities refer to the attributes of individuals; in the context of an educational programme, it is the individual who progressively advances in a set of capabilities. But the discussion of the previous chapters should have made it clear that advancing along the path of moral empowerment is deemed possible only if the student is immersed in the life of society. It is worth mentioning here that Sen has been criticized for adopting "methodological individualism" in his capability approach to development. His response has been that the concern with "people's ability to live the kind of lives they have reason to value brings in social influences both in terms of what they value (for example, 'taking part in the life of the community') and what influences operate on their values (for example, the relevance of public reasoning in individual assessment)." He goes on to say that "perhaps the misconstruction in this critique arises from its unwillingness to distinguish adequately between the individual characteristics that are used in the capability approach and the social influences that operate on them" (Sen, 2009, pp. 244-5).

In an educational process focused on the development of capabilities, raising awareness of the influence social forces exert on one's thought, language and action will definitely have to be addressed. So too will be the ability to analyze the operation of such forces and the way to deal with them. But somehow this treatment of social forces does not seem to go far enough towards the creation of the kind of relationship between the individual and society that is being suggested in this thesis. For one thing, the ability to articulate the effects of the negative forces operating in society—greed, prejudices of many kinds, unbridled individualism and oppression, to name a few—plays some role in the development of capabilities, particularly the ones being referred to as moral capabilities here; when overemphasized, it leads to cynicism and alienation. What is needed is a strong sense of belonging to the whole, not the detachment of a critical outsider. In chapter one, I began my argument by stating that there is no tension between the dual processes of personal and collective transformation and that in fact they should be considered two inseparable dimensions of one movement. But such a tension can only be avoided if the language

that is used to express thought and spur action in the process of the enhancement of capabilities describes a self that has incorporated into its very conception strong connections with other individuals, with the community and with the institutions of society.

MacIntyre offers penetrating insights in this regard. He identifies a sharp split in our current social order between "the realm of the organizational" in which the ends are not to be questioned and "the realm of the personal" in which, by contrast, there is nothing but disputation about values. The two sides of the political debates that fan the supposed opposition between the individual and the collective are the "self-defined protagonist of individual liberty" and the "self-defined protagonist of planning and organization". The apparent opposition masks the deep agreement between the two parties. For both, there are only two alternative modes of social life: "one in which the free and arbitrary choices of individuals are sovereign and one in which the bureaucracy is sovereign, precisely so that it may limit the free and arbitrary choices of individuals" (MacIntyre, 1981, p. 33). According to MacIntyre, these two apparently antagonistic ways of life are, in fact, partners in a common culture, and it is in this culture that the emotivist self finds an ideal home.

The capabilities that are to be acquired by the student on the path of moral empowerment, must enable her to transcend manipulative and authoritarian relationships between individuals and social organizations—the results of arbitrary freedom and control. Once again, language becomes a vital concern here. So much of the language of our age—whether the language of the emotivist in which it is hard to distinguish between sentences expressing preferences and evaluative statements (see chapter 2, footnote 9) or the bureaucratic language of injunctions and rules—not only reflects the culture MacIntyre sharply describes but also plays a central role in shaping it. To achieve, even on a modest scale, the transformation of essential relationships—requiring as mentioned in chapter one an expanded notion of power as well as new explanations of individuality and collectivity—one has to allow a different language to evolve, the language of harmonious and reciprocal relationships whereby institutions act as channels for the release of human potential and individuals aspire to contribute to the shaping of such institutions.

What are some of those characteristics of the language in which moral capabilities have to be expressed that directly bear on relationships between the individual and society? To begin, the way personhood is discussed must necessarily move away from narrow and misconstrued notions of 'self'. At the individual level, the concept of self seems to have become barren and the modern age evokes a sense of loss of identity, highlighted in moments of sincere introspection. This is ironic when one witnesses how often the word 'self' is associated in today's language of many a practice with those of 'image', 'confidence', 'assertiveness' and 'actualization'. But do these associations give rise to more than empty notions of 'grandeur' and 'ego'? To say, for example, that an individual measures herself mainly by the degree of confidence she has acquired or by her self-image is to reduce personhood, and the individual in this reduced form cannot be at ease with the collective. Charles Taylor points out that although 'self-image' is often associated with appearing in a good light in the eyes of others and caring about how we match up to certain social standards, it is not essential to who we are.

> On the contrary, what is usually studied under this head is what we can identify, outside the sterilized, "value-free" language of social science, as the all-too-human weakness of "ego" and "image" in the everyday sense of these terms (themselves, of course, incorporated in to the vernacular from social science). The ideally strong character would be maximally free of them, would not be deterred by the adverse opinion of others, and would be able to face unflinchingly the truth about himself or herself. (Taylor, 1990, p. 33)

As an alternative, Taylor suggests "orientation to good" as a crucial feature of the desired individuality, one that cannot be depicted without reference to its surroundings:

> What I am as a self, my identity, is essentially defined by the way things have significance for me, and the issue of my identity is worked out, only through a language of interpretation which I have come to accept as a valid articulation of these issues...we are only selves insofar as we move in a certain space of questions, as we seek and find an orientation to the good. (ibid, p. 34)

To continue with Taylor's line of reasoning, our orientation to good—which is constitutive of who we are—involves articulation and continuing clarification of significant issues, which cannot be done by a lone self. A self exists only within "webs of interlocution": those "conversation partners" who in the early part of life were essential to our self-definition and with whom we first learn "our languages of moral and spiritual discernment" as well as others who

are now crucial to our "continuing grasp of languages of self-understanding" (p. 36). An important attribute of this language is that it only exists and can only "be maintained within a language community" (p. 35). Rootedness in a community, however, does not imply conformity.

> A human being can always be original, can step beyond the limits of thought and vision of contemporaries, can even be quite misunderstood by them. But the drive to original vision will be hampered, will ultimately be lost in inner confusion, unless it can be placed in some way in relation to the language and vision of others. (p. 37)

The above paragraph seems to be pointing to a dynamic relationship between the individual and the community at the level of thought, language and action—the individual being rooted in the community as well as contributing to its change. To explore the nature of this relationship in more depth, however, some kind of theoretical framework on language and thought seems to be needed. Vygotsky's work offers valuable insight in this respect. According to Ellen Watson, Vygotsky avoids the problems associated with approaches—originated from the classical empiricist tradition—that consider thought primary and language its expression, in which the mind is the passive recipient and organizer of images produced by external objects. His work, however, does not embrace the radical social constructivism of approaches on the opposite camp, which consider language primary and responsible for shaping thought, and as a result, face the problem of communication across communities with varied languages. His theory lies somewhere between the two approaches (Watson, 1995, pp. 47-66).

Vygotsky's work suggests that in order to understand the uniqueness of human behaviour we need to consider both the historical character and the social nature of human experience. With regard to the former, Vygotsky writes: "Man makes use not just of physically inherited experience: throughout his life, his work and his behaviour draw broadly on the experience of the former generations, which is not transmitted at birth from father to son. We may call this historical experience" (Vygotsky, 1979). As to the social character of human experience, it relies on interpersonal communication allowing a person to draw "on the almost infinite pool of experiences of others" (Kozulin, 1990, p. 81). Individual experience itself "becomes just one element in the field of experience" available to each person (ibid., p. 81). On the old psychological question of knowing another person's mind Vygotsky wrote that "We are aware of ourselves, for we are aware of others, and in the same way as we know others; and this is as it is

because we in relation to ourselves are in the same [position] as others are to us" (Vygotsky, 1979, pp. 29-30). He observed that children understand others first and themselves later:

> ... the child first learns to understand others and only afterwards, following the same model, learns to understand himself. It would be more exact to say that we know ourselves to the extent that we know others, or, even more exact, that we are conscious of ourselves only to the extent that we are another for ourselves, that is, a stranger. (Vygotsky, 1926)

As R.Van Der Veer and J.Valsiner explain, Vygotsky reaches the conclusion that language, "the tool of social interaction, is at the same time the tool of intimate interaction with oneself" (VanDerVeer and Valsiner, 1991, pp. 57-8).

