In what sense and to what extent can organised school education be an aims-based enterprise?
A monograph

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Publications

My PhD thesis consists of six papers in addition to the following monograph. These papers are:

1. Hvaða áhrif hafði Aðalnámskráin frá 1999 á bóknámsbrautir framhaldsskóla? [What effects did the National Curriculum Guide from 1999 have on academic study lines in Icelandic secondary schools?] Published 2010 in *Netla*.
2. Skilningur framhaldsskólakennara á almennum námsmarkmiðum. [How teachers in secondary schools understand the aims of education.] Published 2010 in *Tímarit um menntarannsóknir, 7*, 93–107.
3. Húmanisminn, upplýsingin og íslenska stúdentsprófið. [Humanism, Enlightenment, and University Preparatory Education in Iceland.] Published 2011 in *Skírnir, 185*(1), 123–144.
4. Why the aims of education cannot be settled. Published 2011 in the *Journal of Philosophy of Education, 46*(2), 223–235.
5. Equality and academic subjects. Published 2013 in the *Journal of Curriculum Studies*, *45*(2), 119–131.
6. Are educational aims principles of design, reform, justification, or rationalisation? Unpublished, to be submitted shortly for publication.

Papers number 1, 2, and 3 are in Icelandic. English translations of their titles are given in square brackets. An abstract in English is printed before each paper. The most important results of papers number 1 and 2 are repeated in paper number 6.

Papers number 1, 2, and 6 are based on interviews with eighteen secondary school teachers. In paper number 6, I also use written data collected from 20 teachers. This empirical research was reported to the Icelandic Data Protection Authority (Persónuvernd) in accordance with article number 31 of act 77/2000 on *The Protection of Privacy as Regards the Processing of Personal Data*.

My main argument is presented in the monograph. Two of the six papers, numbers 4 and 5, support parts of my argument in the fourth chapter of the monograph. The remaining four papers support my argument in the fifth chapter of the monograph. The monograph can be read and understood without the papers however. They are appendices rather than prologues to it.

Introduction

> *This is why we need diaphaneity. In order to discern knots along the thread which, stretched through the centuries, helps us stand upright on this earth. (Elytis, 2004, p. 694)*

I graduated with a BA degree in philosophy from the University of Iceland in 1982, and with an MA degree in philosophy from Brown University in 1984. Soon after I finished my MA degree, I was hired as a teacher at the Comprehensive Secondary School of West-Iceland in Akranes (Fjölbrautaskóli Vesturlands). Since then I have worked there, except for two years when I taught at the Grammar School in Laugarvatn (Menntaskólinn að Laugarvatni). In 2001, I became vice-principal at the Comprehensive Secondary School of West-Iceland, and since the summer of 2011, I have been principal there.

All these years, since the mid 1980s, I have been interested in both philosophy and education, though I did not combine these two interests of mine. I published papers and newspaper articles on education but they were not philosophical. I also published a number of papers and three books on philosophy in Icelandic before enrolling as a PhD student in education at the University of Iceland. These philosophical writings are about epistemology, metaphysics, and political philosophy and, in them, education is rarely mentioned. I was however aware of interesting philosophical problems that were relevant to education and educational policy both through the work of Dr. Kristján Kristjánsson who was a friend from our student years at the University of Iceland, and through the work of one of our teachers there, Dr. Páll Skúlason.

One of my responsibilities as vice-principal from 2001 until 2011 was to edit the school curriculum guide, and to update it every year to meet demands made by the educational authorities. Most of these demands were published by the Ministry of Education, Science, and Culture (1999, 2004) in booklets called the *National Curriculum Guide for Upper Secondary School*. Curriculum guides issued by the schools were supposed to implement the demands made by this national curriculum guide.

I found some of the requirements made by the national curriculum guide not only hard to understand but also hard to implement and work towards in any honest way. I had, for instance, problems with the general and overarching aims listed in the national curriculum guide (Ministry of Education, Science and Culture, 2004, p. 6): It was not clear to me how teachers of various subjects were supposed to work towards such aims as those that had to do with democratic citizenship and intellectual and moral virtues. I had also problems with subject-specific aims, not really understanding what role they were supposed to play.

In May 2011, the Icelandic Ministry of Education, Science, and Culture issued a new national curriculum guide for secondary schools in accordance with the act on secondary schools issued by the Icelandic legislature in 2008. According to this guide, secondary schools were required to organise each course or module for the attainment of specific types of aims, namely the knowledge, skills, and competences that students are supposed to acquire (Ministry of Education, Science and Culture, 2011, p. 37).

When I heard about these requirements in the spring of 2009, more than two years before the actual publication of the 2011 national curriculum guide, my first thought was that they were not realistic. And when I began trying to explain why important parts of school education could not be organized to achieve aims of these three types, I also began to connect my interests in philosophy and education.

At that time, I knew that I would have a study-leave the following academic year, in 2009–2010. I decided I would use that time to study educational aims and ideas about education as an aims-based enterprise. In June 2009, I was accepted as a PhD student in the School of Education at the University of Iceland. I had already begun to read some of the literature relevant to this study, and I used the study-leave not only to complete all the required courses but also to write the first draft of my research plan that was formally accepted by the University in March 2011.

The work I present here is my reaction to the demands made by the national curriculum guide for secondary schools published in spring 2011. In it, I show how a philosophical clarification of the concept of aims can be used to criticise overly simplistic notions of education as aims-based.

1. Aims-based curricula and philosophical perplexities

The aim of this monograph is to criticise widely held assumptions about the role of educational aims as organising principles of school curricula.

In this chapter, in section 1.1, I pose my research question, which is: I*n what sense and to what extent can organised school education be an aims-based enterprise?* In what follows, in section 1.2, I explain why this question is a deep and interesting question of educational philosophy and why thinking of school education as an aims-based enterprise is problematic. In section 1.3. I give an account of my methodology and philosophical presuppositions.

In Chapter 2, I outline a view of curriculum design which has been dominant for more than half a century and is often called the objectives model. In Chapter 3, I clarify the concept of aims and distinguish among various types of aims. In Chapters 4 and 5, I use my clarification of the concept of aims to argue against the objectives model and offer in its place an outlook more in accord with the tradition of liberal education.

My arguments in the two final chapters show that education cannot, without important qualifications, be described as an aims-based enterprise and it is unrealistic to think of curriculum design in terms of top-down engineering where details of implementation are derived from statements of aims or purposes.

1.1. The question

Educational authorities and texts on curriculum theory commonly assume that school curricula can be derived from educational aims or engineered to reach goals that are spelled out in advance. This assumption is reflected in a recent national curriculum guide for secondary schools published by the Icelandic Ministry of Education, Science and Culture (2011).[1] This publication requires secondary schools to describe each course or module in terms of learning outcomes, i.e., knowledge, skills, and competences students are supposed to acquire. It also requires schools to work towards six general aims or key competencies (which are literacy, sustainable development, democracy and human rights, equality, health and welfare, and creativity).

The emphasis on educational aims as organising principles of school curricula places this publication within the mainstream of curriculum theory that originated in the works of John Franklin Bobbitt (1918/1972) and Ralph W. Tyler (1949), and was developed by Benjamin S. Bloom (1956) and Hilda Taba (1962). These authors, who all worked in the USA, defined and defended the objectives-model of school curricula that was dominant in academic discourse on curriculum theory for most of the 20th century (Elliott, 2007; Kliebard, 1987, p. 121; Pinar, Reynolds, Slattery & Taubman, 1995, pp. 140–148). Although it was most prominent among advocates of social efficiency as the primary aim of school education (Schiro, 2008, pp. 51–54), it was embraced by educationists with different views on education and the purposes of schooling (Pinar et al., 1995, p. 155). The core tenets of this model (outlined in section 2.1) are common to a number of influential aims-based accounts of education.

It is hard to resist the allure of the objectives model. It has deep roots in our culture with connections to rationalism, modernism, and ideals of rational planning and scientific management. It is closely related to a methodological view that influenced social sciences in the twentieth century and is commonly called *instrumentalism* (not to be conflated with John Dewey's particular version of pragmatism, which he denoted by the term *instrumentalism*). This view assumes that a sharp distinction can be drawn between ends and means (Fowers, 2010).

Is it not obvious that education is a purposive activity, which must aim at something? Is it not also beyond doubt, that rational organisation of schooling must begin with a clear statement of aims, and then proceed to find the most efficient ways to reach them? Those who, without hesitation, answer both questions in the affirmative are likely to accept the dominant model of curriculum design. Nevertheless, however commonsensical this model may seem, a number of renowned scholars in the field of education have found it deeply problematic. In his text on curriculum theory, which has been updated and republished five times since it was first printed in England in 1977, A. V. Kelly (2009, p. 129) pointed out, for instance, gaps between aims of central planning and the realities of its implementation. Likewise, the Dutch curriculum theorist Jan van den Akker (2003a) described the relationship between the general aims of education on the one hand, and what teachers actually do on the other hand, as deeply problematic. Seven years prior to that, Chris Winch (1996) claimed that British education at all levels is affected by a radical uncertainty about aims; and in 1982, John White, an English philosopher of education, maintained that no one would deny that our present thinking about the aims of education is in a mess (White, 1982, p. 168). Twenty years earlier Taba had pointed out, in her textbook on curriculum theory, that there is often 'little consistency between the school-wide objectives, usually stated in broad strokes, and the objectives of specific courses in specific subjects' (Taba, 1962, p. 228). She also pointed out that there is no agreement about what the main aims of school education should be.

> Our society today has by no means agreed about what the central function of the school should be. One could even say that 'the great debate about schools and their function' is in effect a debate about many of the issues our society faces: the balance between freedom and control and between change and tradition, whether the elite should be of power or of intellect, who should participate in shaping the public policy, and many others. (Taba, 1962, p. 16)

Although Taba worked within the mainstream of curriculum theory that conceived of school education as an aims-based enterprise, she also conceded that it is difficult to apply scientific methods to curriculum planning (Taba, 1962, p. 290), and that confusion is the main characteristic of curriculum theory (Taba, 1962, p. 200). This mess and confusion is at least as old as Aristotle, who wrote in his *Politics* that it is not 'clear whether education is more concerned with intellectual or with moral virtue. The existing practice is perplexing; no one knows on what principle we should proceed – should the useful in life, or should virtue, or should the higher knowledge, be the aim of our training' (Aristotle, 1941, pp. 1305–1306 [1337^{a}]).

The mess, confusion, and lack of clarity Taba and White complained about was primarily uncertainty and disagreement about what the aims of education should be. The question they were interested in was the normative question of what an educator should try to accomplish. In addition to this normative question, there are questions about how to understand talk about educational aims: In what sense can education be a means to reach previously stated aims? Can we describe some specific outcome or state of affairs that is to be realised through education? Can we derive or deduce from such a description how best to educate people?

These questions are conceptual in the sense that they cannot be answered without clarification or analysis of one of the key concepts we use to understand and account for any human activity, namely, the concept of aims. The problem I focus on in this monograph is thus primarily conceptual and the research question I will try to answer is: *In what sense and to what extent can organised school education be an aims-based enterprise?*

1.2. Why the question is deep and interesting

Some of the deepest and most interesting problems of philosophy arise because we have good reasons to believe something, call it A, and we also have good reasons to believe something else, call it B, and we cannot see how A and B are compatible. In other words, philosophy is largely about quandaries, perplexities, antinomies, and contradictions engendered by our concepts or rather by a lack of clarity about how to define, explicate, sharpen, and refine them.

Zeno's paradox is a good example. A familiar version of it is the story of Achilles and the tortoise. They run a race and, because the tortoise is rather slow, Achilles allows it a head start of half the distance, confident that it will only take him a few minutes to overtake such a slow animal. Along comes the philosopher and points out that when Achilles has completed half the total distance and reached the tortoise's starting point, the animal will still be ahead of him, having covered, say, 100 units of length. Achilles runs these 100 units and, in the meantime, the tortoise has crawled 10 units more, and so on. Whenever Achilles reaches the point where the tortoise has been, he still has farther to go. Therefore, Achilles has to cover an unlimited number of finite distances before he gets ahead of the tortoise.

Now we have two propositions that we have good reasons to believe are true:

A. Achilles can overtake the tortoise.

B. To overtake the tortoise, Achilles has to cover an unlimited number of finite distances.

For Zeno and his contemporaries in the 5th century B.C., it was hard to comprehend how these two truths were compatible. To them, these propositions seemed to contradict each other and some took this story to show that motion, time, and space are somehow unreal. Consequently, they came up with various strange ideas about the difference between appearance and reality. (Some of these ideas are still with us, through various forms of idealism.)

This particular problem has been solved. Therefore, it is not a deep and interesting philosophical problem anymore, although it once was. There is no real contradiction here because the sum of an unlimited number of finite quantities can be finite. This is, however, still a good example of the quandaries or perplexities with which philosophers deal. We have good (in this case, even conclusive) reasons to believe both A and B, and we need clarification, critical revision of concepts, and careful sorting out of logical implications to explain how they are compatible.

The deepest problems of modern philosophy have to do with concepts such as knowledge, rationality, meaning, justice, equality and freedom. I hope that the following two examples suffice to explain what I mean when I say these problems have the same form as Zeno's paradox.

Example 1:

A. The laws of nature apply to the human body.

B. A human being is responsible for (at least some of) her actions.

Example 2:

A. We cannot have a good society without political power.

B. In a good society, all are free and equal.

In the history of philosophy, we have examples of great thinkers who saw proposition pairs like these as contradictions and argued that one was false and the other true. Other philosophers have pointed out that we are not really dealing here with contradictions in the strict sense, but with quandaries and perplexities. It was not easy to show that Achilles did not need infinite time to cover an unlimited number of distances. That task required advances in mathematics that occupied great minds for centuries. Maybe the other problems I have mentioned can also be solved by showing A and B to be compatible after all. I am not saying that all the interesting questions about these propositions are just semantic. There are also substantive issues at hand. Questions about their compatibility are, however, primarily, semantic. To answer them, we need to clarify what the propositions mean and what they logically imply.

Thinking about curriculum as aims-based is fraught with perplexities and caught up in antinomies like common beliefs about responsibility or freedom and equality. Here I will give a succinct account of four antinomies or perplexities in current thinking about education. Some analogous quandaries have been elaborated by Jerome Bruner (1996, pp. 68–69).

The first antinomy can be stated as follows:

Antinomy 1

A_1 Education should aim at changing students in predetermined ways.

B_1 Education should make students autonomous.

The view expressed in A_1 lies behind the dominant tradition of curriculum theory in the last century (briefly described in section 1.1 and further elaborated upon in section 2.1). The view expressed in B_1 is no less deeply entrenched in our culture. As G. H. Bantock has pointed out in his work on the history of educational thought, it is a central tendency of modern education, famously promulgated by John Locke towards the end of the 17th century (Bantock, 1980, pp. 31, 43). It has since been supported by Locke's intellectual heirs, such as John Stuart Mill (2009), who have been concerned with equality and liberal values. White, for instance, has argued in recent years, that education should, primarily, make pupils autonomous persons who form an integrated life-plan worked out from a moral point of view (White, 1982).

If autonomy of students involves abilities to realize new values, see things from a new point of view, or understand matters otherwise than their teachers do, can they then both exhibit autonomy and develop in ways that are predetermined by others? A negative answer is tempting because, although not strictly contradictory, A_1 and B_1 pull in different directions. Both seem to contain some elements of truth and it is not obvious how they can be reconciled.

The second antinomy is related to this first one but focuses on society rather than on the individual.

Antinomy 2

A_2 Education should serve aims that are known and can be clearly stated.

B_2 Education is a vehicle of progress through which society learns to appreciate new values.

Here A_2 is, like A_1 above, integral to the dominant view and surely has at least some presumption in its favour. We must be able to say what school education is good for. How else can we justify spending so much on it and letting the fortunes of individuals depend to such an extent on what they do, and how they fare, in school?

The history of school education over the last 300 years reveals how some basic aims have become widely accepted. Barbara Benham Tye, an educational scholar in the USA, lists for instance four groups of aims she describes as stable in the sense of persisting in spite of changes in society. These aims are, according to her, academic, vocational, civic, and personal (Tye, 2000, p. 27). Larry Cuban, who has written extensively on the history of schooling, has a view similar to Tye's. He describes aims the public expects schools to work towards, such as a mastering of basic skills, the ability to think rationally and independently, the accumulation of general knowledge in various subjects, sufficient skills to get a job, participation in the civic culture of the community, and a knowledge of what values are prized in the community and the ability to live them (Cuban, 1992, p. 233). He has also argued that innovations that challenge the accepted aims, 'particularly those that challenge the socializing functions, may get token attention from practitioners but, over time, seldom alter fundamentally what is offered' (Cuban, 1992, p. 233). The arguments presented by Cuban and Tye invite us to think of school education as serving aims that are not only known, but also widely accepted.

No matter how plausible A_2 may be, it has an uneasy coexistence with B_2 that is also hard to reject. If B_2 holds true, however, any list of general aims that can be used to determine what to teach, and how, is subject to revision. Suppose we had listed the aims of school-education: Aim_1, Aim_2, … Aim_n. Would the following aim be on the list?

Aim_k: Education should enable the next generation to propose a list that is better than Aim_1, Aim_2, … Aim_n.

If Aim_k is on the list, then the list is not final, only tentative. Therefore, if we think of Aim_1 … Aim_n as the last word about what the aims of education should be, Aim_k cannot be on the list. Nevertheless, we can hardly think of education as a vehicle of progress without including something like Aim_k. As I have argued elsewhere (Harðarson, 2012a), this one aim makes the list tentative and subject to revision. As far as education is reflexive, that is, as far as it enables students to criticise its own value and progress to a better understanding of what is worth learning, its aims cannot be settled.

The two antinomies listed so far are conceptual in the sense that it is difficult to imagine how the two propositions can be compatible. The third one is perhaps of a different kind because the two propositions seem to be compatible. Nevertheless, historical experience finds them repeatedly at odds.

Antinomy 3

A_3 Education ought to be planned by starting with clearly stated general aims and deriving from them (and relevant knowledge within fields such as educational psychology) what to teach and how.

B_3 Functional school-education is based on subject-centred traditions that have not been derived from general aims.

These propositions are compatible because subject-centred traditions can, and do, serve educational aims. These traditions do, however, persist by and large in spite of new policies and new statements of general aims for schools. Even though they may originally have been justified by appeal to educational aims, their present manifestations are, thus, definitely not derived from aims stated in modern educational policy documents or curriculum guides.