This brief reference to Vygotsky only hints at the kind of language in which the development of every set of capabilities has to be conceptualized in an educational programme concerned with moral empowerment, if the resulting individuality of the student is not to contradict the very aim of the programme. This is of particular importance because in an empowering process, the student has to be fully aware of the objectives of every activity and be able to reflect on how advancing in a given capability is helping to fulfil his or her twofold moral purpose. There is a rise in consciousness as the student advances in a capability, but this consciousness is not the property of the individual alone. The student has to be aware, and work within a rising collective consciousness, that as Ilyenkov puts it "is not simply the sum of many individual consciousnesses" but rather "a historically formed and historically developing system of 'objective representations', of forms and schemes of the 'objective spirit', the 'collective reason' of humanity" (Ilyenkov, 1977, p. 6). A premise of this thesis has been that the rising 'consciousness of the oneness of humankind' is the most fundamental manifestation of the spirit of humanity today and should permeate every aspect of education seeking moral empowerment.

Further, according to Vygotsky, "The social dimension of consciousness is primary in time and in fact"; the individual dimension is "derivative and secondary" (Vygotsky, 1979, p. 30). In his interpretation of Vygotsky's thought, Alex Kozulin underscores the "implicit conclusion" that if consciousness is to become a subject of psychological study, some other layer of reality should be referred to in the course of the explanation, and goes on to suggest that "socially meaningful

activity" may serve as such a layer (Kozulin, 1990, pp. 83-4). Accordingly in the process of moral empowerment the student should be able to assess his or her own growing consciousness with the aid of socially meaningful activity. This brings added meaning to my arguments in previous chapters that moral empowerment needs to be associated with progressively more effective and complex acts of service to the community—and by extension to the whole of humanity. When this is achieved, the consciousness of the oneness of humankind, always in danger of being a mere abstraction, is given concrete shape through the notion of service. The motivation to act on society is generated within the individual who—while not driven by selfish interest—is, nevertheless, seeking intellectual and moral growth. The way is open to a fundamental orientation to personhood that is not sabotaged by notions of individualism. Enlightened self-interest foresees the possibility of converging goods, but the urge to commit oneself to the common good defines a different identity. Taylor in probing "the relations of identity and community" distinguishes "the possible place of we-identities as against merely convergent I-identities, and the consequent role of common as against convergent goods" (Taylor, 2003, p. 201). It is not that I-identity knows no familial or communal bonds; such bonds are necessarily formed as individuals pursue their own inclinations, goals and life plans. In the corresponding worldview collective action also has a place, but its purpose is to obtain benefits which individuals on their own could not secure. Service, described in general terms in chapter 3 and through examples in chapter 7, embraces a category of actions that impels individuals to come face to face with the collective dimension of their identity, to recognize common good in practice. Walking the path of service in the company of others—developing, for example, the capabilities to build unity, to manage personal and collective affairs with rectitude of conduct, and to gather and systematize knowledge being generated in the community—helps to shape the student's identity; service "unites the fulfilment of individual potential with the advancement of society" (FUNDAEC, 2006, p. 41).

CONCLUSION

The aim of this inquiry has been to explore the nature of an evolving conceptual framework that could guide programmes concerned with moral empowerment within a specific discourse on education to which I have referred as Bahá'í inspired. The approach has been to identify concepts that could be considered vital elements of such a framework, largely from the work of one of the participants in the discourse—*Fundación para la Aplicación y Enseñanza de las Ciencias,* FUNDAEC—that has made noteworthy and distinct contributions to it, and to examine these concepts in light of relevant discussions in the philosophical literature. The inquiry has been carried out on the basis of two premises: that we live in an age of transition leading humanity to its maturity, and that the hallmark of this age is the growing consciousness of the oneness of humankind. These two interrelated concepts are in themselves elements of the evolving framework in question, but more at the level of conviction, justifying the direction being set for the future development of the discourse commensurate with the progressive realization of human potential both at the individual and the collective levels.

The purpose of the inquiry and the methodology adopted obliged me to look for specific insights in the work of a number of authors in both ethics and philosophy of mind—insights that would enable me to express each selected concept in a reflective language and to expand its meaning and application to the extent possible in relation to the other elements of the framework being considered. Since a sufficient number of concepts had to be discussed in order to give some shape to the framework, significant concepts, each of which could have been the topic of an entire thesis, had to be dealt with inadequately and weighty themes did not receive the attention they deserve. Further, given the nature of the thesis, I confined myself to gaining insights into each concept with little attempt to undertake a thorough critique of the work of each author.

As I look at the totality of the argument presented in this thesis, it is clear to me that I did not advance an equal distance in my exploration of each concept. The question of power is one in the analysis of which I only took a few tentative steps. I argued the need to go beyond the political conception of power, but only hinted at representations of power found in religious and philosophical literature that could enter the proper conception of moral empowerment. The

comprehensive analysis of these dimensions of power and how they may modify the way power is understood in the political realm, as well as the relationship between power, justice and freedom, are significant topics that must be examined in much more depth if a clear concept of moral empowerment is to emerge.

Issues related to understanding, a central element of the framework in question, were analyzed in more detail. I examined understanding as both a process and an attribute of the human soul and argued that the subject, object and process of understanding have to be treated together in the discourse of education, this in anticipation of the role capabilities would play in the formulation of educational objectives and the analysis of educational content. In this context, I explored the relationship between advancing in understanding and the development of spiritual qualities, which, I claimed, need to go hand in hand in an educational process. Yet, it is clear that the treatment of 'spiritual qualities' as a special category of virtues in this thesis only raises the need for systematic research—not bound to narrow studies in cognitive psychology—to clarify the nature of these attributes of the human soul and their contributions to the development of capabilities.

In the examination of the 'subject of understanding', I found certain candidates, suggested by various philosophical approaches to education, inadequate as potential protagonists of moral empowerment, this because of some of their own characteristics as well as their relationship with the object of understanding and the way they would engage in the process of understanding. Yet, the examination of each candidate did offer insights into the desired characteristics of the protagonist of moral empowerment and allowed me to investigate aspects of the relationship between the subject and object of understanding. In positioning the subject of understanding in the larger context of physical, social and spiritual reality, I touched on some of the ontological elements of the conceptual framework being sought and found the relations that physicalism and naturalism establish between the subject and object of understanding restrictive. The notion of an extended reality as well as Nagel's conception of objectivity helped me to view the subject of understanding with the boundlessness she needs in order to advance significantly in understanding, and to examine the methods by which she can reach certain milestones along the way.

To prepare the way for the selection of 'objects of understanding' from an extended reality—the complexity of dealing with which demands not a single language, but multiple ones—I argued for complementarity between the languages of science and religion. But to do so, I first had to demonstrate the compatibility of the two by analyzing the parallels that exist between science and religion as two overlapping systems of knowledge and practice. On that foundation, I could then advance the claim that in enhancing the understanding of the student—a process inseparable from fostering spiritual qualities—and in strengthening a desired set of convictions in action, an educational process seeking moral empowerment would need to draw on both science and religion as complementary sources of knowledge and employ the languages of both properly. Although examples from FUNDAEC's experience illustrated how the two languages could be employed without losing the rigor of the former and the penetrating power of the latter, much more has to be said on the way educational materials and methods can express the true nature of scientific inquiry freed from the limitations of positivism and of the insights of religion freed from dogma and rigid notions of truth—this in order to help students develop patterns of thought and action that reflect the coherence between the material and the spiritual.

Selection and organization of objects of understanding into a structured whole was another aspect of the conceptual framework examined in some detail. This was done under the title of integration; first the question of integration of knowledge itself was analyzed, and then, several values of knowledge were examined, values that would govern the organization of the teaching-learning experience. This led to an initial consideration of the intimacy of thought and action, a theme that was developed further in the context of the continuity of thought, language and action. Drawing on Hirst's criticism of the kind of thinking that has given rise to hasty attempts at integration, I argued for the need to respect forms of knowledge without having to accept the rigidity in the method of teaching and in the presentation of content often associated with subject based curricula. My analysis also identified certain challenges when, as an alternative, social practices act as the sole organizing principle of curricular design.

The introduction of the notion of capability into the discussion helped bring together the desired elements of the framework of the educational process with eyes set on moral empowerment,

identified in the examination of issues related to empowerment, understanding, complementarity and integration. Once again, my treatment of the various features of capability as a way of thinking about the objectives, content and methods of education has been uneven. The analysis of its connection with the formulations set forth by Sen and Nussbaum is probably sufficient for my purposes. The role of knowledge in the development of capabilities—as far as the understanding of concepts and the assimilation of information is concerned—has been addressed to a reasonable extent. But issues related to skills, attitudes and habits have been left out almost entirely. And as mentioned above, the treatment of spiritual qualities has been only preliminary. Nevertheless, I hope I have succeeded in demonstrating the value of capability as a central concept associated with moral empowerment and in exposing some of the philosophical underpinnings of an educational process organized around the progressive development of capabilities. As to the effectiveness of such an approach, the Bahá'í-inspired discourse on education to which I have referred is too incipient to offer many instances of evaluation. By the way of illustration, I have presented in Appendix 3 several comments from a few students of FUNDAEC interviewed by M. Roosta as she cites them in her Ph.D. thesis (Roosta, 1999).

In undertaking this inquiry, I hoped to bring together a number of threads of educational thought, often kept separate, which would enable Bahá'í-inspired educational programmes to weave the appropriate curricula. To the extent that I have succeeded, I may have made a modest contribution to the general discourse on education as well. That the educational experience I have repeatedly drawn upon has not been concerned so much with schools per se but more with education in the context of the social and economic development of peoples has, I feel, led me to areas of inquiry into which I would not have ventured otherwise. I believe this has been a source of strength for my thesis; for reflecting from time to time on the indispensable contributions it must make to the advancement of material and spiritual civilization helps education in general to resist the enticements of relativism prevalent in today's intellectual life and achieve more and more clarity about its purpose and its mission.

APPENDIX 1

The following is a lesson from a unit in a series dedicated to the development of capabilities related to the power of expression in FUNDAEC's 'Promoter of Community Well-being' programme. It is to illustrate how considerations of contexts come into play in the organization of curriculum, in this case as part of reflection on acts of service that the students undertake in the community.

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Today let us consider the description of a very important act of service that many of you will carry out often in the coming years: One of you visits a village or small town, speaks with several people and organizes a class to study a course, for example, on sanitation.

Let us look at the possible descriptions of this event in different contexts. We will begin by considering a description that emphasizes the physical or circumstantial aspects of the action:

> "On Monday afternoon I visited the community of La Dominga. I spoke with eight adults and twelve youth, spending approximately twenty minutes with each of them. We spoke about the importance of environmental sanitation and the possibility of organizing a study group on this subject. That evening at 7:00 p.m., we had a meeting at the Community Center and after a pleasant discussion, in which all those present actively participated, we decided to hold a study class every Monday and Wednesday at 7:30 p.m. beginning next week."

A description such as the above takes into account physical and circumstantial aspects of the action considered. When did it take place? Where? With how many people did you speak? How long did you speak to each one? What did you speak about with each person? When and where did the meeting take place? When will the study class be held? When will it begin? The type of information contained in this description is useful for certain purposes, for example, for gathering statistical data or administering a community educational program in a region.

But it is possible to describe this same action in a wider context, that is, as an event that takes place within the context of the training you are receiving in order to serve your community. In this context, the aspects considered previously would take on new meaning, and other important aspects would appear. For example, let us read the following description of the same action:

> "It is my personal conviction that one of the most significant activities in my life, which allows me to work with the greatest personal satisfaction, is that of contributing to the education of a community. It is very disturbing to observe the precarious sanitary conditions in which many children are raised. I think that by teaching courses on sanitation I can effectively contribute to the welfare of my fellow human beings. Therefore, I have decided to organize a study and action group on environmental sanitation in a nearby village. On Monday afternoon I visited the community of La Dominga. I spoke with eight adults and twelve youth, spending approximately twenty minutes with each of them. We spoke about the importance of environmental sanitation and the possibility of organizing a study group on this subject. That evening at 7:00 p.m., we had a meeting at the Community Center and after a pleasant discussion, in which all those present actively participated, we decided to hold a study class every Monday and Wednesday at 7:30 p.m. beginning next week. After the meeting, I went back home and thought about the challenge of facilitating community education. Assuming this responsibility will require that I continue to develop certain personal qualities and characteristics such as constancy, integrity, and patience. I must pursue my own education more vigorously than before."

Now, compare this description with the first. Are there similarities? Are there great differences? Which is more complete? Is the second description complete? Write your thoughts in the space below.

In thinking about the last question, most of you must have realized that more complete descriptions are still possible. For example, let us look at the following description:

> "Some of the most serious health problems afflicting our communities result from poor sanitary conditions. The high rate of disease, especially among children, requires vigilant action by community organizations and by individuals who are familiar with health problems and are motivated by a spirit of service. For this reason, one of the objectives of a rural educational program must be to help the students and the communities it serves learn about environmental sanitation. This is one of the subjects I like most in my studies at FUNDAEC. It is my personal conviction that one of the most significant activities in my life, which allows me to work with the greatest personal satisfaction, is that of contributing to the education of a community. It is very disturbing to observe the precarious sanitary conditions in which many children are raised. I think that by teaching courses on sanitation I can effectively contribute to the welfare of my fellow human beings. Therefore, I have decided to organize a study and action group on environmental sanitation in a nearby village. On Monday afternoon I visited the community of La Dominga. I spoke with eight adults and twelve youth, spending approximately twenty minutes with each of them. We spoke about the importance of environmental sanitation and the possibility of organizing a study group on this subject. That evening at 7:00 p.m., we had a meeting at the Community Center and after a pleasant discussion, in which all those present actively participated, we decided to hold a study class every Monday and Wednesday at 7:30 p.m. beginning next week. After the meeting, I went back home and thought about the challenge of facilitating community education. Assuming this responsibility will require that I continue to develop certain personal qualities and characteristics such as constancy, integrity, and patience. I must pursue my own education more vigorously than before. Also, I am more convinced than ever of the great human potential and vast resources of rural communities, for many of those who attended the meeting seemed to be people willing to learn not only for themselves, but also for the betterment of society. I also believe that the meeting had a very positive effect, generating more unity in the community. We all agreed that achieving success in our endeavour to better our lives and those of our children will require resolution, concerted effort, and sacrifice."

Let us now consider how this description relates to the two previous ones. How do they compare? Which is expressed in the widest context? When is the first sufficient? When is the second more desirable? When is the third necessary?

To practice what you have learned, write a description of an educational activity that you have recently carried out in a community, referring only to the circumstantial aspects: Where? When? How? Then include this description

in a wider one that brings in those aspects that are related to you as an individual. For example, how did you feel? What importance did this action have for you? What did you learn from it? Include this second description in a still wider one that takes into account the community. For example, why was it important for the community? What effects did the action have on the community?

Divide into small groups and discuss what you have written. Already your understanding of the meaning of the word "context" must have increased greatly. In fact, in doing the exercises for this lesson, you have taken a very important step. Not only have you examined the context of certain descriptions but you have also begun to think about the general context of your studies and actions. How does "community service" provide a general and important context for all your actions and your studies at FUNDAEC?

APPENDIX 2

Below are three lessons of the first unit of a series, the aim of which is to help develop in the 'Promoters of Community Well-being' some of the capabilities needed in scientific inquiry. The texts in this series use the atomic theory of matter as a sequence of progressively more complex statements to explore the behaviour of matter in different processes familiar to the students. The title of this unit is the 'Heating and Cooling of Matter'. The lessons are to illustrate how rigorous content can be studied in a manner which raises the consciousness of the students about the process of scientific inquiry itself, placing it in the context of the overall aim to serve the community.

2 Observation

In this unit we will choose one process scientists have studied throughout the centuries, and use it to illustrate how science works. Make a list of some of the most common processes you see when you look around you.

One of the processes that may be on your list is the heating and cooling of matter. This is something we see happening all the time. A rock sitting in the sun becomes warm. The air becomes cool at night. The water on the stove heats up. The piece of metal in the fire turns red-hot. The list of examples we could give of the process of heating and cooling is surely without end. How might we go about studying this process? What should we do first? What are some of the systems we could choose in which to study the process?