In a recent paper (Harðarson, 2011), I traced the history of university preparatory education in Iceland and Denmark from the middle of the 19th century and explained how the subject-based curriculum is connected to both humanistic and enlightenment ideals of human excellence. Curricula based on subjects such as foreign languages, literature, history, mathematics, natural- and social sciences, and creative arts have persisted through all the radical social changes of the last 150 years. A number of US scholars in the field of education such as Barbara Benham Tye (2000), David Tyack and Larry Cuban (1995), and Herbert Kliebard (1987) have come to similar conclusions about schools in the USA. In *The Struggle for the American Curriculum 1893–1958,* Kliebard (1987) described debates about school curricula as a struggle between four camps: three different groups of reformers and the humanists who guarded the old school tradition. Although the humanists were on the defensive against the reform movements that were often hostile to traditional subject-based curricula, Kliebard concluded:

> The one fortress that proved virtually impregnable was the school subject. […] If the success of the 65-year effort to reform the American curriculum is to be judged by the extent to which English, mathematics, science, history, geography and the like simply survived the assault against them, then the effort must be counted a failure. (Kliebard, 1987, pp. 269–270)

The history of attempts to replace traditional subjects-based curricula with something designed to reach general aims is, in this view, a history of repeated failures. Tyack and Cuban have attempted to explain the persistence of subject-centred curricula with theoretical accounts of what they call *the grammar of schooling* (Tyack & Cuban, 1995, pp. 85–109). They concluded their review of attempts at large scale aims-based school reform with a rather pessimistic remark:

> Policy talk about the schools has moved in cycles of gloomy assessments of education and overconfident solutions, producing incoherent guidance in actual reform practice. Hyperbole has often produced public cynicism and skepticism among teachers. (Tyack & Cuban, 1995, p. 134)

In an earlier work, Cuban commented on how the technocratic view expressed by A_3 is at odds with the results of historical research on the development of curricula and educational institutions. He concluded that a 'large body of literature has shown that this rational perspective has definite limitations in explaining the behaviour of most public and private organizations' (Cuban, 1992, p. 239).

Tye (2000) reached a similar conclusion, but instead of talking about the *grammar of schooling*, she explained the persistence of school traditions, including subject-centred curricula, with a theoretical notion of *the deep structure of schooling* that is composed of widely shared values and assumptions about education. On her account, this deep structure sets practical limits to what reformers can do (Tye, 2000, pp. 3–4). A number of other scholars, e.g. Seymour B. Sarason (1971), Michael S. Katz, and Louis G. Denti (1996), David Hamilton (1989) and Akker (2003b), have described the persistence of school traditions and how surprisingly hard it is to change the system of education. My own research (about which I will say more in section 5.3) indicates that Icelandic secondary schools are no exception (Harðarson, 2010a, 2010b, 2013b).

Although this third antinomy is perhaps not due to antagonistic ideas in the same way that antinomies number 1 and 2 are, the persistence of subject-centred curricula is deeply problematic for curriculum theorists working within the mainstream of curriculum theory and for all those who, like White (1997, 2010), conceive of top-level aims as principles of curriculum design. They must concede that attempts to design curricula by starting from aims, as envisaged by A_3, have not been successful, and, as Taba (1962, p. 384) admitted, the old subject organization persists in spite of such attempts, especially in secondary schools. Thus, attempts at aims-based rational reconstruction of schooling have not been successful, however superior they appear in the light of dominant curriculum theories (Taba, 1962, p. 392).

The fourth, and last, antinomy I describe also has to do with the tension between subject-centred school traditions and requirements to the effect that schooling be rationally planned to reach educational aims.

Antinomy 4

A_4 If there is a good reason to teach subjects such as literature, history, natural sciences, and mathematics, then these subjects serve worthwhile aims.

B_4 Our understanding of aims, having to do with, say, equality, democracy, and critical thinking, has been gained by learning subjects such as literature, history, natural sciences, and mathematics.

A_4 requires us to justify each school subject in terms of aims, or else jettison it as useless. This requirement sometimes goes hand in hand with doubts about the defensibility of traditional subject-centred curricula. In a recent paper, White, for instance, writes about subject-centred approaches to the development of school curricula and asks: 'Why start with academic disciplines and seek justifications of them? Logically, curriculum planning has to start with aims, not with vehicles whereby aims may be realised' (White, 2010, p. 125). He traces the history of modern subjects-based school curricula back to the 16th century and complains that, through all the reforms of British schools since 1988, governments have allowed the existing structure of academic subjects to stay intact and have clung to a centuries-old pattern rather than 'seizing the opportunity to rethink school education as a genuinely aims-based enterprise' (White, 2010, p. 139). The underlying assumption seems to be that the building blocks of a genuinely aims-based curriculum are something other than academic subjects.

White's point that curriculum planning has to start with aims rings true. The aims of a course of education are, in some sense, logically prior to its content because one expects an educator to have some idea of what he wants to accomplish before he decides to teach *this* rather than *that*. Prior to the aims, however, there must be some educational content or knowledge that enabled the designers of school curricula to acquire the understanding they have of what aims are worth seeking. The concepts needed to apprehend educational aims, having to do with say democratic citizenship or critical thinking, have been forged and refined through a critical discourse that has taken a long time, and our understanding of these aims depends on large bodies of knowledge. Secondary school curricula are made up of subjects such as history, natural sciences and mathematics. It is partially through these subjects that our culture has learned to appreciate the values (of e.g. democracy and critical thinking) that figure in the aims-sections of curriculum guides. One needs to be educated to say something sensible about the aims of education – and what aims one is able to comprehend depends on what education one has acquired, and therefore B_4 is about as hard to refute as A_4.

In Harðarson (2013a), I argued that if we view overarching educational aims as dynamic, and grant that we, as a community, are still learning how to understand them, then we cannot take the content of education to be simply subservient to a fixed set of aims. Once we face the fact that our understanding of educational aims is limited and evolving, we are bound to assume a dialectical relationship between educational aims and educational content. If my argument is valid, it invites us to think of A_4 and B_4 in dialectical terms as two aspects of a larger truth.

The four antinomies I have briefly described indicate that conceiving of education as an aims-based enterprise or as something that has been, or can be, designed to meet previously-specified aims is problematic. Thinking of education as aimless is no less perplexing. School education must be good for something, and this something must be an aim of some sort. This is the quintessence of a deep and interesting philosophical problem: Something seems to be both necessary and impossible.

1.3. Philosophical method and presuppositions

Critical conceptual revision

In my view, most of the interesting problems of philosophy arise – as already noted – because two or more beliefs that seem compelling, or even necessarily true, are either contradictory or give rise to antinomies, quandaries, and perplexities. The methods I use to solve such problems have been elaborated and defended by, for example, the Icelandic philosopher of education Kristján Kristjánsson (1996, 2006, 2010) and by Robin Barrow (2010) who is an English philosopher of education working in Canada. Kristjánsson (1996) calls this methodology *critical conceptual revision* and says that it typically begins with a description of puzzles, or of contradictions in usage and beliefs, and then goes on to modify concepts and beliefs 'trying to retain the truth of the greatest number and, in particular, the most authoritative of these' (Kristjánsson 2006, p. 11). In many cases, the philosopher needs empirical evidence from various fields of science and scholarship to adjudicate which beliefs are the most authoritative. It follows from this that the philosopher should be ready to cross disciplinary boundaries (Kristjánsson, 2006, p 118; 2010, pp. 16–18), and I do that in Chapter 5 where I use results of historical and empirical research to support a philosophical conclusion. Philosophy is a logical discipline and more concerned with the meaning of words than with matters of fact. Nevertheless, the philosopher has to consider empirical results because what words actually mean, and what is the best way to analyse concepts, depends on all sorts of knowledge.

This methodology does not belong exclusively to the philosophy of education. It can be applied as well to conceptual perplexities within other fields such as, say, politics, ethics, or theory of knowledge. In my view, philosophy of education is not a special type of philosophy with its own methodology. Philosophers of education apply philosophical methods to concepts such as *learning*, *teaching*, *curriculum*, *education,* or *educational aims* and the very same methods can also be applied within other fields.

The methodology described by Kristjánsson is close to the methodology of Richard S. Peters' pioneering work on the analysis of the concept of education and related concepts that redefined the field of philosophy of education in the 1960s. Peters' methods of conceptual analysis have been articulated and explained by Barrow (2010, pp. 14–15). I go along with Barrow's argument, believing that deep philosophical understanding, cogent argumentation, fruitful criticism, and improved exposition of viewpoints requires conceptual analysis that aims at clarity, consistency, and compatibility with other knowledge. I also accept his view that once a concept or a belief has been clarified, ‘it needs to be checked against one's other knowledge including one’s wider conceptual repertoire, but also including non-conceptual matters such as matters of fact or value — and of course against relevant publicly warranted knowledge’ (Barrow 2010, p. 14).

The concept of education

In addition to the methodological presuppositions outlined above, I build upon a concept of aims that I describe briefly at the end of this chapter and analyse in section 3.1, and on a concept of curriculum that draws upon works by Israel Scheffler (1960) and Philip W. Jackson (1992). I also assume an understanding of what *education* is that I have outlined and defended in a paper published in 2012 (Harðarson, 2012a), where I draw upon work by Charles H. Bailey (2010), David Carr (2003, 2010), Philip W. Jackson (2012), Michael Oakeshott (1989), Richard S. Peters (1966), Mary Warnock (1977), and John White (1982). In this paper, entitled ‘Why the Aims of Education Cannot Be Settled’, I argue that a complete descriptive definition of education is not available. We cannot put down exactly the necessary and sufficient conditions someone has to meet in order to count as being educated. A partial definition that is largely true to ordinary usage is, however, possible. On my proposed definition, education involves human excellences (especially understanding and intellectual virtues) that are fostered, developed, or increased by learning, training, or teaching.

In literature, in movies, and in daily speech we come across many and various conceptions of what an educated person is like. Some stereotypes depict the professional, the scientist, or the philosopher as paradigms of education. If we go back to the middle of the 19th century, we come across writings where it is assumed, without question, that being educated means having learned Latin and Greek, and going still further back, we have the Enlightenment ideal of an unprejudiced and encyclopaedic mind. Different people have different stereotypes or paradigms in mind when they talk about education and these relate to different ideals from past philosophies. Learned accounts given by modern authorities also differ.

Oakeshott, the philosophical idealist and devout critic of rationalism, described education as initiation into a world of understandings, imaginings, meanings, and beliefs (Oakeshott, 1989). A similar account was given by Bailey in his 1984 monograph on liberal education, where he elaborated on its capacity to liberate students from the restrictions of the present and the particular, and involve them instead in what is most fundamental and general, worthwhile and rational (Bailey, 1984/2010). One of the most sophisticated attempts to analyse the concept of education is that of Peters (1966) in the first part of his *Ethics and Education*, where he argued that being educated entails having a broad range of worthwhile knowledge. Peters' conception of education excluded any narrow specialisation and required initiation into a wide variety of different subjects such as natural science, literature and history. Other distinguished scholars have raised doubts about this, however, including the British philosophers of education Warnock (1977) and Carr, who pointed out that 'we may regard people as educated on grounds other than broad initiation. Thus, it seems reasonable to regard someone who has an in-depth knowledge of poetry and literature (say), but little else as better educated than the "know-all", who is a mine of shallow information' (Carr, 2003, p. 210).

Sceptical responses to Peters have also come from scholars who think that education is not primarily about knowledge but rather about moral virtue, freedom, or autonomy. As I mentioned in my description of Antinomy 1, White (1982) argued, for instance, that education should, first and foremost, make pupils morally autonomous.

It may be tempting to conclude from this diversity of views that different authors are working with different concepts of *education* rather than conflicting conceptions of the same concept. In his later works, Peters expressed reservations about his own analysis and said that although education must, by definition, entail some sort of improvement, all attempts to specify exactly what the concept involves are essentially contestable (Peters, 1981). Since then, many theorists have entertained similar doubts. Some of them are quoted by Carr (2010) who describes the current situation as follows:

> In the contemporary literature of educational philosophy and theory, it is almost routinely assumed or claimed that 'education' is a 'contested' concept: that is, it is held that education is invested – as it were, 'all the way down' – with socially-constructed interests and values that are liable to diverge in different contexts to the point of mutual opposition. (Carr, 2010, p. 89)

Carr subsequently argues that the case for contestability of education rests on confusion and points out that, in spite of different viewpoints, most theorists agree that education promotes critical (rational) open-mindedness (Carr, 2010, p. 100). Likewise, Jackson, who is recognised as one of the foremost curriculum theorists of the present, has argued that rationality has primacy in educational affairs (Jackson, 2012, p. 28).

As Carr and Jackson both point out, most serious accounts of *what education is* overlap. The different views listed above seem compatible although they draw attention to different aspects of education. White's autonomy has, for instance, something in common with Bailey's liberation from the present and the particular, and such liberation may perhaps be achieved through Oakeshott's initiation into a world of understandings that, in turn, may include what Peters called a broad range of worthwhile knowledge. Although people may have different stereotypes of what an educated person is like, there seems to be wide agreement that it involves human excellences, especially understanding and intellectual virtues that are fostered by learning. Serious accounts of the concept of education also make it clear that education is not the same as schooling, since people can be educated without going to school, and it is, alas, possible to go through years of schooling without getting much education.

In a paper from 1975 entitled 'The meaning of "meaning"', the US philosopher Hilary Putnam (1975, pp. 215–271) criticised some of the then-prevailing philosophical accounts of meaning according to which the intension of a term (that is, a psychological state existing in the mind of each speaker who knows what it means) determines its extension.

Putnam's arguments are well known among philosophers working within the fields of epistemology and philosophy of language. His conclusions have become part of the mainstream in analytical philosophy:

> We have now seen that the extension of a term is not fixed by a concept that the individual speaker has in his head, and this is true both because extension is, in general, determined *socially* – there is division of linguistic labor as much as of 'real' labor – and because extension is, in part, determined *indexically*. The extension of our terms depends upon the actual nature of the particular things that serve as paradigms, and this actual nature is not, in general fully known to the speaker. Traditional semantic theory leaves out only two contributions to the determination of extension – the contribution of society and the contribution of the real world! (Putnam, 1975, p. 245)

To qualify as having understood a word, one does not have to be able to produce an exact definition. In most cases, it suffices to be able to point to stereotypes, i.e. pick out some typical examples. Towards the end of the paper, Putnam proposed a normal form for the description of meaning and said it should at least include the following:

> (1) the syntactic markers that apply to the word, e.g. 'noun'; (2) the semantic markers that apply to the word, e.g. 'animal', 'period of time'; (3) a description of the additional features of the stereotype, if any; (4) a description of the extension. (Putnam, 1975, p. 269)

If Putnam is right about the meaning of 'meaning', we cannot jump from the premises that people associate different stereotypes with the word 'education' and that experts give somewhat different accounts of its extension, to the conclusion that the word is used to express more than one concept.

As far as I can see, there is general agreement on some semantic markers and the minimum knowledge required to count as understanding the word ‘education’: that education involves, for instance, some desirable or commendable qualities people acquire through learning and that it involves rationality, open mindedness, and critical thought.

Putnam’s theory of meaning invites us to think that ‘education’ denotes whatever known or unknown characteristics the semantic markers and stereotypes point to. Because the ‘extension is, in part, determined *indexically*’ (Putnam, 1975, p. 245), the meaning of the term is not completely settled by what speakers have in mind. It depends on objective truths and these truths may be partially unknown, more or less dimly understood, and waiting to be discovered, explained, or illuminated. On this account, disagreement about how to describe the extension of ‘education’ is to be expected as long as people disagree about what human excellences to cultivate and which of them are enhanced by learning. The thinkers I have mentioned (Oakeshott, Bailey, Peters, White, and Carr) listed understanding a world of culture, liberation from the present and the particular, a wide range of worthwhile knowledge, moral autonomy, and critical open-mindedness. We cannot conclude from this, however, that there are many concepts of education. If we see these accounts as pointing out extensions that, by and large, overlap, then we have, on the contrary, reason to think they are so many attempts to explain the same concept.

If the meaning of ‘education’ were constituted by what people have in mind when they use the word, then we would have many concepts of education. Granted that some of the aims of education follow logically from an analysis of the concept, different concepts of education would support divergent, equally valid, accounts of what aims schools must serve to count as educational institutions. If, on the other hand, what Putnam said about the meaning of ‘meaning’ applies to the meaning of ‘education’, the problem is to determine what is truly educative. On the presumption that this theory of meaning is on the right track, the most plausible explanation of why people disagree about what education involves is that they have less than perfect knowledge of what human characteristics are most worthy of being fostered. Our understanding of the purpose of education is under construction because we are still searching for answers to the questions about human excellence and the good life posed by the ancient philosophers. An end to that search is not in sight, because, as Jackson has argued, the whole truth with respect to those things that matter most to us ‘doesn’t exist save as a cognitive fantasy, a mere possibility’ (Jackson, 2012, p. 45).

The above account of the concept of education is in accordance with Kristjánsson’s model of *critical conceptual revision* since it fits common intuitions reflected and refined by such authorities as Bailey, Carr, Jackson, Oakeshott, Peters, Warnock, and White. Such a fit is important in the case of the concept of education because a merely stipulative definition might leave out those very characteristics of education that consolidate educational, moral, and cultural ideals and make education something to be desired and admired. I do not think, however, that we have as weighty reasons to honour ordinary usage when we attempt to define the concept of *curriculum*. It is more of a technical notion.

The concept of curriculum

In his introduction to a handbook of research on curriculum published in 1992, Jackson pointed out that curriculum has traditionally been defined as a course of study at a school or university (Jackson, 1992, p. 5). In this introduction, he reviewed several attempts to set forth and defend notions of curricula encompassing more than what schools or teachers intend to teach or require students to learn. One of the best known of these attempts was made by Jackson himself when he introduced the notion of a *hidden curriculum* (Jackson, 1968). In his publication from 1992 he concluded, however, that most educators use the word ‘curriculum’ in the standard dictionary sense to refer to the course of study of a school or university and ‘none of the redefinitions has clearly won the day in the sense of having replaced the old definition’ (Jackson, 1992, p. 9). Towards the end of his discussions about how to define curriculum, Jackson asked:

> Finally we need to ask whether any of the redefinitions we have considered are necessary *as definitions*. Could their authors have done without them and still have gotten by? Can we in turn do the same? What is to stop us, for example, from talking about the possibility of our schools contributing to the development of harmful attitudes and habits without introducing the notion of a hidden curriculum? Or to take another example, can we not acknowledge that the curriculum is rarely delivered as planned without speaking of there being two separate curricula, one planned the other enacted? What would be lost, in short, if we restricted the use of the word to its dictionary definition? (Jackson, 1992, p. 12)

During the 20th century, various other definitions were attempted to make school curricula include more than what schools expected or required their students to learn. Some writers, for example, have defined curriculum in terms of students’ educational experiences, including the unwanted or unintended effects of schooling (Jackson, 1992, pp. 6 –12). Scheffler, the US philosopher of science and education, reflected on this and pointed out that these wider notions of what is included in school curricula are programmatic. By this he meant that they apply the term ‘curriculum’ in new ways in order to ‘extend the school’s responsibility, hitherto limited to its so-called formal course of study, in such a way as to embrace the individual social and psychological development of it pupils’ (Scheffler, 1960, p. 24).

There may be good reasons for emphasising the extensive responsibilities of educational institutions. This can be done though without having the concept of curriculum include all the effects a school has on its pupils. A school where pupils pick up bad habits, such as, say, cigarette smoking, can be justly blamed for that without counterintuitive claims to the effect that learning to smoke is a part of the school curriculum. Using the word ‘curriculum’ to refer to the totality of experiences of each learner also has, as Scheffler pointed out, the strange consequence that ‘no two pupils ever have the same curriculum and, further, that no two schools ever have the same curriculum, each school having as many curricula as it has pupils’ (Scheffler, 1960, p. 23).

In light of these considerations, I choose to use the word ‘curriculum’ in the original sense recommended by Scheffler (1960) and Jackson (1992). In this sense, ‘curriculum’ refers to what teachers or schools intend or attempt to teach their students or require them to learn. I leave it open whether or not more complex and wider curriculum concepts are useful in other contexts. This simple and narrow one serves my purposes.

The concept of aims

The third key concept in this monograph is the concept of aims. I analyse it in section 3.1. Here I let it suffice to mention that it covers all sorts of purposes, goals, and objectives. An aim is simply anything people try or endeavour to bring about, approach, reach, or realise. If I need to distinguish wide or general purposes from specific objectives, I use phrases like ‘overarching aim’ or ‘general aim’.

2. The dominant view

In the 20th century, educational theorists in the USA attempted to make curriculum theory a scientific discipline. In this chapter, I sketch the main features of a school of thought that originated early in the century and became dominant in academic discourse on school curricula the in 1950s and 1960s. Since then, it has also had considerable influence on educational policy and administration.

2.1. Bobbitt, Tyler, Bloom, and Taba

Bobbitt

The view that curriculum design and development should use rigorous scientific methodology to derive the content and the methods of instruction from clearly stated educational aims was advanced by Bobbitt in a book published in 1918. The core of Bobbitt's methodology was elaborated in the sixth chapter of this book where the opening paragraph presented the view that was to dominate curriculum theory throughout the 20th century:

> The technique of curriculum-making along scientific lines has been but little developed. The controlling purposes of education have not been sufficiently particularized. We have aimed at a vague culture, an ill-defined discipline, a nebulous harmonious development of the individual, an indefinite moral character building, an unparticularized social efficiency, or, often enough nothing more than escape from a life of work. Often there are no controlling purposes; the momentum of the educational machine keeps it running. So long as objectives are but vague guesses, or not even that, there can be no demand for anything but vague guesses as to means and procedure. But the era of contentment with large, undefined purposes is rapidly passing. An age of science is demanding exactness and particularity. (Bobbitt, 1918/1972, p. 41)

In what followed, Bobbitt proposed a scientific method of finding out what purposes schools should seek to attain:

> The central theory is simple. Human life, however varied, consists in the performance of specific activities. Education that prepares for life is one that prepares definitely and adequately for these specific activities. However numerous and diverse they may be for any social class, they can be discovered. This requires only that one go out into the world of affairs and discover the particulars of which these affairs consist. These will show the abilities, attitudes, habits, appreciations, and forms of knowledge that men need. These will be the objectives of the curriculum. They will be numerous, definite, and particularized. The curriculum will then be that series of experiences which children and youth must have by way of attaining those objectives. (Bobbitt, 1918/1972, p. 42)

Bobbitt did not think though that all the specific activities people need to perform should be taught in schools. He made a distinction between what people pick up or learn through undirected experience and what has to be taught systematically, and proposed that schools should aim at 'those objectives that are not sufficiently attained as a result of the general undirected experience' (Bobbitt, 1918/1972, p. 44).

Bobbitt thought that needs for education could be found through empirical investigation of social shortcomings and deficiencies. This general principle was, he said, 'quite obvious and entirely familiar to teachers' (Bobbitt, 1918/1972, p. 50). He conceded, however, that it was hard to apply it to complex subjects such as history, literature, and geography:

> What are the social shortcomings that are to be eliminated through a study of these social subjects? Our ideas are yet so vague, in most cases, that we can scarcely be said to have objectives. The first task of the scientific curriculum-maker is the discovery of those social deficiencies that result from lack of historical, literary, and geographical experiences. Each deficiency found is a call for directed training; it points to an objective that is to be set up for the conscious training. (Bobbitt, 1918/1972, p. 50)

The three core tenets of Bobbitt's methodology, apparent from these quotations, are:

B1: What schools should teach ought to be stated clearly and exactly as a list of educational objectives.

B2: School curricula should be designed as experiences that make students attain educational objectives.

B3: What schools should teach can be discovered empirically by investigating what specific activities people need to perform and which of them are not learned through general undirected experience.

In Bobbitt's view, curriculum science is not only about how to plan educational experiences, i.e. the content and methods of instruction, by deriving them from educational objectives. It is also about finding the right objectives. The tradition Bobbitt initiated has retained the former emphases (B1 and B2) but has been more ambivalent concerning the last one (B3). The most influential advocate of this tradition in the middle of last century, Tyler, declared for instance that 'in the final analysis objectives are matters of choice, and they must therefore be the considered value judgements of those responsible for the school' (Tyler, 1949, p. 4). Apart from reservations about the third tenet of Bobbitt's methodology (B3), Tyler's work from 1949 is essentially a reiteration of, and addition to, what Bobbitt wrote in 1918.

Tyler

In their work on the history of curriculum theory, published in 1995, Pinar et al. said that Tyler crystallized a half-century of curriculum-development thought in one thin book and was 'perhaps the most influential figure the field has known' (Pinar et al., 1995, p. 149). His work 'adapted well to changing curriculum rhetoric' and was 'embraced by both life adjustment advocates and subject-centered critics (i.e. those espousing the academic disciplines as curriculum content) who ascended to power after the Sputnik satellite launching' (Pinar et al., 1995, p. 155).

This little book 'which sold over 85,000 copies during 36 printings and was translated into 7 foreign languages' (Pinar et al., 1995, p. 149) made Bobbitt's scientific approach to curriculum design dominant for decades to come. It begins with a statement of a principle of curriculum development that Tyler calls a rationale, and which is commonly denominated the *Tyler rationale*:

> The rationale developed here begins with identifying four fundamental questions which must be answered in developing any curriculum and plan of instruction. These are:
>
> 1. What educational purposes should the school seek to attain?
> 2. What educational experiences can be provided that are likely to attain these purposes?
> 3. How can these educational experiences be effectively organized?
> 4. How can we determine whether these purposes are being attained? (Tyler, 1949, p. 1)

The first question involves Bobbitt's first tenet (B1) and the second and third questions introduce the tenet listed above as B2. The fourth question is about evaluation rather than curriculum design and will not be discussed here (although requiring that the success of an educational programme be measured could put constraints on curriculum development). So, Tyler subscribed to the first two tenets of Bobbitt's methodology. Concerning the third one, he had reservations that are elaborated in the far longest chapter of his book (Tyler, 1949, pp. 3–62), i.e., the first chapter after a short introduction in which the four questions are posed. This chapter deals with the first question and is entitled 'What educational purposes should the school seek to attain?'

Tyler emphasised the importance of beginning with clearly defined goals or purposes and pointed out that they can be obtained through various areas of study, including philosophy, psychology, and studies of contemporary life outside the school (Tyler, 1949, pp. 3–62). Although he told his readers where to look for educational objectives, Tyler took a neutral stance towards questions of value and said very little about what the purposes of school education should be. The closest he came to advocating one sort of purposes rather than another was where he said that 'commonly, educational philosophies in a democratic society are likely to emphasise strongly democratic values' (Tyler, 1949, p. 34).

Tyler's work focused on methods of curriculum development and he tried to justify neither specific content nor definite aims. He probably wanted his curriculum science to be value neutral, the way good scientific work was supposed to be in the middle of last century. At that time, philosophers as diverse as Ayer (1936/1971) and Sartre (1943/1956) taught that values were ultimately matters of choice, rather than of discovery or rational deliberation, and hence outside the field of scientific study. A number of other influential curriculum theorists have also tended to fight shy of questions of value. In 1984, Barrow saw this tendency as predominant within the curriculum field. He maintained that 'North American curriculum writing, which forms the bulk of curriculum writing, has deliberately eschewed the problem of values, and built up a body of curriculum theory on the pattern of engineering, a subject the ends or objectives of which are relatively uncontentious' (Barrow, 1984, p. 17).

In addition to being less sanguine than Bobbitt was about the scientific discovery of the best or most apposite educational aims, Tyler had a notion of objectives that was different from Bobbitt's in that Tyler thought that the main objectives should be few. He did not state this very explicitly but said, for example, that a curriculum maker will select 'a small list of important objectives' (Tyler, 1949, p. 43). Some other remarks Tyler made hark back to Bobbitt. He said, for instance, that objectives should be specific and that very general aims, such as to develop critical thinking, were unlikely to be fruitful (Tyler, 1949, p. 46). Discussing evaluations of schools, he assumed that objectives should be specific enough so that one could measure or test if students had acquired the behaviour aimed at (Tyler, 1949, pp. 104–120). One of the sources of educational objectives Tyler described is also reminiscent of Bobbitt's focus on preparation for specific activities that are important in adult life. Tyler described these as analyses of contemporary life (Tyler, 1949, p. 23). He did not think of this one source as sufficient however. Overall he proposed, instead of Bobbitt's third tenet, a more complex notion, namely that in order to find out what schools should teach, knowledge from various fields should be used, although some of the aims had to be fixed through political decisions rather than empirical investigation or scientific reasoning.

An important strand of Tyler's curriculum science, which I have not mentioned so far, is his emphasis on viewing education as a process of changing the behaviour patterns of learners. He urged that the purposes schools seek to attain should be defined as objectives that 'represent the kinds of changes in behaviour that an educational institution seeks to bring about in its students' (Tyler, 1949, p. 6). According to Tyler, objectives should not be teacher-centred but learner-centred:

> Objectives are sometimes stated as things the instructor is to do; as for example, to present the theory of evolution, to demonstrate the nature of inductive proof, to present the Romantic poets, to introduce four-part harmony. These statements may indicate what the instructor plans to do; but they are not really statements of educational ends. Since the real purpose of education is not to have the instructor perform certain activities but to bring about significant changes in the students' patterns of behavior, it becomes important to recognize that any statement of the objectives of the school should be a statement of changes that take place in students. (Tyler, 1949, p. 44)

In the following summary of the main tenets of Tyler's methodology, this emphasis on objectives being learner-centred is listed number four:

T1: What schools teach ought to be stated clearly and exactly as a list of educational objectives.

T2: School curricula should be designed as experiences that make students attain educational objectives.

T3: To find out what schools should teach, knowledge from various fields should be used, but some of the aims must be fixed through political decisions rather than empirical investigation or scientific reasoning.

T4: Educational objectives should be learner-centred, i.e. statements of changes that take place in students.

Bloom and Taba

Among Tyler's most important successors in the 1950s and 1960s were Bloom who edited an influential work, *Taxonomy of Educational Objectives,* published in 1956, and Taba whose *Curriculum Development: Theory and Practice*, published in 1962, was a synoptic text, widely used in curriculum courses during the 1960s and into the early 1970s (Pinar et al., 1995, p. 175).

Bloom's work was a continuation of Tyler's and he posed the same four questions (Bloom, 1956, p. 25) as Tyler (1949, p. 1), taking them to be the fundamental questions of curriculum theory. Bloom also took over all of Tyler's four tenets, T1–T4 above, emphasising the fourth one since the taxonomy was designed as a 'classification of student behaviours which represent the intended outcomes of the educational process' (Bloom, 1956, p. 12). He furthermore followed Tyler in claiming that his classification scheme could be used to represent and classify all educational goals in a value-neutral way (Bloom, 1956, p. 14). Bloom admitted, however, that

> In one sense, however, the taxonomy is not completely neutral. This stems from the already-noted fact that it is a classification of intended behaviours. It cannot be used to classify educational plans which are made in such a way that either the student behaviours cannot be specified or only a single (unanalyzed) term or phrase such as 'understanding,' or 'desirable citizen,' is used to describe the outcomes. Only those educational programs which can be specified in terms of intended student behaviours can be classified. (Bloom, 1956, p. 15)

It seems evident from the quotation that he wanted to exclude what Bobbitt called ‘large, undefined purposes’ (Bobbitt, 1918/1972, p. 41).

Taba also subscribed to Tyler’s four tenets and assumed that formulation ‘of clear and comprehensive objectives provides an essential platform for the curriculum’ (Taba, 1962, p. 12) and an ‘educational program, like any activity, is directed by the expectations of certain outcomes’ (Taba, 1962, p. 194). Like Tyler, she thought that the basic aims should be few in number and she conceived of educational aims as forming a hierarchy where the most general ones, having to do with, e.g., transmission of culture, reconstruction of society, or the fullest development of the individual, ‘provide an orientation to the main emphasis in educational programs’ (Taba, 1962, p. 196).

Although Taba assented to the main tenets advanced by Tyler, she also realised some shortcomings of focusing exclusively on learning outcomes, or on objectives stated in terms of students’ behaviour:

> This idea of learning as a product rather than as process and experiencing has had a peculiarly distorting effect on the teaching of feelings and values. The chief educational means for altering values is to teach *about* values and to use content which on the surface seems related to the desired behaviour, but which does not touch on the psychological dynamics or reach the motivational springs which alone can translate the ideas contained in the content into beliefs, values, and conduct. (Taba, 1962, p. 154)

Taba also realised some of the problems later pointed out by Akker (2003a) and others, conceding that ‘often there seems to be little consistency between the school-wide objectives, usually stated in broad strokes, and the objectives of specific courses in specific subjects, or the specific units’ (Taba, 1962, p. 228). It seems to me that her careful and detailed statement of the model she took over from Tyler and Bloom makes its flaws visible. Her attempts to repair the model are aptly summarised by Pinar et al.:

> A critical aspect of her proposal involved a modification of the Tyler Rationale, regarded largely as a linear process moving from statements of purpose through learning experiences to evaluation. Taba conceived of the process as more nearly circular with the emergence of new purposes and goals during the process. This modification was more in accordance with Dewey’s conception of purpose as arising out of transactions between teachers and students. (Pinar et al., 1995, p. 175)

The model Taba took over from Tyler and Bloom was presented, by them, as a method of design, a way to create school curricula starting with the slate wiped clean. Taba saw this engineering approach as problematic and said that if ‘one views curriculum planning as a kind of educational engineering, one begins to realize how difficult it is to apply scientific method to this rather crucial task’ (Taba, 1962, p. 290). In the beginning of her book from 1962, she pointed out that design of a whole course of school education *ab initio* was hardly realistic, and she recommended small-scale experimentation with parts of the curriculum:

> Perhaps before new ideas can emerge about the design of scope and sequence sufficient experimentation with smaller units of curriculum is needed to settle the many problems connected with curriculum building. There is reasonable ground for believing that if the sequence in the curriculum development were reversed – that if, first, teachers were invited to experiment with specific aspects of curriculum and then, on the basis of these experiments, a framework were to be developed – curriculum development would acquire new dynamic. (Taba, 1962, p. 9)

The most important differences between Taba and her predecessors were that she was perhaps more sceptical about the potential of a scientific or engineering approach to curriculum design and development. Although she recommended clear statements of objectives as principles of organization, she realised that the knowledge needed to derive what to teach, and how, from statements of educational objectives was not available as such:

> The more 'scientific' behaviouristic observations in experimentally confined situations cannot be used to understand or guide learning of a more complex nature, such as the development of cognitive processes or the formation of attitudes. On the other hand, field theories of learning present too great a complexity of variable factors, with the result that it is difficult to examine adequately their regularities to translate them into appropriate principles and laws. (Taba, 1962, p. 85)

She seems at times to conceive of educational aims as principles of reform, i.e., as guiding piecemeal improvements, rather than as principles of design that can be used to build schooling from square one. (I explain the distinction between principles of reform and principles of design in sections 3.1 and 5.1.) Ever since, the tradition that originated in the works of Bobbitt and Tyler has vacillated on this issue; and while there are scholars advocating wholesale reform of the entire system of education (e.g., Katz & Denti, 1996; White, 2004a), there are others who question the feasibility of rebuilding schools from the ground up (Tyack & Cuban, 1995; Tye, 2000).

Still going strong

The heyday of Tyler's model in academic discourse on curriculum in the USA was in the 1950s and 1960s. This academic discourse changed around 1970 and became more concerned with understanding curriculum (what is taught or learned in schools) than with methods of curriculum design. Subsequently, different theorists have advocated different understandings of schooling, e.g., as a manifestation of political ideology, male dominion, or theological world views. Pinar et al. (1995, p. 17) refer to the changes that took place in the 1970s as *reconceptualisation* and argue that, since 1980, the field has become increasingly fragmented (Pinar et al., 1995, p. 238). Nevertheless, recent textbooks on curriculum design and secondary school teaching (e.g. Kellough & Kellough, 2007; Marzano & Kendall, 2008) advocate a model similar to Tyler's.

Although no single model is dominant among curriculum theorists nowadays, the model outlined above still holds sway among policy makers and top-level school administration in England and the USA as I argue below. This is also the situation in Iceland. The national curriculum guide for Icelandic secondary schools, published in 2011 (Ministry of Education, Science and Culture, 2011), is a part of the tradition initiated by Bobbitt and Tyler, requesting secondary schools to use precise formulation of learner-centred aims as organising principles for all modules. This publication from 2011 was a continuation of a trend that was also manifest in the previous national curriculum guide for Icelandic secondary schools issued in 1999 (Ministry of Education, Science and Culture, 1999)[2]. A similar trend has been visible for more than half a century in government directives and curriculum guides for primary education in Iceland where emphasis on educational aims as organising principles of school curricula has been on the increase at least since 1948 (Jóhannesson, 2008; Sigþórsson & Eggertsdóttir, 2008). Research by Ingólfur Ásgeir Jóhannesson (2006), an Icelandic educationist and historian, indicates that in the eyes of Icelandic primary school teachers, educational aims were more important and more demanding as organising principles of school practice at the turn of the 21st century than in previous years.

According to Jackson (1992, p. 35), Tyler's model was still dominant among school administrators in the USA in 1980. It reached new heights of influence and ambition, in England and in the USA, when its advocates 'allied themselves with the neoconservative movements of the 1980s' (Reid, 2006, p. 67). Quite recently, it was still seen as dominant in school administration in these countries by several prominent scholars in the field (Au, 2011; Elliott, 2009; Holt, 2009; Klein, 2009; Short, 2009). The changes that took place in England and the USA in the 1980s had their analogues in other countries, e.g., in Finland, Iceland, and Sweden in the 1990s, where aims-based organisation, or goal steering, became an integral part of a managerialist educational policy that emphasised competition and economic efficiency (Jóhannesson, Lindblad & Simola, 2002).

This model has now been largely incorporated into the so-called Bologna Process in Europe (also known as the Process of Building the European Higher Education Area), where one of the key concepts is *learning outcome* (Karseth, 2006, p. 270). In an article in the *Bologna Handbook*, Kennedy, Hyland, and Ryan (2006) advocate learner-centred specific outcomes in almost the same terms as Tyler used to do. They claim that among ‘the great advantages of learning outcomes is that they are clear statements of what the learner is expected to achieve and how he or she is expected to demonstrate that achievement’ (Kennedy et al., 2006).

The terminology used to describe the model has changed over time. In the 1980s, the main tenets of Tyler went by the denomination *outcomes-based education* (OBE). More recently ‘within the UK national curriculum framework, specifications of *outcomes for all students* are referred to as “standards”, *exit behaviours* as “targets” and *benchmarks* as “attainment levels”’ (Elliott, 2007).