Before choosing specific systems for the study of the process of the heating and cooling of matter, let us think of the many situations in which things heat up and cool down, and answer a few questions.

a. What happens to objects that are outside in direct sunlight? What happens to these same objects when the sun goes behind the clouds for several minutes? What happens to them after the sun goes down?

b. When a pot of water is put on the stove, and the burner is turned on, what happens to the water over time? What is steam?

c.

d. What happens if you cool down a liquid until it is very cold? Does it become solid?

e. If you heat up a piece of metal does it eventually turn into a liquid?

f. What happens to a ceramic mug when you fill it with hot tea? What if you then pour out the tea and fill the mug with ice water?

g. Imagine that you take a glass of very warm water and add ice to it. What happens to the ice? What happens to the water? What happens, in general, when you place a hot object next to a cold one, so that they are touching? Does something transfer from one object to the other? What is it that is transferred?

h. How does hot air move? Does it rise or go downward? What about cold air? Does it also rise?

i. What do you feel when you put your hand near a light bulb that is turned on? Why do you feel heat if your hand is not touching the bulb? What do you feel when you stand out in the midday sun? Or near any hot object?

j. Let us say that you have a group of objects made up of different materials, and you put them all at once out in the sun. Do some of the objects get hot very quickly while others take a long time to heat up? Do certain of the materials cool down faster than others when they are taken out of the sun? Does metal, for example, heat up and cool down more quickly than wood? Can you think of examples of materials that heat up and cool down slowly?

k. When things heat up, do they expand or contract? And when they cool down? Why do asphalt roads crack in parts of the world where it is very hot in the summer and very cold in the winter?

l. If you look carefully at the flames in a gas stove you will see that they look blue and white. The flame of a candle, however, looks yellow and orange. Which flame is hotter? Is there a relationship between how hot something is and its color?

m. What happens to a lidded pot when the water inside it is boiling vigorously? What causes the lid to rattle around or even pop off? Does heat have something to do with pressure?

n. What happens when you rub your hands together vigorously? Do they become warm?

o. What happens to your body when you have a fever? Or when you climb a tall flight of stairs? What is the purpose of sweating?

The concept that best describes the kind of scientific activity you undertook in order to answer the above questions is *observation*. What you need to understand well in these early stages of your scientific activity is that observation is not the same as seeing, hearing, smelling, tasting, or feeling. In thinking about observation you should have at least the following three points in mind:

First, observation clearly involves receiving information through the senses. For instance, rays of light are reflected by objects and enter your eyes. The front part of the eye acts as a lens and forms a tiny image of an object on the back part, known as the *retina*. Your sense of touch receives different kinds of stimuli as your skin interacts with the environment around you. Sound waves enter your ears and cause the eardrums and tiny ear bones to vibrate. The information that reaches your sense organs is then transmitted by various types of nerves to your brain. Thus, you see an object out in the sun. You touch something and feel that it is hot. You hear the lid of the pot on the stove rattle.

Second, even though the image of a stone, for example, may be formed in the retina of your eyes, you will not necessarily see a stone unless your mind has been trained from childhood to recognize certain things as stones. Even though your eardrums and the tiny bones of your ears may vibrate to the sound waves produced by the rattling of the lid of a pot, all you will have is a sensation of confusing noise unless you have some knowledge of that specific sound from previous experience. Seeing, hearing, smelling, tasting, and feeling involve more than the functioning of the sense organs; they require previous learning.

Third, once you have the experience of seeing something such as the stone, you need to express what you see in a statement, for example, "there is a stone out in the sun." If you touch the stone as part of your observation, you may add to this statement the information you got from your sense of touch and say, "The stone left out in the sun became hot." In general, observing involves the careful use of language in order to make "observation statements." The answers you gave to the questions we asked about the process of the heating and cooling of things were all observation statements.

As you can imagine, in science, one cannot accept just any observation statement. Observations need to be made carefully. Often the same observation needs to be repeated until one is sure that mistakes are not being made. Moreover, observation statements should be clear, precise and accurate. The observation statements you made in

this lesson address some very general questions about how things heat up and cool down. Later, as we will see in the rest of the unit, we will have to make rather detailed observation statements in order to explain with more and more precision the nature of the process and the way it works.

Reflections on the Development of the Mind

The process we have selected to examine in this unit is a physical one. Science, of course, is also interested in the way human beings behave and in what goes on in society. Your understanding of science will be enhanced at this point if you choose a process from the human realm and come up with a series of statements about it in answer to a few questions. The process we propose is the development of the capacity of children between infancy and the age of ten to learn mathematics. This process is, of course, an extremely complex one. There are thousands upon thousands of questions one could ask about the process, and science does not have adequate explanations for most of them yet. But what we are asking you to do here is more or less simple. Gather with others in your group and discuss the process. Select four or five concepts or sets of skills children learn in mathematics as they grow up. Ask yourselves, then, at what age a child is able to learn each. Below is an example.

Suppose the question you ask is, "What is the earliest age at which children are able to learn the multiplication table?" One of you may say, "My niece learned the multiplication table at the age of seven." Then others may try to remember their own observations in this respect and make similar statements. Do you think your observations will be sufficient to give a precise answer to the question you have asked? If it finally turns out that the earliest any one of you has seen a child learn the multiplication table is at the age of six, there may still be children in the world who can learn it at an earlier age. But this does not mean that you cannot make any accurate statements based on your observations. What you could say is, "At the age of six, a child may be able to learn the multiplication table." This in itself would be a valuable observation statement about the process of the development of the capacity of children to learn mathematics, a statement that can be improved upon as many more observations are made.

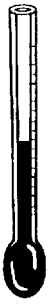
3 Temperature

The statements we made in the previous lesson were all qualitative. For example, we referred to objects as hot, cold, hotter, or colder, and tried to describe what occurs when they touch or come close to each other. If we limit ourselves to such qualitative observation statements, we will not get very far in our understanding of the process we have chosen to study. To advance, we must first define with some precision what we mean by the words *hot* and *cold*. The concept that helps us achieve this goal is *temperature*, a quantity that can be measured and used in quantitative statements about the process of the heating and cooling of matter.

We may begin our discussion of temperature by doing a simple experiment. Fill three bowls with water of different temperatures—one bowl with cold water, one with warm water, and one with relatively hot water. Put one hand into the bowl of hot water and the other into the cold water, and leave them there for thirty seconds. Then transfer both hands at the same time to the third bowl. What do you observe? Does the hand that was in the hot water feel hot or cold? How does the hand from the cold water feel?

From this simple observation we can conclude that our sense of hot and cold is not that reliable. How do we really know, then, how hot something is? The answer, of course, is that we have to learn to measure temperature. Write a few words on what you know about the concept of temperature and how to measure it.

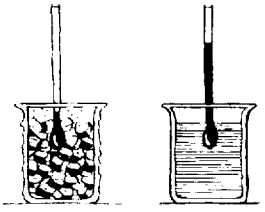
To measure temperature, we take advantage of the fact that when materials heat up or cool down many of their properties change. For example, the color of objects changes when they are heated. Think about an electric light bulb. The tiny wire inside is gray when the light is turned off and the wire is cool. But when the light bulb is connected to a source of electricity, the wire heats up and begins to shine yellow. Can you give other examples of things that change color when heated? Do you think we can use this property of objects to measure their temperatures? Is it easy to measure changes in color accurately?



To measure temperature in everyday life, we use another characteristic of materials: they expand when heated. To illustrate how this property of matter is used to measure temperature, we will describe to you a very simple instrument, a kind of rudimentary thermometer.

The instrument is made by heating one end of a thin, glass tube until it becomes soft. Next, air is blown gently into the tube from the cool end until a small bulb forms at the other end, as shown in the drawing on the right. Alcohol is then poured in until it fills the bulb and reaches about halfway up the tube.

Suppose we submerge the bulb in ice water. What happens? The alcohol level in the tube moves down to a certain height. What happens to the column of alcohol if we take the tube out of the ice water and put it into a glass filled with tap water? Does it rise? Why?