Although the objectives model has been dominant within school administration, there are reasons to doubt that it has shaped school practice to the extent envisaged by educational authorities, and some advocates of aims-based curricula, e.g. White (2010), complain that school education is still not a genuinely aims-based enterprise.

The core tenets of the dominant view

The tradition outlined in this chapter is not uniform. Its vocabulary and some important doctrines have changed over the years. It has nevertheless been consistent in maintaining three of the core tenets of Tyler’s methodology (listed as T1, T2, and T4 above):

Core tenet 1:

What schools teach ought to be stated clearly and exactly as a list of educational objectives. (Same as T1 and B1)

Core tenet 2:

School curricula should be designed as experiences that make students attain educational objectives. (Same as T2 and B2)

Core tenet 3:

Educational objectives should be learner-centred, i.e. statements of changes that take place in students. (Same as T4)

On some other questions, advocates of this dominant tradition in curriculum theory have entertained divergent views. Some have emphasised particular aims that can be defined in terms of behaviour (Bobbitt), others have argued that some more general aims are needed to provide an orientation (Tyler, Taba). Opinions about how to find the best or most apposite educational aims differ, although the texts by Bobbitt, Tyler, and Taba discussed above all suggest empirical investigation of students' needs as an important source of educational aims. These three authors also tended to conceive of aims as something that can, in principle, be accomplished or completed by means that are only contingently related to them.

The English curriculum theorist John Elliott (2007) has criticised some recent advocates of aims-based curricula and argued that, in addition to the main tenets of Tyler's methodology (listed as T1 – T4 above), they commonly assume that 'means and ends are contingently related. What constitutes an appropriate means for bringing about the ends-in-view needs to be determined on the basis of empirical evidence' (Elliott, 2007, p. 71).

The core tenets (numbered 1, 2, and 3) can be read as an answer to the question posed in section 1.1: *In what sense and to what extent can organised school education be an aims-based enterprise?* On this view, the answer is that school education can be, and ought to be, completely aims-based in the sense that the whole of it should be organised to make students attain learner-centred educational objectives. As the antinomies described in section 1.2 show, this answer is, however, deeply problematic. It grabs one horn of each dilemma, namely A_1–A_4:

A_1 Education should aim at changing students in predetermined ways.

A_2 Education should serve aims that are known and can be clearly stated.

A_3 Education ought to be planned by starting with clearly stated general aims and deriving from them (and relevant knowledge within fields such as educational psychology) what to teach and how.

A_4 If there is a good reason to teach subjects such as literature, history, natural sciences and mathematics, then these subjects serve worthwhile aims.

The first of these (A_1) is closely related to core tenet 3, the second one (A_2) is not much different from core tenet 1, and the remaining two (A_3 and A_4) seem to follow from core tenets 1 and 2. The last one may, however, require some extra premises about education being worthwhile. All of these (A_1–A_4) surely have some presumptions in their favour, but so have the other horns of the dilemmas posed by the antinomies, that is, statements B_1–B_4:

B_1 Education should make students autonomous.

B_2 Education is a vehicle of progress through which society learns to appreciate new values.

B_3 Functional school-education is based on subject-centred traditions that have not been derived from general aims.

B_4 Our understanding of aims, having to do with, say, equality, democracy, and critical thinking, has been gained by learning subjects such as literature, history, natural sciences, and mathematics.

The arguments on behalf of B_1–B_4 that I advanced in section 1.2 all speak against the core contentions of the dominant view, so although there is much to be said for those core contentions, there is also much to be held against them.

2.2. Criticisms of the dominant view

Since the 1970s, the dominant view, outlined above, has been criticised by scholars who have advocated different approaches to curriculum theory. In a book published in 2006, William A. Reid, an English curriculum theorist, classified different approaches to curriculum studies using two criteria or independent dimensions of evaluation. The first criterion is whether a theorist sees curriculum as legitimately and unproblematically institutionalized. Here, those who see public schools as beneficial for individual students and for society stand opposite to those who, for instance, argue that schools reproduce social inequalities or patterns of oppression. The second criterion is whether curriculum is understood within the perspective of one dominating idea or theory (Reid, 2006, p. 11). Examples of such theories would include Marxism, Piaget's theory of cognitive development, and Tyler's methodology of scientific curriculum design. This twofold classification yields four different groups or categories that Reid calls *systematisers, deliberators*, *radicals,* and *existentialists*. In the following table, I mention a few leading theorists from each camp (the examples are mine, not Reid's).

Table 1: Four different approaches to curriculum studies	**Curriculum legitimately and unproblematically institutionalized**	**Curriculum not legitimately and unproblematically institutionalized**
One leading idea	**Systematisers:** John Franklin Bobbitt, Ralph W. Tyler, Benjamin S. Bloom, Hilda Taba	**Radicals:** Samuel Bowles and Herbert Gintis, Michael W. Apple
Not one leading idea	**Deliberators:** Joseph Schwab, William A. Reid, Ian Westbury, Wesley Null, Lawrence Stenhouse, Robin Barrow, A. V. Kelly	**Existentialists:** Ivan Illich, Maxine Green

The first group, the *systematisers*, are advocates of the dominant view. Reid (2006, p. 12) describes them as the archetypal thinkers and workers in curriculum theory, and remarks that attitudes to curriculum are expressed in language that is essentially metaphoric. 'Here the metaphor is an engineering one' (Reid, 2006, p. 13).

Reid himself thinks this engineering metaphor is misleading. He is sceptical of simple theories and takes curriculum development to be a practice that needs deliberation, practical knowledge, and non-theoretical (non-generalised) understanding of local situations. He thus identifies with the second group, the *deliberators*, and lists the US educationist Joseph Schwab as the most important source of his views, and Wesley Null and Ian Westbury as his allies. He does not mention, however, Lawrence Stenhouse, or other English thinkers such as Robin Barrow and A. V. Kelly, who have advocated views somewhat similar to his own.

The group denominated *deliberators* by Reid might as well be called humanists, or advocates of liberal education, since all the proponents he mentions write on behalf of traditions emphasising the non-instrumental value of learning and the importance of teaching organised bodies of knowledge in a coherent way (Null, 2011, p. 85). In opposition to systematisers, deliberators have a non-technological view of curriculum development and want to build upon humanistic sources of knowledge like rhetoric, ethics, literature, and philosophy, rather than the physical and social sciences (Null, 2011, p. 172).

According to Reid the third group, the *radicals*, are opposed to *systematisers* on the dimension of attitude to institutions. 'They start from an assumption of fundamental malfunction. All institutions as currently constituted, including curriculum, are part of the apparatus that stabilizes the social order and oppresses the majority of the population' (Reid, 2006, p. 14). The radicals are, however, like the systematisers in that (a) they base their view on one leading idea, (b) they make a sharp distinction between theory and practice, and (c) they demote teachers to the role of implementing theoretical plans designed by others.

The best-known work by radicals in the field of curriculum is probably *Schooling in Capitalist America: Educational Reform and the Contradictions of Economic Life,* written by the two US economists and social theorists Samuel Bowles and Herbert Gintis (1976). In this work, they argued that schools replicate hierarchical divisions of labour and sustain the class structure of society. Since then, a number of other radicals, including the US curriculum theorist Michael W. Apple (1982), have studied how, and to what extent, schools confirm or reinforce relations of domination and reproduce an unequal society.

The last group, the *existentialists*, Reid describes as follows:

> Existentialists share with radicals a hostility to curriculum as institution. What separates them is the question of where they stand on the dimension of a commitment to a leading idea. Whereas radicals center their critique on a specific theory, existentialists simply assume an antipathy between individuals and institutions, and are then more interested in thinking about what this means for the individual than in elaborating macro explanations of the mechanisms through which institutions act oppressively. (Reid, 2006, p. 15)

The representative members of this group are individualists, mindful of how unjust it is to force everybody into the same mould and worried that overly systematic schooling can stifle creativity. Like the radicals, some thinkers in this camp have expressed doubts about the benefits of schooling. The most famous one is probably the Austrian-born philosopher and theologian Ivan Illich. In his book, *Deschooling Society*, published in 1973, he says that institutionalization leads to psychological impotence and schooling ‘makes pupils confuse teaching with learning, grade advancement with education, a diploma with competence, and fluency with the ability to say something new’ (Illich, 1973, p. 9). The US educationist Maxine Green is another well-known curriculum theorist influenced by existentialist philosophy. In her view, education is more about encouraging kids to have confidence in their own vision and enabling them to express themselves than an induction into systematic knowledge (Green, 1995).

In what follows, I assume the legitimacy of organised schooling and institutionalized curricula. My criticisms of the dominant view will thus be in the spirit of the tradition Reid calls *deliberative* (and the pre-modern traditions of humanism and liberal learning), rather than radicalism or existentialism. This is because the question I am concerned with is, in what sense, and to what extent, organised school education can be an aims-based enterprise. I would, possibly, build on the work of radicals or existentialists if my question were whether organised schooling is a legitimate enterprise.

In Chapters 4 and 5, I attempt to explain, from a deliberative (or humanistic) perspective, what is problematic with the dominant view and propose a more realistic answer to my question about to what extent and in what sense organised school education can be aims-based. Before I proceed to do that, however, I will analyse and critically revise the concept of aims: the topic of Chapter 3. This conceptual clarification is necessary because the shortcomings of the dominant view are, to a large extent, due to insufficient attention to the multifarious meaning of terms like *objectives*, *aims*, *goals,* and *purposes*.

3. The concept of *aims* analysed

In this chapter, I analyse the concept of aims by making five distinctions between different types of aims. These distinctions are between:

1. Things, events, or states of affairs, created or causally brought about by the means and aims that are constituted by the means.
2. Aims that are contingently related to the means and aims that follow logically from the means.
3. Aims that are independent of any specific context and aims that are dependent on, or only comprehensible within, a specific context.
4. Objectives that can be reached and ideals that people can work towards, although the task cannot be completed.
5. Aims as principles of design and aims as principles of reform.

This fivefold classification is not meant to be exhaustive or to exclude other criteria for sorting or categorising aims. I only claim that my five distinctions are all relevant to understanding what is involved in talk about aims of education.

3.1. Five distinctions

Within some activities, it is easy to distinguish between aims (or ends or purposes) and means. Turning on the cooker is for instance a means to the end of boiling potatoes and boiling potatoes can be a means to the end of serving a meal, and serving a meal can be a means to ends like showing hospitality, alleviating hunger, or keeping a daily routine. Within a game of chess, each move is a means to the end of mating the opponent's king. Playing the game can also be a means to the end of winning a tournament or of increasing one's ELO rating. Sometimes, however, we are not sure if what we do is a means to something else. Is winning a tournament or showing hospitality, for example, a means to something? Maybe it is a way of gaining prestige or publicity. But is that also a means to something else?

In some areas of life that matter most to us, it is difficult to distinguish between ends and means. Do athletes run in order to stay healthy or do they take care of their health in order to be able to run? One who picks the former option without hesitation is probably not a great sportsman. Do people marry to lead a good life or do they live well in order to preserve and cultivate their marriage? Do people learn languages to be able to read literature or do they read literature to hone their language skills? When we cannot easily distinguish the means we choose from the aims, ends, or purposes we seek, we sometimes say that what we are doing is an end in itself.

There are arguments both for and against thinking of every rational action as having an aim, end, or purpose. Over 40 years ago, Carl G. Hempel, who began his philosophical career as one of the founders of logical positivism, gave a persuasive argument for a means-end view of rational action. He described his position as follows:

> To say of an action that it is rational is to put forward an empirical hypothesis and a critical appraisal. The hypothesis is to the effect that the action was done for certain reasons, that it can be explained as having been motivated by them; these reasons will include certain ends the agent sought to attain, and his beliefs about available means of attaining them. And the critical appraisal implied by the attribution of rationality is to the effect that, judged in the light of the agent's beliefs, his action constituted a reasonable or appropriate choice of means for the attainment of his ends. (Hempel, 1961, p. 5)

Hempel's thesis seems plausible because every time I try to bring something about I have an aim, and if I am asked what I am trying to bring about, I normally answer the question by mentioning my aim. It can, however, also be argued that there is something fundamentally wrong with the means-end view of human action. The Scottish philosopher Alasdair C. MacIntyre, who is best known for his revival of Aristotelian moral philosophy in the 1980s, has for instance pointed out that if the means-end model is applied to work, we tend to conceive of work as a means for the end of leisure. This, said MacIntyre, is a paradoxical position because work is important and leisure comparatively trivial, so 'that a sense is engendered that the important is being treated as a means to the trivial' (MacIntyre, 1964, p. 7). Although some people may see work as merely instrumental, e.g., as a means for raising a family, there seems to be an element of truth in what MacIntyre said about the paradoxical implications of instrumentalism. This is more evident in the case of education than in the case of work because when the means-end model is applied to education, then what is most valuable (such as understanding, culture, or virtue) is seen as means to something else like, for instance, economic gain, consumption, or leisure. On the subject of education, Macintyre concluded that:

> Our aim ought to be to help people to discover activities whose ends are not outside themselves; and it happens to be of the nature of all intellectual enquiry that in and for itself it provides just such activity. The critical ability which ought to be the fruit of education serves nothing directly except for itself, no one except those who exercise it. (MacIntyre, 1964, p. 19)

MacIntyre's argument shows that a view like the one Hempel advocated gives rise to a paradoxical attitude where what is important and valuable is justified as a means to something relatively trivial. This happens if we think of every rational action as having an aim (or end or purpose) that is distinct from the action and caused by it. It does not follow from this that we should conceive of education as aimless. As MacIntyre pointed out, we should rather think of it as serving aims that are not outside education. If we acknowledge such aims, then we can preserve the truth in Hempel's view without the paradoxical results MacIntyre described. In other words, we need to distinguish between two types of aims or ends, i.e. aims as states of affairs that are causally brought about by the means, and aims that are constituted by the means.

Distinction 1: Causation versus subsumption

The aim of an action can be:

1. An intended consequence expected (or believed, or believed to be likely) to be produced, caused, or causally contributed to, by the action.

2. A state of affairs constituted or partially constituted by the action, i.e., realised by the action by being identical to it, or involving parts or aspects that are identical to parts or aspects of it. Ends in this second sense are not (at least not entirely) distinct from the action.

Marriage, learning, friendship, and work are means to the end of living a good life in the second sense rather than the first. More simple examples from everyday life can also be used to explain this distinction. Suppose, for instance, that I carry someone's bag in order to help that person get home with a load of goods. Carrying the bag is then a means to the end of helping. Carrying the bag and helping are, however, not two events where the former causes the latter. Here, talking of means and talking of ends are two ways to describe the same action, where the second description justifies that action by subsuming it under a category of deeds that do not need further justification. When we state the aims, purposes, or ends of our actions, we sometimes list the intended consequences. But sometimes we only describe what we are doing in different terms and thereby subsume it under a category of actions that are valuable or worthwhile. Therefore, I call the distinction made here between two types of means-end relations the *distinction between causation and subsumption*.

From the premise that every rational action has an aim, it does not follow that it brings about or contributes causally to some end or purpose that is distinct from the action. If my analysis is right, it is also possible that a rational action serves an end that is not separate from it. Brian Crittenden, an Australian educationist, has made a similar distinction between types of aims. In one of his writings, he had an apt expression of it: 'one may have a purpose in acting without having a purpose beyond the action' (Crittenden, 2007, p. 47). MacIntyre's argument shows that if we exclude means-end relations of the subsumption type, then the requirement that all rational actions have some end or aim leads to unfortunate conclusions. This distinction between causation and subsumption is needed to account for the aims of education because learning can both cause what is sought, and, as the English philosopher of education Richard Pring (1999) for instance has argued, be constitutive of worthwhile aims since endeavouring to, say, appreciate a poem is both a means to becoming better educated and constitutive of being an educated person. The core tenets of the dominant view, listed in section 2.1, invite us to see educational aims as changes in students that are caused by educational experiences. What I have said so far about this first distinction indicates that this is not true of all educational aims.

Although causation and subsumption are two different ways in which means and ends can be related, they are not exclusive. Sometimes the same action simultaneously exemplifies the end sought and contributes to it causally. In the beginning of the second book of his *Nicomachean Ethics*, Aristotle argued that people learn to be virtuous by acting in accordance with virtue (Aristotle 1941, pp. 952–953, [1103a–b]). On this account, a good act performed by someone who is not yet (completely) virtuous is both worthwhile in itself and good because it causes the doer to become (more) virtuous. In this case, both of the types of means-ends relations that I have outlined apply to the same action: The end is both partially constituted and partially caused by it. Something similar seems to apply to some purposes that have to do with social organisation rather than with individual virtues. If, say, equality as a value or norm is built into school practice and this causes pupils to appreciate the value of equality, then the practice simultaneously exemplifies the end and contributes to it causally.

Distinction 2: Extrinsic versus intrinsic

Once an action has been described or conceptualised, its aims can be:

1. Extrinsic, i.e., contingently related to the description or conceptualisation.
2. Intrinsic, i.e., logical consequences of the description or conceptualisation.

Some concepts involve aims as logical consequences. The aim of removing dirt is, for instance, implied by the concept of washing. Washing can, however, also have aims that do not follow from an analysis of the concept, like preventing the spread of a disease, showing courtesy, or making a statement as Pilate did. This second distinction may seem related to the one between causation and subsumption. The example I used to explain what subsumption involves shows, however, that this is a different distinction. In this example, the end of helping is constituted by the action, i.e., by carrying the bag. Since helping does not follow from an analysis of the concept of carrying, however, subsumption is different from logical implication.

Education may have intrinsic aims like acquiring intellectual virtues such as critical thinking, or counteracting the all-too-human tendencies for prejudice and narrow-mindedness. It may also be instrumental to purposes that are not logically related to the concept of education, such as a stable political order or economic growth.

From the truth that some worthwhile aim is intrinsic – that is, that it follows from the right definition of an activity – we cannot, at least not generally, conclude that the activity is, or is to be, undertaken for the sake of that aim. Likewise, from the truth that some aim is extrinsic, that it is contingently related to a concept used to describe an activity, nothing follows about its importance or its lack of importance. I can have all sorts of reasons for washing my hands without caring much about cleanliness. We can also have reasons to seek education without caring much about the aims that are internal to education.

Since the US philosopher Willard van Orman Quine (1951) dealt his famous and crippling blows to logical positivism in his paper, ‘Two Dogmas of Empiricism’, attempts to draw a sharp distinction between conceptual and empirical truths have been seen as suspect. Following Quine, we can think of the scale from extrinsic to intrinsic as continuous, with the relation between washing and removing dirt being, e.g., more logical, and less empirical, than the relation between washing and preventing the spread of contagious diseases. The truth that hand-washing removes bacteria, as well as mud, soot, and grime, is half-empirical and half-conceptual. The concept of washing has links to the concept of disinfection that depends on empirical knowledge, but is also logical because all sorts of knowledge can figure in definitions or analyses of concepts. Bearing this in mind, we should be wary of thinking of the distinction between extrinsic and intrinsic as sharp or absolute.