Now consider the questions below. Although the answer to each one is rather obvious, this kind of thinking is necessary in order to ensure that the way we measure ordinary temperatures using thermometers similar to the rudimentary one we have described is not faulty.

a. When immersed in ice water, is the alcohol in the bulb of our rudimentary thermometer at the same temperature as the water?

b. Will the column of alcohol always settle at the same height when the bulb is placed in ice water for a while?

c. When immersed in tap water, is the alcohol in the bulb the same temperature as the water?

d. Suppose we pour tap water into a few glasses so that they all contain water at the same temperature. Will the height of the alcohol column change if we move the instrument from one glass to the next?

e. Is it correct to assume that the difference between the two heights of the alcohol column—one when the bulb is in ice water and the other when it is in tap water—is a measure of the difference in the temperatures of the two quantities of water?

f. What will happen to the alcohol column if we put the bulb in a glass of water that is hotter than tap water? Will it rise higher? And what if we place it in water cooler than that from the tap but not as cold as ice water?

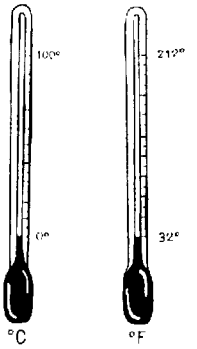
g. Can we use this instrument to measure temperature?

The rudimentary thermometer we have described is of rather limited use. As it stands now, it can only tell if something is hotter or colder than something else. If we have water at different temperatures in various glasses, for example, the instrument will allow us to compare their temperatures and order them from the hottest to the coldest.

But this is not all there is to measurement. We want to have an instrument that will help us assign a unique number to the temperature of all the objects at that temperature.

The thermometer that will enable us to carry out such measurements is actually not very different from the one we have just described. The problem with alcohol is that it evaporates even at room temperature, so another liquid that evaporates only at a very high temperature is needed. Mercury is one such liquid, and it is used in the kind of thermometer we are most familiar with: a long, thin tube sealed at the top, with a bulb containing mercury at the other end.

As was the case with the column of alcohol, it becomes clear over the course of many observations that every time the thermometer is placed in ice water the column of mercury settles at a specific height that is always the same. It can also be seen that whenever the thermometer is put into water that has just begun to boil, the mercury level settles at a different height, which is again the same each time. One way of building a thermometer is to mark the first height with a "0" and the second with a "100". To do so means to decide that the measurement of temperature will be based on a scale that sets the temperature at which water freezes at 0 and the temperature at which water boils at 100. The distance between the two heights can, then, be divided into one hundred parts each representing one degree. The scale constructed this way is called *Celsius,* and its unit is one "degree Celsius" or "centigrade (°C)". It is the scale of temperature used most widely in the world.



Would it have been correct if we had assigned different numbers to the two heights of the mercury column, corresponding to the freezing and boiling of water? Would any two numbers do as long as the second were larger than the first? You probably know already of another scale that, although not as convenient as the Celsius, is used in some parts of the world extensively. In this scale, called *Fahrenheit,* the temperature at which water freezes is set to be 32 and the temperature at which it boils is set at 212.

To measure the temperature of any object, then, all we have to do is to put the bulb of a thermometer, constructed according to some accepted scale, in contact with the object. The column of mercury will rise or fall until the bulb reaches the same temperature as the object. When the mercury has stopped moving, we simply read the temperature on the scale marked along the side of the thermometer. The contact between the thermometer and the object, of course, has to be such that the mercury does reach the temperature of the object. For example, when measuring the temperature of your body, it is not sufficient to hold the thermometer in your hand. By placing it under the tongue, you ensure that the bulb is not exposed to the air outside and can thus read the temperature of the body correctly. Further, thermometers have to be built in such a way that they are suitable for the kind of measurements for which they are intended. Can you, for example, measure the temperature of air with the same thermometer you use to see if you have a fever? What differences would you find between thermometers used for these two purposes?

Extension

1. With the help of your tutor, find the appropriate thermometers and measure the temperatures below. Use the scale with which you are most familiar.

   a. Your body temperature _____
   b. Room temperature _____
   c. The temperature of cold water from a faucet _____
   d. The temperature of hot water from a faucet _____
   e. The temperature of soil underneath grass _____
   f. The temperature of bare soil _____
   g. The temperature outside in the direct sun _____
   h. The temperature outside under a tree _____

2. Take a mixture of water and ice and measure its temperature. Then add salt to the mixture little by little, stirring until it dissolves. As you stir, observe the temperature of the mixture. What is the lowest temperature reached by the mixture?

3. Using a thermometer that reads air temperature, observe the temperature outside at different times of the day and write down your results in the table below.

Time of Day	Temperature	Time of Day	Temperature
7:00 a.m.		3:00 p.m.	
8:00 a.m.		4:00 p.m.	
9:00 a.m.		5:00 p.m.	
10:00 a.m.		6:00 p.m.	
11:00 a.m.		7:00 p.m.	
12:00 p.m.		8:00 p.m.	
1:00 p.m.		9:00 p.m.	
2:00 p.m.		10:00 p.m.	

4. Find a small plot of earth and use a suitable thermometer to record the temperature of the soil at various depths. You should take readings at each depth at different times of day: some in the morning, some in the afternoon, and some in the evening. At each of these times, you should also measure the air temperature. Write down your results in the table below and then answer the questions that follow.

Depth	Time of Day	Soil Temperature Near the Surface	Air Temperature

a. Does the temperature of the soil increase or decrease with depth?

b. At approximately what time of day is the surface temperature of the soil the greatest?

_____

_____

c. By how much does the air temperature differ from the surface temperature of the soil in the morning? At midday?

_____

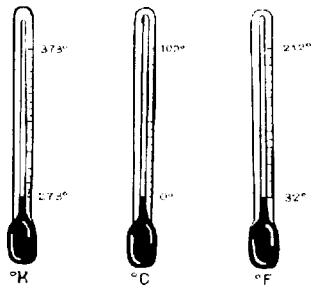
_____

d. How does air temperature affect the temperature of soil at, say, a depth of 20 centimeters?

_____

_____

5. There is a scale of temperature used often in science called the *Kelvin* scale. It is based on the lowest possible temperature that any substance could ever reach, which is given the designation, "zero degrees Kelvin (0°K)". This temperature is also called *absolute zero*, and it is equal to –273°C. This is the coldest anything could ever be. The size of each degree in the Kelvin scale is the same as the size of one degree Celsius, so that water freezes at 273°K.



Examine the diagram to the right and, on the basis of what you have just read, fill in the blanks in the sentences and equations that follow.

a. 0°K = _____°C
b. –459°F = _____°K
c. –459°F = _____°C
d. 0°C = _____°F
e. _____°C = 212°F
f. 50°C = _____°K
g. The temperature at which ice melts is _____°C or _____°F or _____°K.
h. The temperature at which water boils is _____°C or _____°F or _____°K.
i. The centigrade scale uses as its points of reference the melting point of _____ and the boiling point of _____.
j. The coldest possible temperature is _____°K.
k. If the temperature outside were 323°K, then it would feel very _____.
l. If the temperature outside were 250°K, then it would feel very _____.
m. The normal body temperature of a human being is _____°C or _____°F.

6. What is the hottest thing you can think of? What is the coldest thing you have ever touched? What was the temperature of the hottest day you have experienced? And the coldest?

_____

_____

_____

_____

Below is a table of some temperatures, from very hot to very cold. Examine the table and try to get a feeling for the range of temperatures that exist in our universe. The temperatures of the first three items in the table are approximate.

Temperature	°K	°C	°F
Core of the Sun	14 million	14 million	25 million
Bolt of lightning	30,000	29,700	53,500
Core of the Earth	4,000	3,700	6,700
Temperature at which iron melts	1,811	1,538	2,800
Temperature at which water boils	373	100	212
Highest recorded air temperature on Earth	331	58	136
Normal human body temperature	310	37	98.6
Temperature at which water freezes	273	0	32
Temperature at which mercury melts	234	–39	–38
Lowest recorded air temperature on Earth	184	–89	–128
Temperature at which nitrogen boils	77	–196	–321
Surface temperature of Pluto	43	–230	–382
Temperature at which hydrogen boils	20	–253	–423
Absolute zero	0	–273	–459

7. Read the following paragraphs and discuss them with your group:

Our planet's climate is extremely varied. There are places in Antarctica in which the temperature can go down to –88°C, and areas in Africa where it can reach 55°C. Naturally, these are the extremes of temperature on Earth; the climate in general is more hospitable. The majority of living beings thrive in temperatures between 0°C and 40°C. Nevertheless, there are certain organisms that live and reproduce in hot springs where temperatures can be as high as 90°C. Life also exists in the coldest parts of the world. Scientists have so far identified over one hundred species of animals and plants that live permanently in ice or snow.