In his *Notes Towards the Definition of Culture*, T. S. Eliot wrote about the purposes of education:

> But when writers attempt to state the *purpose* of education, they are doing one of two things: they are eliciting what they believe to have been the unconscious purpose always, and thereby giving their own meaning to the history of the subject; or they are formulating what may not have been, or may have been only fitfully, the real purpose in the past, but should in their opinion be the purpose directing development in the future. (Eliot, 1948, pp. 95–96)

Sometimes at least, definitions purport to explain or illuminate the value or main point of what is being defined. A definition of education may, for example, involve an understanding of why education is important and thus elicit (in Eliot’s sense) what its purpose has always been and give meaning to its history. If such definition is warranted, or supported by rational argument, it gives us reason to think that any school that claims to educate its students must seek to attain the aims implied by it.

In the section on the concept of education, section 1.3, I mentioned Carr’s (2010) argument to the effect that the concept of education involves promotion of rationality and critical open-mindedness. If his conclusion is warranted, as I think it is, it is not a matter of choice whether education should aim at open-mindedness, and a school that chooses not to seek this aim opts for something other than education. Some educational aims may therefore exist that are discovered neither through empirical investigation, in the way Bobbitt envisaged, nor through the alternative proposed by Tyler, namely, free choice or political decision. Crittenden has reached a similar conclusion through his analytical discussion of educational aims and argued that, if we focus exclusively on external aims of schooling, ‘it could turn out that the school would perform its function most efficiently by miseducating or by devoting itself to non-educational activities' (Crittenden, 2007, p. 51).

Distinction 3: Independent of context versus dependent on context

The aim of an action can be:

1. Independent of any specific context.
2. Dependent on a specific context.

A chess player may know why he moves a pawn from B3 to B4 without knowing why he is playing the game. Each move can have an aim within the context of the game, regardless of what aims (if any) the game has. Similarly, if I am preparing a meal, turning the cooker on has an aim within that context whether or not the meal serves any purpose. (If someone is hungry, it probably does.) Likewise, if I am teaching someone a subject like, say, Euclidean geometry, each lesson, each exercise, each assignment may have an aim that can be justified granted that my pupil is to learn geometry, regardless of what aim (if any) the whole enterprise of teaching and learning geometry has. It is thus possible to have well-defined aims for each assignment, each exercise, and each lesson in a course or module without being able to specify any aims for the whole course. Likewise, a game of, say, chess can be aimless even though each move has an aim within the context of the game.

Aims within contexts such as sports, academic disciplines, categories of art, or hobbies, such as, say, gardening, often have a life of their own. Attempts to fit them into a hierarchy with more overarching aims at the top are, in some cases at least, bound to be strained and stilted. Thinking of sports as subservient to aims having to do with health and welfare, for instance, does not capture what is so important about football. Likewise, conceiving of music and mathematics, or other comparably rich traditions, as merely subservient to something described in general terms as, say, human happiness or flourishing does no justice to what people working within these fields really care for. To account for what is important about gardening, football, music, or mathematics, one needs to understand these activities from within.

It is tempting to think of educational aims as forming a hierarchy, where aims within subjects or modules serve larger aims that are then valid or justifiable as parts of some overarching good such as happiness, welfare, or human excellence. The existence of context-dependent aims makes it doubtful that all educational aims fit into such hierarchical models. Some of them may be valid within a context (or subject) without providing any justification for the context (or subject) or serving any aims existing independently of it.

Distinction 4: Objectives versus ideals

The aim of an action can be:

1. An objective (or closed aim) that can be reached.
2. An ideal (or open aim) that people can work towards, although the task cannot be completed.

The fourth distinction I draw between different types of aims is between objectives that can be reached and ideals that people can work towards although the task cannot be completed. Going for a swim this afternoon, painting the kitchen, and taking a walk together next Sunday are aims of the first type. Staying healthy, keeping a beautiful home, and having a happy marriage are lifelong tasks of the second type.

Educational aims defined in terms of behaviour typically belong to the first category. Learning to use Newton’s inverse square law to calculate the gravitational force between two masses may be understood as an objective in this sense, but understanding gravity is better seen as an open aim that cannot be conclusively reached. When has a student understood gravity: When she has learned to do simple calculations based on Newton’s formula? Is able to explain how massive objects affect space-time? Has mastered the concepts used to describe black holes? Knows what the long search for the Higgs boson was all about? Can participate in debates about the differences between gravity and the other fundamental forces of nature? Understanding gravity is an endeavour which, arguably, cannot be completed. Likewise, memorising who is married to whom in Njál’s saga, or facts about the constitutional assembly at Eidsvoll in 1814 can be seen as objectives. Understanding sexual relations in Njál’s saga, or what effect the French revolution had on politics in Scandinavia, and how democracy evolved in the Nordic countries, is, however, not something one does once and for all. In all these cases, our understanding depends on other knowledge that is evolving and under review and can, therefore, not be complete and final.

Open-ended aspirations or ideals form what the Canadian philosopher Charles Taylor (1999), known for his contributions to political philosophy and intellectual history, has called our horizon of significance. In his most famous work, *Sources of the Self: The Making of Modern Identity*, Taylor (1989) called such ideals frameworks. If Taylor (1989, p. 507) is right, such horizons or frameworks are a necessary precondition of meaningful existence. In light of the examples I have given, it seems plausible that, without ideals, objectives are pointless. Memorising formulae like the inverse square law, or facts about the French revolution, is worth something, provided we are trying to understand nature or society. Going for a swim, painting the kitchen, or taking a walk together is desirable if we want to stay healthy, keep a beautiful home, or have a happy marriage. In all these examples the ideals are important, something we are, rightly, reluctant to abandon or revise. Relative to them, the objectives are less important. If it rains, a couple should be happy to give up an aim like going for a walk together and go, say, to the movies instead. Abandoning an ideal or open aim, like a happy marriage or staying healthy, is something much more serious. Likewise, the endeavour to understand nature or society is more important educationally than specific learning objectives such as memorising this fact rather than that.

Educational ideals, like the examples from physics, history, and Icelandic literature mentioned above, are not only impossible to complete, but, in some cases, it is also impossible to tell how far one has advanced towards them. One proposal about how to understand, say, sexual relations in Njál’s saga may be based on a theory that looks promising but later turns out to be ill-founded. Another suggestion may look less promising but later turn out to be deep and interesting. The same applies, mutatis mutandis, to what our students may come to think about gravity or the assembly at Eidsvoll.

Some aims that involve understanding within academic fields can be reached. A beginner in geometry can, for instance, reach an understanding of why the angles of a triangle add up to 180 degrees. Nevertheless, attempting to understand something is often a lifelong and open-ended endeavour. Understanding why the above-mentioned rule about the angular sum of triangles only applies in Euclidean spaces, and what the relation is between physical space and mathematical spaces, is an ideal rather than an objective. Ideals (or open aims) can thus, no less than objectives, be dependent on specific contexts or subjects, such as, say, geometry.

Distinction 5: Principles of design versus principles of reform

Curriculum design, like any other activity, can relate to aims in different ways. It is aims-based in the strongest sense if it is derived from previously specified aims or designed to meet them. It is aims-based in a weaker sense if it evolved more or less independently of the aims though each part of it can, however, be justified by appeal to them. The relation is still weaker if the aims are to some extent adjusted to the curriculum, or if aims that are not feasible within existing school traditions are excluded or cast aside. On one end of the scale, we have educational aims as principles of design, aims that are specified before any decisions are made about what subjects to teach or how schooling is to be organised and then used to determine each detail of the curriculum. On the other end, we have aims as principles of reform, i.e., aims that guide piecemeal reform of previously existing traditions. In between these two extremes, there are various intermediate possibilities.

In some cases, reform may amount to little more than preservation of existing practices. If a practice is seen as adequately serving whatever aims it has, stating the aims may be a way of justifying what is already going on; so if we extend the spectrum from principles of design to principles of reform, and beyond to principles of preservation, we end up with statements of aims that serve as justifications of practice. Towards the end of the scale, we have what certain radical critics of school reform in the US, Thomas S. Popkewitz, B. Robert Tabachnick, and Gary Welage (1982, pp. 168–173), have called 'mechanisms of occupational legitimation', where aims or reform agendas that appear progressive only give new credibility to old conditions. If, however, we focus exclusively on aims that are to guide improvement, development, or progress, we can leave out those that guide neither design nor reform.

As I pointed out, when discussing Bloom and Taba in section 2.1, the dominant model was originally proposed as a method to design school curricula starting with the slate wiped clean. This idea has deep roots in European rationalism and was elegantly expressed by Descartes, who said, in his *Discourse on Method*, originally published in 1637, that

> there is very often less perfection in works composed of several portions, and carried out by the hands of various masters, than in those on which one individual alone has worked. Thus we see that buildings planned and carried out by one architect alone are usually more beautiful and better proportioned than those which many have tried to put in order and improve, making use of old walls which were built with other ends in view. In the same way also, those ancient cities which, originally mere villages, have become in the process of time great towns, are usually badly constructed in comparison with those which are regularly laid out on a plain by a surveyor who is free to follow his own ideas. (Descartes, 1979, pp. 87–88)

Despite the rationalistic roots of the tradition, Taba (1962) saw the engineering approach as problematic and proposed using educational aims as principles of reform rather than as principles of design. Using Descartes' metaphor, we can say that from her point of view, doing entirely without ‘old walls which were built with other ends in view’ was not feasible or realistic.

The antinomies again

I do not claim that my analysis of the concept of aims suffices to eliminate the antinomies outlined in section 1.2. I think, however, that it helps us to see them as less paradoxical. The antinomies seem to arise because of a one-sided view that focuses exclusively on some types of aims, and they are less perplexing if we keep in mind how multifarious aims can be.

One horn of antinomy number 1, namely A_1 (Education should aim at changing students in predetermined ways) probably seems convincing to some because people tend to think of aims as learner-centred objectives rather than as ideals. But if we keep distinction number 4 in mind, and realise that some of the purposes of education are open-ended ideals, we do not have to take A_1 quite literally. There is an element of truth in it because education aims at changing students. It can, nevertheless, be a purposive and rational endeavour even though no one can pre-specify the changes in detail. If I am right about this, the element of truth in A_1 does not contradict B_1 (Education should make students autonomous). Distinction number 4 is thus helpful for sorting out what is wrong with believing that A_1 and B_1 are both true and incompatible. Likewise, distinction number 2 is helpful for clarifying the quandaries involved in antinomy number 2. If some of the aims of education are intrinsic to the concept of education (as I argued in section 1.3) and a complete analysis or descriptive definition of the concept is not available, then some of the aims actually served by education may be less than fully understood. The truth behind A_2 (Education should serve aims that are known and can be clearly stated) is probably that it serves aims that we should do our best to know and state clearly, but not that it should exclusively serve aims that are already known and have been clearly stated. There is a difference between:

$A_{2\text{-}1}$ There are aims that we know and can state clearly and these are the aims that education should serve.

and

A_{2-2} There are aims that education serves and we should endeavour to know these aims and state them clearly.

I am suggesting that A_{2-2} is true and compatible with B_2 (Education is a vehicle of progress through which society learns to appreciate new values).

Similar considerations also throw light on antinomy number 3, where one horn of the dilemma, namely B_3 (Functional school-education is based on subject-centred traditions that have not been derived from general aims), reminds us that the cultural traditions have values that are not fully understood. The other horn, A_3 (Education ought to be planned by starting with clearly stated general aims and deriving from them what to teach and how), demands full understanding and is perhaps reasonable if understood as a claim to the effect that such understanding is desirable. It seems, however, overly optimistic if interpreted as a claim to the effect that such understanding is already at hand. Distinctions numbered 3 and 5 are also relevant to antinomy number 3 because some of the aims of education are only comprehensible from within intellectual traditions such as academic school subjects, and it is hardly realistic to suppose that the most general or top-level educational aims can be used as principles of design to create something that complex.

The fourth and last antinomy is less perplexing if we keep distinction number 1 in mind. (Here A_4 is the claim that if there is a good reason to teach subjects like literature, history, natural sciences, and mathematics, then these subjects serve worthwhile aims. B_4 says that our understanding of aims, having to do with, say, equality, democracy, and critical thinking, has been gained by learning subjects such as literature, history, natural sciences, and mathematics.) Once we distinguish between aims that are caused by the means and aims that are exemplified or realised by the means, we see it as a possibility at least that some worthwhile aims required by A_4 are not causally brought about by studying subjects like literature, history, natural sciences, and mathematics. Some of them may be constituted by thinking and working within such subject areas, and therefore the subjects are not necessarily justified by the aims that exist independently of them.

3.2. The dominant view and the five distinctions

Discussing the means-end model of education, Peters (1973a) described it as misleading. He conceded, however, that it is hard to resist its allure:

> Given that 'education' implies, first some commendable state of mind and, secondly, some experience that is thought to lead up to or to contribute to it, and given also that people are usually deliberately put in the way of such experiences, it is only too easy to think of the whole business in terms of models like that of building a bridge or going on a journey. The commendable state of mind is thought of as an end to be aimed at, and the experiences which lead up to it are regarded as means to its attainment. For this model of adopting means to premeditated ends is one that haunts all our thinking about the promotion of what is valuable. In the educational sphere we therefore tend to look round for the equivalent of bridges to be built or ports to be steered to. (Peters, 1973a, p. 123)

This model, that Peters says haunts our thinking, invites us to conceive of educational aims as tied to the left column in the following, Table 2, where I enumerate the five distinctions I have made. In other words, it invites us to conceive of the aims of education as states of affairs that: are specified antecedent to and independently of the choice of means to reach them (distinction 5), can be fully realised (distinction 4), are part of a hierarchy with overarching aims at the top (distinction 3), and are causally brought about (distinction 1) by extrinsic (or logically independent) means (distinction 2). This conception of aims, which focuses exclusively on the types in the left column, I call *technocratic rationalism*. Sometimes the terms 'instrumentalism' and 'instrumental rationality' are used to refer to this and similar conceptions. The US psychologist Blaine J. Fowers (2010), for instance, describes instrumentalism as a one-sided emphasis on means that are independent of the end.

Table 2: Five distinctions between different types of aims	**Left column**		**Right column**
Distinction 1:	Causation	versus	Subsumption
Distinction 2:	Extrinsic	versus	Intrinsic
Distinction 3:	Independent of context	versus	Dependent on context
Distinction 4:	Objectives	versus	Ideals
Distinction 5:	Principles of design	versus	Principles of reform

Part of the reason why the dominant view, described in section 2.1, is simultaneously hard to evaluate and hard to resist is that it is sometimes presented as *technocratic rationalism* and sometimes as accommodating aims of the types listed in the right column. If we allow aims from both columns of Table 2, then all worthwhile activities, school education included, serve aims, because any reason for action can be stated as an aim of some type. It is therefore trivially true that a course of education that is good or worthwhile in some way serves aims, namely, whatever goodness or worth it either has or leads to. Advocates of technocratic rationalism, who do not state their views very precisely, can therefore sometimes defend their stance by retreating from specific types of aims to more general statements that are vacuously true.

The core tenets of the dominant view (listed in section 2.1) leave it open, for instance, whether the aims are conceived of in terms of causation or of subsumption (distinction 1). If a valuable activity does not cause or bring about anything of value, it can be constitutive of its own end, even some nebulous end like, say, self-realization or human flourishing under which almost any worthwhile endeavour can be subsumed. Even if, as Kliebard (2009, p. 140) has suggested, the only aim of education is to become educated, education has an aim. It is no less a platitude that aims inside the context of school subjects (distinction 3) shape the practice of teaching. As a teacher of mathematics, I may, for instance, teach students how to inscribe a circle in a triangle and explain to them some of the properties of such circles to make them able to understand a proof of Heron’s theorem. Listing aims valid within the context of geometry, however, is not a way to answer questions about the aims of teaching and learning geometry. If a student, who is expected to learn how to inscribe a circle in a triangle, asks why he is to learn this, I may answer that it has to be learned in order to understand how Heron proved his theorem. I might also answer that it is because practising mathematics is a good preparation for the study of engineering. The first answer presupposes that the student is not questioning the value of learning geometry and is therefore satisfied with an aim inside the context of that subject. The second one attempts to justify the subject.

These two examples of how we can go between the different options in distinctions 1 and 3 make it plausible that we can describe almost any sensible curriculum as aims-based in some sense. Therefore, the core tenets of the dominant view, listed in section 2.1, may perhaps be interpreted as trivially true. There are, however, weighty reasons to interpret the tradition originated by Bobbitt and Tyler as leaning towards the left column of the table above, i.e. towards technocratic rationalism. Among these reasons are:

a) Tyler (1949, p. 43) and Taba (1962, p. 196) both insisted that the basic aims of education should be few in number. They therefore excluded large numbers of aims within individual subjects that do not serve more overarching aims, and that involves thinking of aims as forming hierarchies, and, hence, as independent of specific contexts (distinction 3).

b) Bobbitt (1918/1972, p. 42), Tyler (1949, pp. 3–62), and Taba (1962, pp. 194–201) all wrote as if educational aims were either freely chosen or discovered through empirical research, so they seem to have leaned towards extrinsic, rather than intrinsic, aims (distinction 2).

c) They also conceived of aims in terms of students' behaviour (Bobbitt, 1918/1972, pp. 41–42; Tyler, 1949, p. 6; Taba, 1962, p. 20) as did Bloom (1956, p. 12), and, thus, they all four seem to have been more concerned with objectives that can be reached, than with ideals that guide practice without being attained (distinction 4). Taba was, however, ambivalent on this as she also wrote about developmental aims 'representing roads to travel rather than terminal points' (Taba, 1962, p. 203).

d) Bobbitt thought school curricula should be designed anew (Bobbitt, 1918/1972, p. iii), and Tyler likewise sometimes wrote as if it were feasible to begin with the slate wiped clean, although he also wrote at times as if aims were principles of reform (Tyler, 1949, p. 3). Taba (1962, pp. 9, 290) seems to have thought of educational aims as principles of reform rather than of design (distinction 5).

The representatives of the dominant view thus seem to accommodate both sides of distinction 5, but lean towards the left side of distinctions 2, 3, and 4. It is hard to tell what stance they took to distinction number 1. The tradition that has its roots in their work seems, however, to conceive of aims in terms of causation rather than subsumption, although this is not always very explicit. In a recent paper, authors, J. Felix Lozano, Alejandra Boni, Jordi Peris, and Andrés Hueso (2012) analyse the notion of competence, which is the key element of the so-called Bologna Process. They argue that, in this most recent manifestation of the dominant view on curriculum design, the emphasis is on schooling as instrumental to ends that are external to the process of education (Lozano et al., 2012, pp. 138–139). In their view, this emphasis is opposed to the humanistic, Aristotelian, tradition advocated by Martha Nussbaum (1997), where the emphasis is on intrinsic values enshrined in the very process of education (Lozano et al., 2012, pp. 139–140). Another recent manifestation of the dominant view, namely the national curriculum guide for secondary schools published by the Icelandic Ministry of Education, Science, and Culture in 2011, also emphasises general aims that are causally brought about by schooling, although it also accommodates aims that are partially constituted by school practice (Harðarson, 2012b).

From what I have said so far about these five distinctions, there are reasons to believe that if we allow all combinations of the possibilities listed in Table 2, it is trivially true that organised school education can be described as serving aims of some sort. I have also argued that the dominant view, held by the curriculum theorists who Reid (2006) calls *systematisers*, focuses mainly on the types of aims listed in the left column of Table 2 and thus leans towards technocratic rationalism. There are, however, reasons to doubt that technocratic rationalism is the right way to think about educational aims. Some educational aims clearly belong to types listed in the right column, that is, some of them are:

1. Not changes in students, which we can specify in advance and then causally bring about by administering educational experiences.
2. Neither discovered empirically nor freely chosen.
3. Valid within a context (or subject) without providing any justification for the context (or subject) or serving any aims that exist independently of it.
4. Ideals that cannot be attained, reached, or completed.
5. Selected to be, in large part at least, compatible with the existing curriculum. When this is the case, the curriculum is not derived from the aims but vice versa.

I tried to make the analysis of the concept of aims in section 3.1 true to ordinary usage, and I have not proposed to change the way the term is used. It may therefore be doubted whether my analysis amounts to a critical conceptual revision in the full sense (explained in section 1.3). I do think, however, that realising quite how multifarious aims can be will change the way we think about the aims of education. Being mindful of all these possibilities is one way to resist the allure of the bridge-building model criticised by Peters (1973a, p. 123) in the quotation above. In the following chapters, I hope to show that my analysis amounts to a partial definition that is both pragmatically well chosen and of good use in elucidating important aspects of the concept of *aims* in curriculum discourse.

4. Reactive learners and liberal education

In this chapter, I use the first four of the five distinctions I made in section 3.1 to criticise the dominant view outlined in section 2.1. I draw upon the work of Lawrence Stenhouse, the English educationist. Section 4.1 is a review his work. In section 4.2, I explain one of the reasons why education needs academic subjects, or similarly rich intellectual traditions, and argue that if the teachers instruct or school their students in such disciplines, the possibilities of organising school practice to reach learner-centred objectives is limited both by the nature of the subjects and by the autonomy of the students. In the last part, section 4.3, I pose the question whether education can be made completely aims-based by understanding 'aims-based' as accommodating all sorts of aims, i.e. aims from both columns of Table 2.1. My answer to this question and the arguments for it provide reasons to doubt that the benefits of education can all be pre-specified in detail.

4.1. Stenhouse's critique

When organised school education is described as aims-based, it is commonly assumed that the aims can be reached by letting teachers influence their students in some way. It is, however, obvious that the aims students work towards may differ from the aims set by those who run the schools. A totalitarian government may, for instance, decide to let schools teach English as a second language in order to enable students to read scientific and technical literature. An individual student may, however, decide to master the English language in order to read books banned by that very same government. Likewise, a religious school may emphasise sacred texts in order to promote orthodoxy. Close reading of such texts, however, may make believers out of some and sceptics out of others. When teachers try to brainwash them, rather than educate them, students' resistance to control is easy to justify. Sidestepping learner-centred objectives set by school authorities can also be justified, even though they and the teachers are doing honest work and offering intellectually respectable instruction. My arguments in support of this draw upon writings by several English thinkers, especially Stenhouse (1967, 1970, 1975, 1983), but also Oakeshott (1989), Peters (1966, 1973a, 1973b, 1974, 1981), Barrow (1984, 2010), and Kelly (2009). Of these thinkers, Stenhouse is the most important one for my purposes and therefore a brief review of his work follows.

A large part of Stenhouse's writings on curriculum theory can be read as an attack on the dominant view, which he called *the objectives model*. In a paper, originally printed in 1964 and reprinted in a posthumously published collection of essays, Stenhouse (1983, pp. 47–54) proposed using standards, instead of objectives, as guides to disciplined educational practice. In this paper, he supported Peters' (1973a, pp. 122–131) view that the model of means to ends is not generally applicable to education, and argued that Peters' philosophical objections to conceptions of education as aims-based were confirmed by practical experience. One of the points he mentioned in support of this was that detailed objectives 'tend to bind the future and to set limits to the possibilities of the developing situation' (Stenhouse, 1983, p. 48).

In his book, *Culture and Education*, published in 1967, Stenhouse continued his work on the concept of standards. He described education as essentially open-ended, and argued that education should serve the individual by increasing his freedom to create and develop ideas. In this work, Stenhouse was critical of attempts to define the aims of education in terms of behaviour. He advocated a progressive model of teaching where the teacher does not profess to know what children's work ought to be like, any more than the good critic can say what a picture ought to be like before the artist has painted it. 'But he responds to the work with a feeling for quality and this is the source of his standards' (Stenhouse, 1967, p. 76).

In a paper, published three years later, Stenhouse (1970) formulated new and, in my view, more powerful arguments for conceiving of education as essentially open-ended and against the prevailing objectives model. The examples he focused on were from the humanities. Discussing the teaching of a literary work, taking Hamlet as an example, he said:

> To use the play as a vehicle for teaching skills is to imply – and students rather readily pick up the implication – that the skills and vocabulary and so forth are the important matter rather than the play. We know from bitter experience how easy it is to reduce Shakespeare to the status of an exercise. All too often, unless the specification of objectives is more detailed and sophisticated than anyone seems able to make it, the result of Hirst's recipe, 'the planning of content and methods to achieve the objectives', is the use of methods to distort content in order to meet objectives. (Stenhouse, 1970, p. 76)

In this paper he contrasted his own model, based on the concept of standards, to the objectives model and argued both against Tyler's contention that education should be organised to mould students' behaviour and his conception of objectives-based curricula:

> Let us accept that education is concerned with disciplined activity in some broad sense. Then we may distinguish two forms of disciplined action, action disciplined by preconceived goals and action disciplined by form or by principles of procedure. Thus, to set out to learn eight guitar chords is to embark on a course of action disciplined by the consciousness of a specific goal. On the other hand, to write a sonnet is to hammer out a part-formed intention in the framework of a form. And to embark on a philosophical argument is to work in the light of principles of procedure rather than of a preconceived goal. […]
>
> This is really to say that if you define the content of a philosophy course, define what constitutes a philosophically acceptable teaching procedure and articulate standards by which students' work is to be judged, you may be planning rationally without using objectives. […]
>
> I am arguing then that one of the main functional advantages of the disciplines of knowledge and of the arts is to allow us to specify content, rather than objectives, in curriculum, […] Disciplines allow us to specify input rather than output in the educational process. This is fairer to the needs of the individual students because, relative to objectives, disciplined content is liberating to the individual. (Stenhouse, 1970, pp. 76–77)

In the works mentioned so far, Stenhouse explained how the objectives model distorted the practice of teaching and learning, and put forth an alternative account of how school education could be a disciplined and rational enterprise. He presented his sharpest arguments against the objectives model, however, in his last major work, *An Introduction to Curriculum Research and Development*, published in 1975. In this work, he criticised the objectives model as a speculative large-scale theory (Stenhouse, 1975, p. 71) that was used by academics in education as a stick to beat teachers rather than to help them improve their teaching:

> 'What are your objectives?' is more often asked in a tone of challenge than one of interested and helpful inquiry. The demand for objectives is a demand for justification rather than simply description of ends. As such it is part of a political dialogue rather than an educational one. It is not about curriculum design, but rather an expression of irritation in the face of the problem of

> accountability in education. I believe that politicians will have to face the fact that there is no easy way to accountability via objectives. (Stenhouse, 1975, p. 77)

Having argued that the objectives model was punitive rather than hortatory, Stenhouse went on to show that there were aspects of education that this model could not accommodate. The gist of his argument (Stenhouse, 1975, pp. 80–83) was as follows: Education comprises at least four different processes: training, instruction, initiation, and induction. The objectives model gives a reasonably good fit in the cases of training and instruction. He did not say much about initiation (or the socialization that goes on in schools and is largely a part of what Jackson (1968) called *the hidden curriculum*) and did not exclude that it might be covered by the objectives model. The great problem in applying the objectives model, according to Stenhouse (1975, p. 81), lies in the area of induction into knowledge. He explained this problem as follows:

> Education enhances the freedom of man by inducting him into the knowledge of his culture as a thinking system. The most important characteristic of the knowledge mode is that one can think with it. This is the nature of knowledge – as distinct from information – that it is a structure to sustain creative thought and provide frameworks for judgement.
>
> Education as induction into knowledge is successful to the extent that it makes the behavioural outcomes of the students unpredictable.
>
> Consider the marking of history essays. The examination marker has a large number which he must monitor.
>
> As he reads them he often becomes aware that there is a depressing similarity about them. […] From the pile of essays a few leap out at the marker as original, surprising, showing evidence of individual thinking. These, the unpredictable, are the successes. (Stenhouse, 1975, p. 82)

In what follows these remarks, Stenhouse (1975, pp. 84–97) elaborates the standards-based model of the disciplined practice of education outlined in a previous work (Stenhouse, 1970). Now he calls it ‘a process model’ and his arguments in support of it are largely based on philosophical foundations laid by Peters (1966). He describes the main idea behind the process model by referring to Peters’ contention that worthwhile activities have their built-in standards and ’can be appraised because of the standards immanent in them rather than because of what they lead on to’ (Stenhouse, 1975, p. 84).

In one of his last writings, Stenhouse commented on his own reactions to the objectives model:

> The idea of aims had been translated by American psychometricians and curriculum developers into the behavioural objectives model. This conjoined the propositions that education is an intentional activity and that intentionality involves having a specific goal, with the behaviourist definition of learning as change in behaviour. It thus demanded that the aims of education be analysed into intended learning outcomes which should be conceived as student behaviours capable of being tested. It was not just the crudity of this formulation that repelled me: it was its powerful support of the sort of social determinism through education I had tried to fight first in practice in the classroom and subsequently in my theoretical work. In my own thinking,

> ‘standards’, located in the culture as social norms of quality and quantity of school work, took the place of objectives as underpinning the assessment of the outcomes and the process of education. (Stenhouse, 1983, p. 5)

As is apparent from the above review, Stenhouse argued against all the core tenets of the dominant view listed in section 2.1.

4.2. Autonomous students and the holy ground

Stenhouse pointed out that teaching bears fruit when students surprise their teachers, and that ‘induction into knowledge is successful to the extent that it makes the behavioural outcomes of the students unpredictable’ (Stenhouse, 1975, p. 82). Obviously, we cannot both want students to surprise their teachers and want the teachers to specify in detail how the students are to behave. Stenhouse may have got this insight from Peters’ remark that ‘the final reward of a teacher, the emergence of a pupil who has developed enough skill and judgement to correct him, is not something that can be consciously contrived’ (Peters, 1966, p. 60).

One implication of Stenhouse’s and Peters’ insight is that the aims of education cannot all be defined as behavioural objectives. This can be read as an argument to the effect that at least some educational aims are open-ended, i.e. ideals rather than objectives (in the sense defined in the discussion about distinction number 4 in section 3.1). A corollary of this insight is that subjects have a life of their own that is only partially understood by the teacher. Peters made some deep and interesting remarks about the autonomy of the inter-subjective content of education in the second chapter of his *Ethics and Education*, entitled ‘Education as initiation’ (Peters, 1966, pp. 46–62). There Peters described subject areas as forms or modes of thought, and said that ‘for all who get on the inside of such a form of thought and who make it, to a certain extent their own, the contours of the public world are to that extent transformed’ (Peters, 1966, p. 51). — This conception of education as initiation into a mode of thought, and the understandings that go with it, was later defended at length by Oakeshott in his paper, ’A place of learning’, originally published in 1975 (Oakeshott, 1989, pp. 17–42). — Peters subsequently (1966, pp. 51–52) described two inadequate models of education that he called the *moulding model* and *the child-centred model*. The former assumes that content is implanted in the child’s mind, and the latter that the child should be encouraged to grow according to its own laws of development. These two models share a common defect according to Peters:

> What these models both lack is a sense of what D. H. Lawrence called ‘the holy ground’ that stands between teacher and taught. To conceive of ‘education’ as imposing a pattern on another person or as fixing the environment so that an individual ‘grows’ fails to do justice to the shared impersonality both of the content that is handed on and of the criteria by reference to which it is criticized and developed. (Peters, 1966, p. 52)

The reference is to D. H. Lawrence’s novel *The Rainbow,* published in 1915, where Ursula, later to become a school teacher, enters college and finds herself on ‘holy ground’ in spite of the harshness and vulgarity of the physical surroundings (Lawrence, 2011).

In a thorough analysis of Peters' account of education as initiation into modes of thought, Kelvin Stewart Beckett (2011), an educationist and philosopher of education working in the USA, pointed out that, granted that the modes of thought exist independently of individual teachers, we must think of teachers and students as fellow travellers where the students are active participants, rather than passive recipients. 'Finally, Peters made clear that as part of their initiation students should be encouraged to challenge the knowledge they receive from their teachers' (Beckett, 2011, p. 245). Andrea English, a philosopher of education working in Canada, has reached a similar conclusion. She has pointed out that the transformation of the learner cannot be predicted by the teacher because the world the student is led into is only partially known to the teacher, and the learner learns to engage with this world 'in ways different than that of the teacher' (English, 2010, p. 85). What effects teaching has on the learner can therefore not be predicted with certainty, and moreover, if the teacher uses some of the unforeseen opportunities that arise because of how students understand (and misunderstand) in their idiosyncratic ways, what the teacher tries to accomplish cannot be precisely stated in advance:

> Within this interaction the learner is guiding the process insofar as it is the learner's perplexities, confusion, frustration that bring the teacher to question whether his plan for teaching still makes sense to follow, or whether he must change, modify or enhance his idea to meet the demand of the other. (English, 2010, p. 91)

This does not exclude ideals (in the sense given by distinction 4 in section 3.1) as guides, but it excludes complete organisation based on objectives stated precisely and in detail.

Stenhouse's conclusion that successful education enables students to surprise their teachers is based on the premise that when a teacher has guided a student into a subject, a mode of thought, or an intellectual tradition, the student can discover something or come up with something of value that is unknown to the teacher. Stenhouse was concerned about the values inherent in school subjects, values that are there, although they are but dimly realised and faintly understood. In accordance with this, he warned against reducing content in education to an instrumental role. He saw such reduction as a serious weakness of the objectives model (Stenhouse, 1970). Stenhouse's favourite examples came from the humanities, and as the quotations in section 4.1 make clear, he warned against teaching a literary work, like Hamlet, merely to reach objectives. He seems to have thought that if we teach Hamlet, we should allow the work to speak to the students even though it tells them something we, the teachers, may never have thought of. We need humility before the subject. There is more to it than we realise, and a good pedagogue leads his or her pupils into territories where only some of the paths and some of the places are known to him or her.

Ό βίος βραχύς, η δε τέχνη μακρή is a saying attributed to Hippocrates who taught medicine on the island of Kos around 400 B.C. The Romans translated this as *vita brevis, ars longa*. Literally, this means that life is short but art is long, and it reminds us that in the world of a discipline, a subject, or a mode of understanding, one human individual is small. This awareness has accompanied the tradition of humanistic or liberal education since ancient times. Stenhouse identified with this tradition and was mindful that the subjects he taught might hide more treasures than he knew.

On the conception of education advocated by Oakeshott, Peters, and Stenhouse, the benefits of education cannot be described in advance by listing learner-centred objectives. If teachers initiate students – lead them into the world of academic disciplines or modes of understanding – students and teachers become fellow travellers through a territory that is only partially known to the teachers. Both are autonomous searchers for truth. The outcome of such searching cannot be specified in advance because the subjects offer ample room for creativity, discovery, and new ways to understand that no teacher can foresee in detail. Therefore, education that leads students into rich intellectual traditions cannot be all about reaching learner-centred objectives. Hence, insisting that teaching be organised to reach such objectives is like asking students to traverse uncharted territories and still insisting that they only go to places teachers have pointed out on a map. From the point of view of those who insist on aims that are stated as objectives rather than as ideals, this same argument shows that if we do not want schools to do anything but reach learner-centred objectives, we should focus on something other than rich intellectual traditions like those supported by academic school subjects. This may be one of the deep reasons why so-called school reform was, throughout the last century as Kliebard (1987, pp. 27–29, 269) observed, often sceptical of, or even hostile to, academic subjects.

Among those who have perceived ‘school reform’ influenced by the dominant model of curriculum design as a threat to liberal education, we can count thinkers as diverse as the Italian communist Antonio Gramsci (1971), who wrote about education in his prison notebooks between 1929 and 1935, and C. S. Lewis (1946), who was a novelist and Christian apologist (known for his *Chronicles of Narnia*). Oakeshott (1989), who wrote about political and educational philosophy from an Hegelian perspective, shared their apprehensions.

Gramsci opposed educational theory that belittles the importance of school subjects or objective knowledge, ‘thus making the learner the prisoner of the present and, if the political present is a tyranny, leaving him without cognitive resources to question the propaganda that what exists is the best of all possible worlds' (Entwistle, 1979, p. 83). Lewis also saw learner-centred objectives as tyrannical and opposed to older ideals that conceived of education as liberating for the students:

> Where the old initiated, the new merely 'conditions'. The old dealt with its pupils as grown birds deal with young birds when they teach them to fly: the new deals with them more as the poultry-keeper deals with young birds – making them thus or thus for purposes of which the birds know nothing. In a word, the old was a kind of propagation – men transmitting manhood to men: the new is merely propaganda. (Lewis, 1946, pp. 19–20)

In the same vein, Oakeshott wrote about the design to substitute socialization for education and said that it had 'gone far enough to be recognized as the most momentous occurrence of this century, the greatest of the adversities to have overtaken our culture, the beginning of a dark age devoted to barbaric affluence' (Oakeshott, 1989, p. 90). Similar worries are still around. The Irish educationist Pádraig Hogan (2003), argues, for example, that teaching as a human practice is receding or being nudged aside. Commenting on the development of school education in Europe, he sees the absence of a cultural emphasis as particularly striking in the official literature on 'the learning society', such as the white paper of the European Commission (1996) entitled 'Teaching and learning: Towards the learning society'.

Gramsci, Lewis, and Oakeshott all expressed apprehensions or worries that schools are increasingly focusing on something other than education. According to these thinkers, schooling that does not initiate students into rich intellectual traditions, where they think for themselves and come to their own conclusions, is not real education. Peters probably had a similar view. In *Reason and Compassion* he asked how to develop a concern for truth, a concern which lies behind both authenticity and any kind of reasoning (Peters, 1973b, p. 52). The answer he gave was:

> It is only when curiosity is supported by and encased in a social tradition, such as that of science, which insists that truth matters, that a form of motivation emerges that is capable of supporting the ideal of autonomy. […] In a similar way the generalized desire for mastery passes into more precise forms of getting things right. In brief, although there may be some kind of 'natural' spark for the passions which lies at the heart of reason, they are fanned into a steady flame by the various disciplines into which reason has become differentiated. And these disciplines are social traditions into which children have laboriously to be initiated. (Peters, 1973b, p. 53)

Focusing exclusively on learner-centred objectives is antithetical to liberal education emphasising academic subjects. Does this force all defenders of technocratic rationalism or the dominant view on curriculum design, to change their minds? Can they not argue that, given the needs of modern societies, it is more important to socialize people or train them in specific skills than to foster autonomy or familiarity with intellectual traditions? An argument to the effect that some particular theory of schooling cannot accommodate education does not refute the theory, at least not if its defenders can plausibly argue that the good it promotes is no less valuable than education.