Some of the animals on our planet are warm blooded and can regulate their body temperatures. Others are cold blooded, and their body temperatures are dependent on the temperature of the environment around them. A cold-blooded animal cannot regulate its own temperature internally. Instead, it must search out places that can help it warm up or cool down. For example, if a cold-blooded animal becomes chilly, it might find a warm, sunny rock to lie on. If it is very hot outside, the animal might look for shelter in a cave, beneath a rock, or at the bottom of a pond. Some cold-blooded animals develop resourceful ways of managing their body temperatures. Termites, for example, construct special dwellings that are designed to remain at a fairly constant temperature. Termites that live in very hot countries build tall, thin, wedgeshaped mounds made of sun-baked mud. Some of these mounds have a network of tunnels and channels running through them that allow air to circulate. The mounds are often aligned in a north-south direction. In the morning the sun heats up the eastern side of the mound, and in the evening the western side

is heated. At midday, however, when the sun is hottest, the rays fall only on the upper edge of the mound, so that as a whole it is not exposed to excessive heat. In areas with a great deal of rain, termites may build "umbrellas" on top of their mounds to protect the nest from heavy rains. In windy or shady areas, they may orient the mound slightly more to the northwest, increasing the amount of heat received on the eastern side and thus compensating for the effects of the wind and shade.

Another cold-blooded animal that regulates its temperature in an interesting way is the bee. A single bee cannot maintain its body at a constant temperature, but a family of bees has ways of regulating the temperature of the environment. Bees can keep their hive at 35°C even when the temperature outside is as low as 20°C. How do they do this? As soon as winter starts, they gather around the queen bee and form a large, compact ball. The bees nearest the queen eat large amounts of honey and generate enough heat to radiate outward and keep the bees on the outside areas of the ball warm. In summer, evaporation and ventilation prevent the temperature in the hive from getting too high. Some of the bees sprinkle the cells of the honeycombs with water, while others flap their wings to generate a breeze, accelerating the evaporation of water and cooling down the hive.

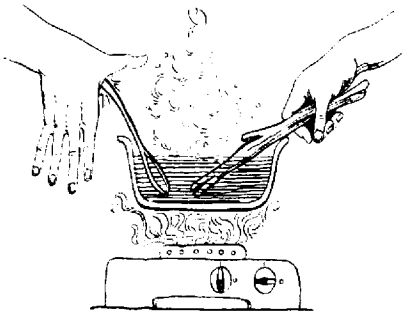
Warm-blooded animals maintain their bodies at constant temperatures with the help of various mechanisms. When it is cold, for example, the pores of the skin contract so that the skin loses less heat. Also, the hair or feathers fluff up in order to keep in heat. If this does not work, and the animal is becoming cold, it begins to shiver, increasing considerably the production of heat by the body. When it is hot, warm-blooded animals cool themselves through sweating or panting, which cause water to evaporate from the skin or the tongue. These mechanisms, of course, work well within certain ranges of temperature, outside of which the animal finds it more and more difficult to function.

Reflections on the Capability of Making Precise Measurements

One of the capabilities scientists must possess is that of measuring the many quantities they study with the necessary precision. To develop this capability, one must understand a number of concepts, acquire certain skills, and also be willing to carry out the required work with diligence and care. There is a great deal to be said on the subject of measurement in science; here, we only ask you to reflect on a couple of questions. Is it possible to make an exact measurement of any quantity? Can one, for example, measure the temperature of an object exactly? If you rightfully determine that exact measurements are impossible, you may wish to go on and ask: how would one decide the precision with which a measurement should be made? This is not an easy question and it may be best if you address it through an example. Identify with your group a number of situations in which the temperature of something has to be measured. In each case, determine how precise the measurement has to be. Are there situations, for instance, in which it is sufficient to know the temperature of something within four or five degrees? Is it necessary sometimes to know the temperature of an object within a tenth of a degree? Once you have examined several cases, try to discuss how you went about determining the precision with which one needs to measure temperature in each case. What factors influence such a decision?

4 Heat

Temperature is the first concept we have learned to quantify and measure in our study of the process of the heating and cooling of matter. A second concept, equally basic, arises from the observation that something seems to flow from a hot object to a cold one when they are in contact. What is it that flows? Throughout history, scientists have had various answers to this question, but the one accepted today is that what flows is a form of energy we call *heat.* Energy is one of the most fundamental concepts with which scientists work and you will encounter it time and again in the course of your studies. For the time being, let us simply say that when we heat something, we are giving it more energy, which causes its temperature to rise.



There are various ways in which heat can move from one object or place to another. We already referred to the transfer of heat when we were making general observations related to the process of the heating and cooling of things. We can now make our observation statements a little more precise. When a hot object touches a cold one, heat flows directly from the hotter to the colder object until they reach the same temperature. This form of heat transfer is called *conduction.* Take a rod of metal and a stick and put one end of each into a pot of very hot water for a few minutes. What happens when you touch the end of the wood? What would happen if you touched the metal? Which is a better conductor of heat, wood or metal? Heat, then, does not flow through all materials at the same rate. Find a number of different substances and, based on observations you have made in everyday life, compare their heat conductivities. Try to order them according to their conductivity.

Conduction is not the only way in which heat moves. For example, the sun is a very hot object, and its heat reaches us even though we are not directly in contact with it. How does this happen? Heat is carried by the rays of the sun, and this form of heat transfer is called *radiation.* Can you think of other examples in which heat moves by radiation? When you put your hand near the hot burner of a stove, or near the flame of a candle, your hand becomes warmer even though you are not touching the hot objects. Is heat being transferred by radiation in these cases?

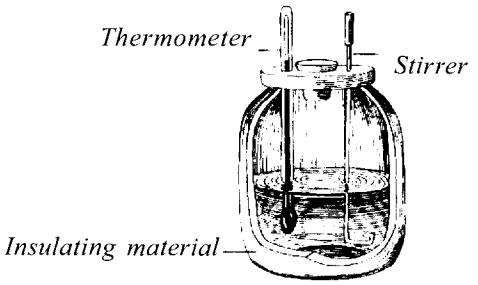
Imagine now that you are standing some distance away from a large bonfire. You are far enough that you cannot feel the heat radiating from it, but from time to time a very warm breeze comes your way from the fire. This happens because the fire heats the air around it, and that body of air moves. This type of heat transfer is called *convection.* Convection occurs when a heated body of air, of some other gas, or of some liquid moves and carries heat from one place to another. Can you think of additional examples in which heat moves by convection?

The statements we have made about heat up to now are all qualitative. In order to make quantitative statements about heat, we need to learn to measure it. Doing so is the next step we must take in our study of the process of heating and cooling of matter.

To measure heat, we first need to decide upon a unit. We know that if we add heat to any substance its temperature will increase, and we will use this fact to define our unit. We will say that one unit of heat is equal to the amount of heat it takes to raise the temperature of 1 gram of water by 1°C. This unit is called the *calorie*. How many calories does it take to increase the temperature of 1 gram of water by 10°C? How many calories are needed to increase the temperature of 10 grams of water by 1°C?

You are probably already familiar with the term *calorie* since we use it often in the context of the food we eat. What does it mean that 100 grams of one food has more calories than 100 grams of another? Which has more calories, 1 gram of sugar or 1 gram of fat?

In order to better understand how we measure heat, consider the following description of a simple experiment, in which an instrument called a *calorimeter* is used. This device is simply a lidded metal can surrounded by Styrofoam or some other insulating material, so that whatever is inside the calorimeter cannot lose heat to the outside quickly. A small hole in the top of the can allows for a thermometer to be placed inside. In this way, temperature changes within the calorimeter can be recorded.



We begin our experiment by heating 150 grams of water to a temperature of 25°C and pouring it into the calorimeter. We then heat another 100 grams of water to 80°C and add this to the water already in the calorimeter. After a time, we observe that the mixture settles at a temperature of 47°C. Let us think about the meaning of these results. Did the water that started at 25°C gain or lose heat during the experiment? What about the water that started at 80°C? How might we calculate the number of calories gained or lost by each quantity of water? Should the heat gained by one quantity of water be equal to the heat lost by the other?