Gramsci, Lewis, Oakeshott, Peters, and Stenhouse all argued that education is good because it is liberating. They saw it as making people free and autonomous. Elsewhere (Harðarson 2013a), I have argued that education is not only a precondition of autonomy but also of equality. If my argument is conclusive, and what the above-mentioned theorists said about education as conductive to freedom is true, then those who want to redesign schooling to meet learner-centred objectives have to show that what they want to accomplish is not only of more worth than academic learning, but also more precious than freedom and equality.

This concludes my argument for including rich intellectual traditions, such as academic subjects – subjects that do not fit into the objectives model that I have described as the dominant view on curriculum design – into school curricula.

So far, I have argued that education cannot be exclusively about attaining aims of the types listed in the left column in lines 1, 2, 3, and 4 of Table 2 in section 3.2. I have shown that it follows from the concept of education that education involves initiation into rich intellectual traditions. Once we begin to teach and learn within such traditions, we serve aims that are only valid and only comprehensible within them, and some of these aims will be ideals rather than objectives. I have not said as much about the first distinction as the next three. It seems obvious to me, however, that learning not only contributes causally to a good life but is partially constitutive of worthwhile human existence. One aspect of this has been illuminated by Carr (1999, 2000). He has argued that teachers' professionalism consists mainly in their commitment to the promotion of an ethical ideal, and their personal touch is 'not just instrumental to achieving certain ends, but more or less *constitutive* of them' (Carr, 2000, p. 229). Therefore, school education will not fit into a model where means are exclusively seen as causally related to ends or purposes.

This leaves out the fifth and last distinction, which I will discuss in Chapter 5. In what remains of this fourth chapter, I question whether any list of aims can exhaust the purposes of education. Can we make education completely aims-based by understanding 'aims-based' as accommodating all sorts of aims?

4.3. Education as search for values and the process model

In moral philosophy, various types of consequentialism assume that morality is about producing the best overall consequences. Moral consequentialism is problematic for various reasons, but here I will only mention one of them. This problem is that we have to adopt rules of conduct in spite of limited knowledge and lack of agreement about what is truly good, what consequences are best, and how to order and evaluate different goods when they conflict. The goods we care about, such as freedom and equality, economic prosperity, and unspoiled environment, are not always compatible and some of us care about ways of life, such as, say, participation in organised religion, national solidarity, or cultural traditions, which others see as worthless or even harmful. If we do not always know how to rank the consequences of our actions, then we must, sometimes at least, guide our actions by some other principle than evaluation of the consequences.

Perhaps a consequentialist, who admits that the good to be sought is only partially known, ought to accept rules of conduct that facilitate the discovery of what is good, in addition to rules that promote what is already known to be good. Perhaps she should also accept moral rules that minimise conflicts and enable people to live peacefully together in spite of different opinions about what values are most important. Such rules would be like the precepts of deontological ethics in that they would not be justified by appeal to a conception of happiness, felicity, eudaimonia, or a condition we want to attain. The justification would be, rather, that they allow people to experiment with different systems of values and thus progress towards a better understanding of what is truly good. Perhaps such rules could also be justified as the only known way to lead a tolerable existence and thus, from a consequentialist point of view, the best option open to us, given our lack of knowledge about what would maximise happiness. I leave it open whether a solution along these lines should be classified as deontological or as a version of rule-consequentialism. What matters here is that if we are moderately sceptical, and admit that our axiological knowledge is limited, then we should be content either with mitigated consequentialism or with some form of deontology.

Conceptions of education as aims-based, in the sense that it should primarily bring about or contribute causally to some goods that have been specified as educational aims, are analogous to moral consequentialism and problematic for similar reasons. These views rest on the premise that we know what outcomes are most desirable. Education has a special relation to its own aims because one needs education in order to apprehend the value of education, and those who understand what a course of education is good for are likely to transcend it, that is, to find better aims than those that their educators set for them in advance. Education is thus a reflexive enterprise in search of its own value, as I have argued in more detail elsewhere (Harðarson, 2012a).

A society does not only transmit its values through a curriculum. It also searches for values through a curriculum. If we focus on the transmission, we can think of education as aims-based. If we focus on the search, we must think of it as open-ended. This was realised by Peters and Stenhouse in the 1960s and 1970s, and they both queried how to discipline and organise education by something other than preconceived goals (Stenhouse, 1970, 1975, pp. 84–85; Peters, 1973, pp. 122–131). Their answer is known as the process model and has since been defended and refined by, e.g., Kelly (2009). In this model, principles of procedure play a role analogous to those of deontological rules of conduct in moral theory. (Although I use the word 'deontological', I still leave it open whether such rules can be justified by appeal to some sophisticated form of consequentialism.)

Peters proposed that some so-called general aims of education are really principles of procedure rather than ends to be reached. He used equality as an example and argued that, even though some educators would use schooling as a causal agent to iron out differences between people, a cautious liberal might serve equality without any concrete result or outcome in mind. 'He might insist, merely, that whatever social changes were introduced, no one should be treated differently from anyone else unless a good reason could be produced to justify such unequal treatment' (Peters, 1973a, p. 127). According to Peters, the former, who wants to use schooling to iron out differences, would be pursuing equality as a general aim, whereas the more cautious liberal 'would merely insist that whatever schemes were put forward must not be introduced in a way which would infringe his procedural principle' (Peters, 1973a, p. 127). Now, this proposal may be interpreted as advocacy of aims from the right hand column in the first line of Table 2, that is, aims that are (at least partially) constituted by the means. This seems to be White's (1982) interpretation. Criticising the process model, he readily granted that respect for rationality, benevolence, and tolerance are among the most important things that teachers teach. He also granted that these values might be said to be enshrined in the very manner in which they conduct their classes, pointing out, however, that emphasising principles of procedure 'takes it for granted that the teacher wants to instil in his pupils a respect for rationality, benevolence, or whatever. In so far as he does, this is what he is aiming at' (White 1982, p. 7).

White's criticism of the process model does not belittle the importance of procedural principles; what his conclusion amounts to is, rather, that emphasising such principles should, in some cases at least, be seen as a way of promoting worthy aims and not as an alternative to the means-ends model. This conclusion is hard to refute because, as I argued in section 3.2, if we allow all the types of aims in both columns, any reason for action can be stated as an aim of some sort. Imagine the most stringent type of deontological ethics, requiring obedience to rules of justice no matter what the consequences are. In a sense, these rules have an aim, namely justice, that is constituted, rather than caused, by observing them.

When Stenhouse (1975, p. 84) argued that teaching and school education can be disciplined by standards of excellence that are built into school subjects, he had no quarrel with these obvious truths, that is to say, he did not deny that they could be described as serving some sort of purpose. His target was instead the dominant view that insisted on pre-specified outcomes, and he wanted to leave space for students' individuality, creativity, and imagination, enabling them to find out themselves what ends were worthwhile, rather than pushing them towards pre-specified objectives. In this, Stenhouse was true to the spirit of liberal learning, to learning that is, as one prominent thinker who identifies with the outlook Reid calls deliberative put it: 'the opposite of indoctrination' (Null, 2011, p. 15). It seeks to develop the pupil's own judgement 'rather than impose or preach an Establishment view', to quote another educationist similarly oriented (Stephen, 2009, p. 1). This gives us reason to doubt that all the benefits of education can be pre-specified in detail. If, nevertheless, we insist that some aims be specified, we must be content with what Bobbitt called 'large, undefined purposes' (Bobbitt, 1918/1972, p. 41).

The answer to the question whether education can be completely aims-based, provided we accommodate all types of aims (from both columns of Table 2), is therefore: Maybe it can, if some of the aims are tentative and outlined in broad strokes rather than minute details. I said 'maybe' rather than 'yes' because once we face the fact that our understanding of educational aims is limited and evolving, we are bound to assume a dialectical relationship between educational aims and educational content. If some subjects, such as the humanities that Stenhouse was concerned with, are especially apt to help students find out for themselves what is worth learning, emphasising them should, perhaps, not be viewed simply as means to previously defined ends.

5. Recalcitrant realities and visions of control

In this final chapter, I apply the fifth distinction from section 3.1, i.e. the distinctions between aims as principles of design and aims as principles of reform, and argue that it is not realistic to think of general educational aims as principles of design that can be used to engineer entire school curricula.

In section 5.1, I clarify the distinction and connect it to a distinction between top-down and bottom-up methodologies that is familiar from engineering and computer science. In what follows, in section 5.2, I draw upon Joseph Schwab's criticisms of the dominant model and argue that it is not possible to derive a whole curriculum from statements about what we want schools to accomplish. Finally, in section 5.3, I show that this conclusion is supported by historical and empirical research.

5.1. Top-down design

The fifth distinction I made in section 3.1 was between aims as principles of design and aims as principles of reform. Thinking of aims as plans or guidelines for recreating schools, or designing a whole curriculum *ab initio,* is rooted in rationalism and has its parallels in modern conceptions of top-down design or top-down engineering. The basic idea behind this methodology is that design should begin with a clear statement of what is to be accomplished and progress downwards to details of implementation. Suppose, for instance, that our aim is to make a chocolate cake. We can break that down into two sub-tasks, or subordinate aims, such as baking the cake and making the topping. On the next level below, we break the former sub-aim down into mixing the dough and heating the oven. Down at the bottom of this hierarchy we have details like breaking the eggs.

One of the strengths of this methodology is that those who work on the topmost levels do not need to know how to accomplish all the sub-tasks. If a procedure or a sub-task, can be specified in terms of what it should accomplish, those who set the top-level aims can treat it as a *black box*, i.e. they do not have to worry about what is inside it or how it is composed. We can, for instance, progress downwards from the aims of making a cake to sub-tasks such as mixing the dough and making the topping without knowing exactly how to mix the dough. We can leave that to others and treat the dough-making and topping-making departments as *black boxes*.

In a book published in 1997, White described curriculum design in terms reminiscent of top-down engineering. School improvement schemes should, said he, start with ensuring that the aims which ‘are to power everything else’ are soundly based. Then the next stage is ‘to see what follows from these aims about sub-aims which are their necessary conditions.’ After the sub-aims have been identified, experts in various fields are called on to figure out the details of implementation (White, 1997, pp. 52–54). White has a long row of predecessors who have advocated radical reorganization of schools with varying degrees of revolutionary zeal. Since the early decades of the 20th century, innumerable attempts have been made at thoroughgoing redesign of school education – most of them driven by high hopes and confidence in technical solutions.

If a methodology along these lines is realistic, then policy makers and administrators at the top of the hierarchy can specify or describe the outcomes of schooling, its effects, without worrying about the details of implementation. They leave that to experts in various fields who then tell school heads and teachers what to do. But is this feasible? Can we derive a curriculum from aims in this way? Some things cannot be engineered or designed top-down. Suppose, for instance, we had no language. Our inability to communicate would be a problem, a huge one. Could we plan a solution by stating our aim and then its sub-tasks and finally the details of implementation? The topmost aim would be *to communicate all possible thoughts*. Among the sub-tasks would be the invention of *grammar rules and words for everything there is*. This is impossible, and obviously so. We cannot even conceive of grammar rules without knowing a language. Some things can, however, be done this way. We can, for instance, bridge a river by first figuring out what we need to do and then procuring planks and other building materials that fit our design. Is a curriculum (or an education) like a language, something we must already have in the fullest sense before we can even begin to describe it, or is it more like a bridge that we can design before we set out to build it?

The opposite of top-down design is bottom-up design, which begins with what we have. I used chocolate cake as an example to explain what top-down design is like. A similar example can also explain bottom-up design. Suppose all shops are closed and I want to make something to eat. I find three eggs and some soft cheese and yogurt in the refrigerator, one banana, some honey, vegetable oil, and flour in the larder, and I ask myself what I can do with what I have. In this case, I do not begin with a detailed specification of the outcome, but with ingredients that would be mentioned close to the bottom of the hierarchy in a top-down model of cooking or baking. When using a bottom-up strategy, specification of the outcome comes last.

Top-down design *begins with a clear and detailed statement of what we want* and proceeds to specify what we need in order to get what we want. Bottom-up design *begins with realizing what we have* and proceeds to figuring out how to use it, in order to satisfy some of the desires we have. In short, those who work from top down ask how to get what they want, but those who work from bottom up ask how to make use of what they have. Using bottom-up methods does not exclude working towards aims or having a purpose. In the example above, the purpose is clearly to make something to eat. Nevertheless, a bottom-up approach excludes beginning with an exact description of the outcome, so the aims that can be specified in advance are rather what Bobbitt called ‘large, undefined purposes’ (Bobbitt, 1918/1972, p. 41).

In real life, we often mix these two approaches. Suppose, for instance, I believe that, to make a decent cake, I need baking soda in addition to the ingredients listed above. If I call my neighbor and ask him to lend me some, I am using top-down thinking along with the bottom-up approach, because the need for a raising agent is derived from an idea of what I want to end up with, namely something with the texture and grain of a cake. Likewise, the design of the chocolate cake that was supposed to be an example of top-down engineering relies on a whole world of agriculture and culinary traditions that were not designed as aims subordinate to the aim of making a cake.

Top-down methodologies have some of their roots in Cartesian rationalism and the epistemological optimism of the Enlightenment. They tend to assume what the US philosopher Thomas Nagel (1986) called *the view from nowhere*, i.e. assumptions to the effect that we have access to some completely objective perspective where we can view our own life and social reality, so to say, from the outside. They also tend to support radical reform and centralised, systematic planning. A number of scholars who have argued against such methodologies have been mindful of what the German philosopher Hans-Georg Gadamer (1960) described as *Endlichkeit* (finitude). One example is the Irish philosopher of education, Joseph Dunne. In his book, *Back to the Rough Ground*, he argued that the extent to which reason can construct theories to which practice must accommodate itself is limited, because reason can only operate within a world of practice (Dunne, 1993). Similar points have been made by Hubert L. Dreyfus and Stuart E. Dreyfus (1990) who, in the context of philosophical speculations about artificial intelligence, have argued that top-down methodologies require a common sense background that cannot be explicated in terms of rules and therefore cannot be engineered top-down. Another argument for the same conclusion, but based on entirely different premises, has been elaborated by the anthropologist-cum-political scientist James C. Scott in a book about grand scale political planning of society. Like Dunne, and Dreyfus and Dreyfus, Scott maintains that the knowledge and top-down methodologies acknowledged by what he calls *high modernism* are always to some considerable degree parasitic on informal processes, without which no formal order could exist, and which it alone cannot create or maintain (Scott, 1998, p. 310):

> This homely insight has long been of great tactical value to generations of trade unionists who have used it as the basis of the work-to-rule strike. In a work-to-rule action (the French call it *grève du zèle*), employees begin doing their jobs by meticulously observing every one of the rules and regulations and performing only the duties stated in their job descriptions. The result, fully intended in this case, is that the work grinds to a halt, or at least to a snail's pace. (Scott, 1998, p. 310)

Similar thoughts about the need to build on what we have, and the limits of top-down methods, have been expressed in many ways. One of the most memorable ones is by the Austrian philosopher of science, sociologist, and political economist, Otto Neurath. Discussing reformulations of the scientific worldview, he said that we are like sailors who must rebuild the ship on the open sea. We cannot take it into dry-dock to reconstruct it there out of the best materials. In the German original this reads: 'Wie Schiffer sind wir, die ihr Schiff auf offener See umbauen müssen, ohne es jemals in einem Dock zerlegen und aus besten Bestandteilen neu errichten zu können' (Neurath, 1932, p. 206).

If some people really think school curricula can be designed anew or reorganised completely by deriving the details from general aims, then they must assume that the system of education can, so to speak, be taken into dry-dock. Moreover, they must assume that the aims or desired outcomes can be specified beforehand or, in other words, that we can know what we want before we have it. These assumptions, and several other aspects of technocratic rationalism in education, were examined in depth by Schwab in his writings on the practical. Before I review Schwab's arguments (in section 5.2), I will briefly mention some conclusions specialists in the history of education, such as Cuban (1992), Tyack and Cuban (1995), and Hamilton (1989, 1990), have drawn from their research. These authors have all reached similar conclusions, namely that school curricula have evolved slowly, over a long time, and attempts at recreation or large-scale reorganisation have met with great difficulties.

In a book published in 1995, *Tinkering toward Utopia - A Century of Public School Reform*, Tyack and Cuban reviewed research on school reform in the 20th century. One of the questions they posed was: 'Could the state mandate educational excellence by top-down regulations?' (Tyack & Cuban, 1995, p. 80) Their answer was that the history of school reform in the 20th century made it doubtful that technocratic and top-down approaches to school improvement could ever work as intended:

> Innovations never enter educational institutions with the previous slate wiped clean […] Rational planners may have plans for schools, and may blame practitioners if the plans are not properly implemented, but schools are not wax to be imprinted. (Tyack & Cuban, 1995, p. 83)

In an earlier publication, Cuban (1992) distinguished between the intended curriculum and what teachers actually teach, i.e. the taught curriculum. There he argued that while 'planned changes have occurred in the intended curriculum in districts and schools, there has been a remarkable durability in the taught curriculum' (Cuban, 1992, p. 216). He tried to explain why schools are hard to change by likening the historical curriculum to a coral: 'a mass of skeletons from millions of animals built up over time, that accumulates into reefs above and below the sea line, and gets battered and reshaped by that sea as it forms into islands. It is a presence that cannot be ignored either by ships or inhabitants' (Cuban, 1992, p. 223). This metaphor is a way of saying that in curriculum work we have to build on what we have, work from bottom-up. According to Cuban, numerous attempts at large scale school reform, engineered in a top-down fashion, follow a pattern that is so familiar as to almost qualify as a ritual (Cuban, 1992, p. 217) – a cycle of condemnation of traditional schooling, grandiose plans and great expectations, stories of astounding results, disappointing reassessments, 'experts pronounce the innovation a failure. Villains are sought' (Cuban, 1992, p. 220).

Other scholars working in the USA have come to similar conclusions as Tyack and Cuban, e.g. Sarason (1971) and Tye (2000). The same is true in Northern Europe where Hamilton (1989, pp. 153–154) has described ideals of planned education as unrealisable technocratic dreams and argued that:

> At root, technocratic thinking is driven by a vision of control and standardization. It succeeds, therefore, to the degree that it is able to create teacher-proof and learner-proof curricula, and to the degree that it can ignore the differences among schools and schoolrooms. But, in its denial of the goal-setting capacities of teachers and learners, and in its denial of variations among school settings, technocratic thinking is ultimately self-defeating. (Hamilton, 1989, pp. 153–154)

In a book published in 1990, Hamilton continued in the same vein and concluded that 'education and schooling are necessarily unstable and unpredictable' (Hamilton, 1990, p. xvi) and subject to influences beyond technocratic control.

Scholars more sympathetic to top-down engineering of school curricula, like Tyler (1949), typically admit that actual curricula have not been derived from aims or accurate descriptions of what schools are supposed to accomplish. White (1997, 2004a, 2004b, 2004c), for example, describes curriculum design as top-down engineering. Commenting on papers in a publication he edited, he concedes, however, that custom is tenacious and that the papers bear out that the present curriculum of English schools was essentially created in the 19th century (White, 2004c). The foundations for modern curricula were also laid a long time ago in other countries, e.g., in Denmark (Haue 2003, 2004) and in Iceland (Harðarson, 2011).