Let us calculate how many calories were gained by the 150 grams of water. Since the 150 grams of water started at 25°C and ended up at 47°C, its temperature increased by 47 – 25 = 22°C. We know that it takes 22 calories for 1 gram of water to increase its temperature by 22°C. For 150 grams of water to go up by 22°C, therefore, it takes 150 × 22 = 3300 calories. What about the 100 grams of water? How many calories did it lose? This quantity of water started at 80°C and went down to 47°C, a decrease of 80 – 47 = 33°C. When the temperature of 1 gram of water drops 33°C, it loses 33 calories. When 100 grams of water drops 33°C in temperature, then, it loses 100 × 33 = 3300 calories. As expected, this is exactly the amount of heat gained by the 150 grams of water. This can be summarized in the following table:

Heat exchange between two amounts of water

Amount of Water	Initial Temperature	Final Temperature	Change in Temperature	Calories Lost or Gained
100 gr	80°C	47°C	33°C Decrease	100 x 33 = 3300 calories lost
150 gr	25°C	47°C	22°C Increase	150 x 22 = 3300 calories gained

In order to practice this way of measuring heat, construct a calorimeter and perform two or three experiments similar to the one just described. Use different amounts of water at various temperatures and in each case calculate how many calories are gained or lost by each quantity of water. When measuring the weight of the water, it will be useful for you to know that 1 gram of water is exactly equal to 1 cubic centimeter of water, which is in turn equal to 1 milliliter. To obtain 100 grams of water then, you do not need to weigh it; you can simply measure 100 milliliters with a measuring cup. You can use the following tables to help organize your data:

Experiment 1

Amount of Water	Initial Temperature	Final Temperature	Change in Temperature	Calories Lost or Gained

Experiment 2

Amount of Water	Initial Temperature	Final Temperature	Change in Temperature	Calories Lost or Gained

Now, if we give the same amount of heat to 1 gram of two different substances, do you think the temperature will rise equally in both? If you bring to mind the many occasions in which you have observed various objects being heated, you will readily reach the conclusion that the answer to this question is negative. The same amount of heat given, say, to 1 gram of iron and 1 gram of wood will cause their temperatures to rise by different amounts. By the same token, it takes different amounts of heat to raise the temperature of 1 gram of each of these two substances by one degree.

The amount of heat required to raise the temperature of 1 gram of a substance by 1°C is a property specific to that substance. It is called the *specific heat* of the substance, and it is a quantity the study of which has helped scientists gain insights into the process of the heating and cooling of matter.

Based on what we have just said, what is the specific heat of water? If we want to know the specific heat of a substance other than water, such as, say, copper, how would we figure it out? Let us describe an experiment, using the calorimeter, as an example of how the specific heat of many substances can be measured.

We begin by taking 120 grams of water, heating it to 25°C, and pouring it into the calorimeter. Then we place a piece of copper weighing 200 grams into a pot of water and heat the water until it reaches a temperature of 90°C. At this point, what is the temperature of the piece of copper? We remove the piece of copper from the water

and quickly place it inside the calorimeter. After a time, the temperature of the water in the calorimeter rises to 33.5°C.

From this information, we can calculate the specific heat of copper. First, we need to figure out how much heat was gained by the water in the calorimeter. We know that the 120 grams of water went from 25°C to 33.5°C, which is a change in temperature of 8.5 degrees. The heat required for 120 grams of water to increase in temperature by 8.5°C are 120 x 8.5 = 1020 calories. This is the total number of calories gained by the water, as well as the total number of calories lost by the piece of copper. Now we know that the 200 grams of copper loses 1020 calories when its temperature drops from 90°C to 33.5°C, a change of 56.5 degrees. What we really want to know is how many calories the copper loses when its temperature drops 1°C, so we divide 1020 calories by 56.5 degrees. This gives 18.5 calories per degree, which is the heat lost by 200 grams of copper each time its temperature drops 1°C. To figure out how much heat is lost by 1 gram of the copper for each 1°C drop in temperature, we divide 18.5 by 200, obtaining 0.09. This is the specific heat of copper. If 1 gram of copper gives away 0.09 calories, its temperature drops by 1°C, and if we give 0.09 calories to 1 gram of copper, its temperature will increase by 1°C. This information can be organized in table format:

Specific heat exchange of a substance

Substance	**Initial Temperatures**	**Final Temperatures**	**Change in Temperatures**	**Calories Lost or Gained**	**Specific Heat Calculation**
120 gr of water	25°C	33.5°C	8.5°C Increase	1020	1
200 gr of copper	90°C	33.5°C	56.5°C Decrease	1020	Specific heat: 1020/56.5 = 18.5/.09 = 200

Using your calorimeter and following the procedure outlined above, find the specific heat of one or two other substances such as wood, iron, or lead. Organize your data using the following tables:

Substance	**Initial Temperatures**	**Final Temperatures**	**Change in Temperatures**	**Calories Lost or Gained**	**Specific Heat Calculation**

Substance	**Initial Temperatures**	**Final Temperatures**	**Change in Temperatures**	**Calories Lost or Gained**	**Specific Heat Calculation**

Extension

1. Decide whether the following statements are true or false:

a. When two objects at different temperatures are put in contact, heat flows from one to the other until they reach the same temperature. T O F O

b. All materials conduct heat at the same rate. T O F O

c. Metal is a better conductor of heat than plastic. T O F O

d. Conduction occurs when a body of air carries heat from one place to another. T O F O

e. For heat to move from one object to another by radiation, the two objects must be touching. T O F O

f. When two quantities of water at two different temperatures are mixed together, the heat gained by one quantity of water is equal to the heat lost by the other. T O F O

g. It takes more heat to raise the temperature of 1 gram of water by 1°C than it does to raise 1 gram of copper by 10°C. T O F O

h. The amount of heat required to raise the temperature of 1 gram of a substance by 1°C is a called the specific heat of that substance. T O F O

i. The calorie is a unit of temperature. T O F O

j. Heat and temperature are the same thing. T O F O

2. For each of the situations below, indicate how heat is being transferred: by conduction, convection, or radiation.

	Conduction	Convection	Radiation
a. A piece of metal is heated by the sun.			
b. A piece of metal is heated in an oven.			
c. An ice cube is put into a glass of water to cool the water down.			
d. A person warms up on a cold night by sitting in front of a fire.			
e. A shirt is pressed with a hot iron.			
f. On a hot day, a person sitting in the shade is feeling very warm.			

g. A hot water bottle warms up an aching muscle.

h. Passing next to a large bonfire,
a person feels a great deal of heat.

3. The table below lists various substances and the specific heat of each. The values for paper and wood are approximate. Examine the table carefully and carry out the exercise that follows.

SUBSTANCE	SPECIFIC HEAT (CALORIES/GRAM °C)
Calcium	0.155
Copper	0.092
Gold	0.031
Iron	0.107
Nickel	0.106
Paper	0.600
Silver	0.056
Sodium	0.293
Tin	0.054
Water	1.000
Wood	0.420

a. If the following substances all have the same mass, which will become the hottest when put in the sun for the same amount of time: water, a piece of wood, a piece of tin, or a paperback book?

_____

_____

b. Which of the following substances has the greatest specific heat: iron, copper, gold, or silver?

_____

_____

c. Order these substances according to their specific heats, from largest to smallest: paper, calcium, water, gold, tin, nickel.

_____

_____

d. How many calories are required to raise the temperature of the following by 1°C?

47 grams of water: _____calories

10 grams of sodium: _____calories

30 grams of silver: _____calories

100 grams of wood: _____calories

20 grams of copper: _____calories

4. Answer the following questions:

a. Suppose we put 40 grams of water at 20°C in a calorimeter, and add to it 10 grams of water at 50°C. The final temperature of the mixture is 26°C. How many calories are gained by the 40 grams of water? How many are lost by the 10 grams of water?
b. We now put 20 grams of water in a calorimeter, and add to it 50 grams of water at 24°C. The final temperature of the mixture is 20°C. What was the initial temperature of the 20 grams of water?
c. Suppose we have 44 grams of water at 18°C in a calorimeter, and we add a certain amount of water at 26°C. The final temperature of the mixture is 24°C. How many grams of water at 26°C were added to the calorimeter?

Reflections on the Concepts of Temperature and Heat

Imagine that you fill two containers with cold water. One is a plastic cup holding 50 grams of water and the other is a large plastic bucket containing 10,000 grams of water. You let the cup and the bucket sit for a while until they reach room temperature, and then you measure the temperature of water in each and find that they are both exactly 25°C. You then heat up the water in the cup and the bucket enough for each to reach a temperature of 50°C. From what you have learned in this lesson, you know that while the temperatures of the two bodies of water, both initially and finally, were the same, the amount of heat that it took to raise their temperatures differed greatly. It is clear that, although related, temperature and heat represent two entirely different concepts. Temperature is a measure of how hot or cold things are, while heat is something that seems to flow in or out of an object to raise or lower its temperature. Yet, in everyday conversation, the words *heat* and *temperature* are often interchanged. In each pair of sentences below, mark the one in which words related to temperature and heat are used correctly in a scientific sense.

_____ My mother asked me to raise the heat in the oven by 50 degrees.
_____ My mother asked me to raise the temperature in the oven by 50 degrees.
_____ The heat from the radiator warms the room.
_____ The temperature coming from the radiator warms the room.
_____ The heat in the room is overbearing.
_____ The temperature in the room is overbearing.

Terms associated with temperature and heat are often used figuratively. For example, in the sentence "He is hot-tempered", the word *hot* does not refer to temperature, but to the person's state of being. Examine the sentences below and mark those that use words related to temperature and heat in a figurative way.

_____ It was a chilly day.
_____ The atmosphere of the meeting turned chilly when he began to criticize everything.
_____ The policeman told the angry driver to cool down.
_____ The nurse prepared a tepid bath for the newborn.
_____ She was lukewarm about the idea.
_____ He gave me the cold shoulder.
_____ The discussions of the town council started to heat up when the subject of the new factory was raised.
_____ It really burns me up when I see such injustice.
_____ They live in a temperate climate.
_____ I like hot, spicy food.
_____ The room was painted a warm red.
_____ The room is too warm; please open the window and let some fresh air in.
_____ She has a warm smile.
_____ His fever broke during the night, and his temperature was normal by the next morning.
_____ The newspaper was hot off the press.
_____ He poured her a hot cup of tea.

APPENDIX 3

In her thesis, Dr. M. Roosta reflects on the interviews she held with the students, tutors and a coordinator of FUNDAEC's Systema de Aprendizage Tutelar (SAT) in the context of empowerment.

These students' narratives address several empowering seeds in their learning process. Through teaching methodology, students are encouraged to take responsibility and to actively participate in their learning. Delivering the core message of education, curriculum encourages students to reflect on the internal and external forces that shape their community life. And it requires them to get involved in the life of the community. The discussion of the nature of human being and its inherent qualities constantly invites students to critically examine the prevalent theories regarding the peasants as an obvious obstacle to development. The eminent pedagogical character of empowering is illustrated in students' statements.

However, these empowering seeds in the learning process need to be nurtured. To have the idea of empowerment embedded both in curriculum and in methodology is crucial. Nevertheless, true learning and transformation require a strong action-reflection process. Students need to learn in real-life experience what it is like to participate in community development and what it is like to foster a change process in the community.

The SAT program provides a social space with different real-life experience learning potentialities. Working as SAT tutors, students at this university center have the opportunity to learn through long-term interaction with the community residents. At the same time, participation with villagers in different projects paves the path toward knowledge generation and application in the community. These explain why students refer to SAT as an inherent part of the university program.

Below are a few lines from some of Roosta's interviews:

A student who had finished high school before becoming associated with FUNDAEC's program made the following statement:

> ...Moreover when I finished the secondary school, I had no real vision and didn't have a very good relationship with my community in spite of the fact that I had always worked with them. But there wasn't a connection with the community. So I had the idea to leave the village and go to the city because there was employment and money....
>
> ...Later I started to work at SAT. Really, it was there that I started to discover a great connection to the community. I very much liked the area that is called "service to the community" in the SAT system, in which I started to wake up... A moment arrived in which I said, "I am useful to people," because I hadn't done it before. It was then that I started to have a great love for the program....

The attitude with which the students are to approach community service is discernible from the following comments made by one of them:

> In the texts of FUNDAEC, something very important is the agricultural project. Agricultural projects are formidable, because the community has more experience [with them]. So one has to give them parameters and be prepared. They already know that one has to learn from them. At first, they are teaching and I am learning. For example, I knows that one has to make holes in the earth to the depth of 40 centimeters to plant carrots. I am teaching them this, but I know that in reality they are teaching me. To me this is very important....

That service to the community is intimately connected with their own spiritual development was not lost to the students as the following passages from various interviews clearly demonstrate:

> ...I think that is fundamental. The most wonderful thing is that I am grateful for my life and grateful to God who gave me this opportunity to grow as a human being and of being conscious that what I was doing

was useful for society. I was developing indispensable human values that I needed. This restlessness never would have awakened inside of me in the university where I had been. I would have never asked myself who I was and how useful could I be to society. Here they do that daily.

"Human development" is the expression another student used to describe the spiritual foundation of the curriculum:

> Well, when one starts at SAT, he begins to like the methodology, starts to like the ease with which one can study. Later after a year, it is not only the methodology and economy, but the fact that one begins to realize that this is personal development, human development. [Later during university program it becomes clearer] that the methodology is secondary, the economy is secondary. Human development is primary. Then this is what one likes the most. And one starts this way because it would be impossible and a lie to say at first that what one likes best is human development. When one enters into one of the programs, one is unfocused, disconnected. What one ends up liking the most and identifying with most is the human development. This is what defines the program.

Another student stated:

> You see, in elementary school that is the elementary education that I received, the first education that I received was very quantitative. It was concerned mainly with performance. That is the way that had been developed to measure knowledge, right? But this education is more concerned with values, with capabilities that one has. And it never tries to underestimate students or compare them, not at all. There is a beautiful equality. Clearly what they say here is true. There is unity in diversity. Of course, everyone wants to be equal, always respecting our ideals.

And another:

> Human formation would be first of all equality of values. This is extremely important. Then [comes] spiritual formation, understanding that I am a person with a physical part and a spiritual part. And that in the moment that I balance the physical and spiritual, I am an integrated human. This is fundamental. Then when I speak of what is human formation, I speak of values, of spiritual formation. From this, one finds the will, love, appreciation, and sincerity.

That religious dogma is not preached at the university has allowed a program that is clearly inspired by Bahá'í belief to prosper in a Catholic environment:

> The spiritual formation I feel is more like an appreciation toward what one sees, like when I find a small tree over there. Therefore, there are no dogmas... In this university, they never have said that I have to believe in this, or that you have to be like this in order to have spiritual formation. No! To me, I have simply been taught to love, from the very small to the most profound the essence of that small tree, of this animal, of this person. This is what I refer to as spirituality....

This is the way the coordinator of the program in Apia expressed his understanding of human formation:

> I believe that they [the spiritual values] are not so abstract. This is a very important thing, and we see them operating, and we see--we start to find it in the first text of FUNDAEC in a very integrated way. And we talk, for example, of veracity, of justice, of honesty, of love. There is a series of potentialities that are operative that are expressed through concrete action. It is interesting, to mention one example, and this came as a surprise to me, when at the Practitioner level, we enter into a supposedly technical part of designing a project, to plan the work for the project, where all technical issues are expected. [But first] we all reflect on some problems that can prevent a project from being advanced. If there is not, especially among the group, coherence, if there is no respect, affection, and closeness among people, and if there is no honesty on the part of all participants, the spirit of sacrifice and all of that, .the project does not get anywhere, no matter how well we had identified the problem and how well we had designed the project. This is needed before the technical part, before identifying the problem, how to prioritize, how to look for solutions, how to start with resources and to plan the activities....

One of the students interviewed summed up the challenge of human development in this way:

> "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." This is the message that to me is the most interesting in FUNDAEC. For nine years I have liked this, have liked to listen to this. It has fascinated me. Because it is real. It is real. It is what one is!

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