University preparatory curricula in Iceland is a typical example of the persistence of school traditions. It evolved as a compromise between two different schools of thought. One was an offspring of the enlightenment. The other had its roots in humanism and romanticism. For most of the 19th century, humanists-cum-romantics had the upper hand. But in the early 20th century, when the Latin school was replaced by the modern grammar school, the humanists gave in and the curriculum that was adopted was strikingly similar to the course of study recommended by Locke (1693/1989), who was the chief initiator of enlightenment thought. For more than a century, the Icelandic mother tongue, foreign languages, history, social studies, mathematics, natural sciences, and physical education have taken up over three-fourths of teaching time in those Icelandic secondary schools offering university preparatory education. The content taught remained relatively stable through the turmoil of the 20th century although the overarching aims listed in parliamentary acts and government regulations changed

(Harðarson, 2011).

The above-mentioned historical research gives reasons to suspect that top-down engineering of school curricula is not feasible. Scholars with different perspectives on educational studies have reached similar conclusion, e.g., Popkewitz, Tabachnick, and Wehlage (1982) who have argued that schemes for educational reform are transformed when they enter the domain of practice. Another example is Jackson, who describes the curriculum reform of the 1960s and 1970s, when experts from research universities and elsewhere were given the task of refashioning the curriculum of elementary and secondary schools, as being in the main disappointing, if not disastrous (Jackson, 2012, p. 43).

5.2. Schwab’s writings on the practical

The question whether educational aims are principles of design or principles of reform is a question about the extent to which curricula can be engineered in a top-down fashion. Can we derive a whole curriculum from a clear and detailed statement of what we want schools to accomplish? In a series of papers, published in 1970, 1971, and 1973, Schwab argued for a negative answer. These papers are entitled ‘The Practical: A Language for Curriculum’, ‘The Practical: Arts of Eclectic’, and ‘The Practical: Translation into Curriculum’. They are all reprinted (the second in a slightly different form) in Schwab (1978).

The first paper opened with a statement to the effect that the field of curriculum had become moribund because of unexamined reliance on direct application of theories, especially from the social sciences. In what followed, Schwab criticised the theoretical and abstract bent of curriculum theory and argued that curriculum work is inevitably practical rather than theoretical. In this first paper out of the three, Schwab explained at length the differences between theoretic and practical pursuits. The end of the theoretic is durable knowledge applicable to a large class of occurrences. On his account, the end of the practical is decision, which can be good or bad but neither true nor false. The subject matter of theory is something universal, but the practical deals with the concrete and particular and is susceptible to circumstance (Schwab, 1978, pp. 288–289). The method of the practical is neither deduction nor induction but rather deliberation (Schwab, 1978, pp. 291, 318).

The weaknesses of theories, Schwab said, arise from two sources: ‘the inevitable incompleteness of the subject matters of theories and the partiality of the view each takes of its already incomplete subject’ (Schwab, 1978, p. 296). Because of these weaknesses, the purposes served by schools cannot all be captured by abstract formulations and no theory can account for everything that matters. Therefore, no theoretical framework is adequate to the task of designing or engineering entire school curricula (Schwab, 1978, p. 313). The stuff of theory is, Schwab said, abstract or idealized representations of real things:

> But curriculum in action treats real things: real acts, real teachers, real children, things richer than and different from their theoretical representations. Curriculum will deal badly with its real things if it treats them merely as replicas of their theoretic representations. (Schwab, 1978, p. 310)

Schwab did not think of sociological and psychological theories, however, as useless for practical work on curriculum. He recommended what he called *polyfocal conspectus* (Schwab, 1978, p. 342 ff) i.e. the ability to use different theories to reveal different aspects of reality, rather than taking one of them to be the definitive truth or the last word (Schwab, 1978, p. 299).

Schwab's criticisms of theoretical approaches to curriculum design were aimed against the dominant view I outlined in section 2.1, and he cast doubts on all attempts to use top-down engineering to design and implement school curricula. Such methods require clear statements of what purposes the schools should serve, and enough knowledge to break those purposes down into sub-tasks and to implement each detail or furnish the black boxes with effective procedures to yield whatever outcome has been specified for them. The top-down model requires that we be able to say both what we want and how to get it. If Schwab was right, there is no theoretical framework available which enables us to do justice to all the purposes schools must serve. We have to find our way without a map of the territory as a whole.

Somewhat similar arguments against overemphasis on theories from the social sciences have been presented more recently by Carr (2000) in his work on teachers' professionalism. Carr defends an account of deliberation reminiscent of Schwab's and warns against simplistic reliance on grand theoretical schemes. Like Schwab, he does, however, point out that theoretical knowledge plays a role in practical deliberation. It is precisely because 'the professional is liable to encounter novel problems and dilemmas to which there are not established or cut-and-dried technical answers that he or she requires thorough acquaintance with the best which has been thought and said on such potential difficulties' (Carr, 2000, p. 24). In this work, Carr criticised the engineering approach to curriculum design as unethical, arguing that there are moral constraints on what means are acceptable and that curriculum work can therefore not be all about finding the most efficient means to achieve the aims. Now, moral constraints do not exclude an engineering approach. Methods of top-down design can be used although some procedures or means of implementation are excluded. If, however, the moral considerations are paramount, as Carr argued, then focusing mostly, or even exclusively, on aims and effective means to reach them gives a skewed view of school practice.

Schwab's arguments against basing curriculum work on sociological and psychological theories went hand in hand with his criticisms of educational aims as organising principles of school curricula. If each theory is an abstraction of one aspect of a multifarious reality, then those who attempt to reshape the whole to meet aims justified in terms of any one theory may be justly accused of 'monomania'. One group 'seeks to ground its objectives in social need and finds its social needs in just those facts about its culture which are sought and found under the aegis of a single conception of culture' (Schwab, 1978, p. 305). Another group focuses on theories of personality and still others on what is needed to live in the modern world or 'the skills required for success in a trade or vocation' (Schwab, 1978, p. 306). Having listed several groups of curriculum theorists, each with its tunnel vision of what schools are for, Schwab concluded:

> Three features of these typical efforts at curriculum making are significant here, each of which has its own lesson to teach us. First, each is grounded in a theory as such. […] Second, each is grounded in a theory from the social or behavioral sciences: psychology, psychiatry, politics, sociology, or history. […] Third, each theory concerns a *different* subject matter. […]
>
> The significance of this third feature is patent to the point of embarrassment: No curriculum, grounded in but one of these subjects, can possibly be adequate or defensible. […]
>
> It is clear, I submit, that a defensible curriculum or plan of curriculum must be one which somehow takes account of all these sub-subjects which pertain to man. It cannot take only one and ignore the others; it cannot even take account of many of them and ignore one. Each of them is not only one of the constituents and one of the conditions of decent human existence but each also interpenetrates some or all of the others. (Schwab, 1978, pp. 305–307)

Those who develop school curricula should, according to Schwab, take a number of theories into account, but avoid attempts to revolutionise schools by using any one theory or one grand scheme. Neither is there any 'foreseeable hope of a unified theory in the immediate or middle future, nor of a metatheory which will tell us how to put them together or order them in a fixed hierarchy of importance to the problems of curriculum' (Schwab, 1978, p. 308). The only viable alternative is, therefore, unsystematic and pragmatic deliberation.

Although theories may illuminate important aspects of social reality, Schwab doubted that any verbal formulations would ever capture everything that practical deliberation must be sensitive to. He explained his doubts in the last of the three papers, 'The Practical: Translation into Curriculum', where he described curriculum as a thick reality, and his account has much in common with Michael Walzer's (1994) description of morality as *thick* and embedded in social practices rather than as *thin* abstractions that can be captured by sharp and succinct verbal formulae. There is, according to Schwab, a whole world of culture behind school curricula and the values at stake cannot be captured by verbal or theoretical formulations. They are embedded in a social reality that gives meaning to statements about educational purposes, but only equivocally and imperfectly (Schwab, 1978, p. 370).

Schwab calls the thick realities that curriculum development must take into account commonplaces. He mentions four: subject matter, learners, milieus and teachers (Schwab, 1978, pp. 366–367) and says that they must be coordinated and that none of them should be subordinate to another (Schwab, 1978, p. 373). It follows from this that choice of subject matter cannot be subordinate to considerations having to do with children or society, and it is 'difficult to *select* from a subject matter those parts which are defensible in the curriculum because they serve the child, the teaching function, or the polity' (Schwab, 1978, p. 373). 'Amid the concerns of child-centered planning, we note the vital role of organised subject matter.

Amid concerns for subject matter, we note the vital role of the child's present and future' (Schwab, 1978, pp. 373–374).

Some of Schwab's warnings against making subject matter subordinate to aims or external objectives are reminiscent of Stenhouse's:

> The use of scholarly material as a resource for curriculum can be perverted, and its perversion is as pernicious educationally as deprival of it is. Perversion consists of warping the scholarly materials out of their character in order to force them to serve a curricular purpose which fascinates the planners. […] The perversion consists in degrading subject matter to the role of servant. (Schwab, 1978, p. 377)

Schwab's criticism of the dominant view is, basically, an argument against using aims as principles of design, i.e., against top-down design of school curricula. The deliberative tradition Schwab originated emphasises that schools serve many purposes, some of which are only dimly understood and no single theory can account for them all. In the spirit of this tradition, Reid, whom I introduced in section 2.2, recommends a bottom-up approach that begins with a realisation of what we have.

> Most of the time, reform proposals are put forward on the assumption that someone, somewhere, knows what to do, that the question of how to make a curriculum does not need to be addressed, and that discussion can be confined to the definition of desired states of affairs. A deliberative perspective takes a contrary position: the key to an effective curriculum for schooling is the question of *how* all the experience represented by teachers, students, subject matter, and the milieus can be brought together to yield a workable plan that solves problems faced by curriculum in both its institutional and its practical aspects. (Reid, 2006, p. 134)

A top-down model begins with a statement of purposes and makes everything else subservient to a precise definition of what is to be accomplished. Such a model is hard to apply if Schwab is right and the commonplaces need to interact on equal terms, each of them being a complex world, with no theoretical framework available that they all fit into.

5.3. Airborne abstractions and earthbound practice

From 1996 until 2008, the legislature in Iceland and the Ministry of Education attempted to standardise and regulate secondary education to a much greater extent than before. The Ministry published a national curriculum guide for upper secondary schools in 1999 (Ministry of Education, Science and Culture, 1999) that was based on the Act on Upper Secondary Schools of 1996. This curriculum guide had both a section on general, overarching aims, and detailed lists of aims for most school subjects. A new act on secondary schools was passed by the Icelandic legislature in 2008, and the curriculum guide issued in 2011 in accordance with this act (Ministry of Education, Science and Culture, 2011) makes different requirements.

Nominally, all teachers were requested to work towards the overarching general aims listed in the curriculum guide from 1999. Some of these were intellectual or moral virtues, and some had to do with democratic values. Earlier acts by the legislature and publications by the Ministry of Education had mentioned general educational aims but without listing them in such detail.

From September 2009 until March 2010, I interviewed eighteen teachers of academic subjects in Icelandic secondary schools to find out how the aims listed in the 1999 curriculum guide had influenced their teaching. Of my interviewees, six taught natural sciences, six mathematics, and six were teachers of history. I chose these subject areas because the 1999 *National Curriculum Guide* required teaching within them to deviate more than other branches from formerly prevailing traditions. The teachers I interviewed worked in eight different schools, four gymnasia and four comprehensive schools. I tried to cover the spectrum of Icelandic secondary schools by choosing institutions with different traditions.

The results of my research (Harðarson, 2010a, 2010b, 2013b) indicate that the general overarching aims had little effect on how my interviewees taught their subjects. In so far as these aims played any role at all, they were interpreted as principles of reform rather than as principles of design. When I asked the teachers how they worked towards overarching aims related to democratic citizenship and moral and intellectual virtues, most of them said that the subjects they taught were especially well fitted to make students able to understand news, current issues, and their own society, enhance critical or scientific thinking, or make students aware of moral or social values. Both the general answers the teachers gave and the specifics and details they mentioned were internal to their subjects. They said these aims were served by teaching natural sciences, mathematics or history in the way required by the inner logic of these disciplines. Only two, out of the eighteen teachers, said that they had actually organised their teaching with some of these aims in mind and no one had adjusted his or her teaching to meet all the general aims listed in the curriculum guide from 1999. They all claimed, however, to work towards aims that were similar to some of those listed, and more general than the subject-specific aims. The following categories of aims were most often mentioned: To increase students' abilities to understand news, current issues and social discourse; to enhance critical, scholarly, or scientific thinking; to prepare students for further study in college or university; to make them aware of the merit, value, or moral worth of something.

The general aims mentioned by the teachers were, with few exceptions, related to subject-specific aims. For instance, four of the science teachers talked about raising environmental awareness or appreciation of the importance of environmental issues. Two mentioned the relevance of scientific knowledge to health. Perhaps understanding news and current issues (mentioned by four science teachers) and the ability to participate in social discourse (mentioned by two of them) appear to have only loose ties to the natural sciences. In the conversations, however, the connections were quite close because the teachers brought this up after the discussion had touched on genetically modified grain, mutations of a flu virus, or the exploitation of natural resources. The same applies to the other teachers. The mathematicians mentioned, for instance, enhancing critical thought, logical acumen, and the ability to present information in an organised way. The history teachers talked about students' abilities to understand their own society and culture and develop a critical stance towards information. Some of them also mentioned broad-mindedness, the ability to place oneself in the situation of others, and an understanding of a culture different from one's own. Some also discussed the relation between historical knowledge on the one hand, and self-knowledge and self-awareness on the other.

Although teachers of natural sciences, mathematics, and history work under time pressure, and the subject-specific sections of the curriculum guide from 1999 listed more topics than can easily be covered, only one of my interviewees mentioned lack of time as a relevant factor in connection with general aims. The other seventeen did not seem to think of these aims as competing for time with subject-specific aims. Part of the reason for this seems to be that the overarching aims were so general that anything that good teachers were likely to do could count as progress towards them. One of my interviewees, a mathematics teacher, expressed this succinctly when asked about general educational aims having to do with democracy and critical thinking: 'Any normal school practice will serve these aims' (Harðarson, 2010b, p. 98). Part of the reason may also be that from the point of view of my interviewees, learning their subjects is an exercise in intellectual virtues such as open-mindedness and critical thinking. They saw their subjects as constitutive of the general educational aims, and they did not think of these aims as requiring much change in school practice.

Not one of the teachers I interviewed had any objections to the general overarching aims listed in the curriculum guide. They talked as if they were willing to modify their practice if needed, but it so happened that by continuing to work as most of them had done since long before 1999, they served these and other similar worthwhile aims. Stenhouse once said that 'at high levels of generality, aims give little guidance in planning' and 'they readily become rationalizations of practice rather than bases for critique' (Stenhouse, 1983, p. 48). Possibly some of the things my interviewees said about aims related to democracy and virtues were rationalisations. I, at least, found it hard to tell to what extent they used them to reform their practice, rather than to justify it. Such justifications can range from rationalisations or bad excuses for a discreditable practice, to honest explanations of why the school tradition they identify with is valuable. Sometimes it is hard to draw the line between preserving a cultural heritage and defending bad manners.

I also asked the eighteen teachers about the subject-specific aims and other requirements made in the curriculum guide from 1999, and I learned that teaching in the eight schools I investigated did not become standardised anywhere near the extent aimed at. The older four schools (the grammar schools) changed less than the four more recent ones (the comprehensive schools). Moreover, those of my subjects who worked in schools that adjusted in large part to the 1999 requirements, expressed willingness to return to the old ways now that schools can again decide their curricula. Some had already reverted to the older curriculum to some extent. The attempt to change Icelandic schools by top-down management seems to have fared similarly to the grand schemes discussed by the scholars mentioned in section 5.1. One of those scholars concluded that when innovations are implemented, it seems that adaptations are always made in the direction of the traditional. 'They are negotiated agreements to modify the original vision in the direction of the tried-and-true, or to abandon the vision altogether and "go back" to business as usual' (Tye, 2000, p. 30).

In this chapter, I have used empirical results to support the thesis that a curriculum cannot be designed top-down, or, in other words, that overarching educational aims cannot be used as principles of design to create a curriculum *ab initio*. The empirical results I have mentioned are historical and sociological (in section 5.1) and my own qualitative research described above. I have also used Schwab's half-empirical and half-philosophical critique of theoretical approaches and the fact that the practice of school education does not fit into any one single theoretical framework (in section 5.2). These empirical and semi-empirical results make my thesis plausible, although they do not suffice to eliminate all doubts. An objector could argue that what has not succeeded so far may possibly be accomplished later with new theories and administrative techniques. I think, however, that in addition to the empirically established results listed above, my thesis can be supported by more philosophical considerations. There are conceptual reasons to doubt that a curriculum can in, principle, be engineered top-down.

Granted that the top level administrators, those who define the most general overarching aims, have limited knowledge and are normally not specialists in but few of the subjects they require schools to teach, they must, necessarily, treat most of the subjects as black boxes: They must be able to specify *what* comes out of teaching them and leave the details of *how* to do it to specialists. Top-down methodology thus requires the top-level aims to be independent of the lower levels and comprehensible without mastery of the details of implementation. In other words, the technocratic approach to curriculum work requires that the top level administrators are able to know what good comes out of learning, say, music or mathematics without being on intimate terms with those subjects. There are, though, reasons to doubt that this is possible.

Aims that only make sense within a given context can hardly be chosen in advance of entering that very context. I do not first choose to mate the opponent’s king and then choose playing chess as a means to that end. Choosing to mate the opponent’s king simply does not make sense unless one has already chosen to play chess. Likewise, an aim like understanding a proof of Heron’s theorem is not comprehensible unless one has already entered the world of geometry. In section 4.2, I argued that education involves initiation into rich intellectual traditions that have their own context-dependent aims and purposes. It can also be argued that if some of the aims of education are only comprehensible inside the context of school subjects, they do not just happen to be principles of reform based on bottom-up methodologies rather than top-down design.

6. Conclusion

In his book, *The Stone Trumpet*, published in 1994, the US teacher and educationist Richard A. Gibboney analysed attempts to reform schools in the USA from 1960 until 1990. He distinguished between school reform based on democratic and intellectual values, on the one hand, and technocratic approaches, on the other, and argued that, in the latter half of the 20th century, most so called school reform failed because it was dominated by a technocratic mindset. According to Gibboney, this technological belief system was largely unchallenged because it used vocabulary that invoked some of the images of an intellectual and humane education, or what I would call simply liberal education.

> One source of the appeal of these technological curriculums is that, like a professed nonbeliever who still attends church occasionally, they have it both ways. Technologists offer the promise of efficiency and measurement but, without guile, they cannot help but echo some of the values in the progressive tradition. (Gibboney, 1994, p. 122)

My arguments support Gibboney's thesis because they show that advocates of technocratic rationalism and top-down engineering of school curricula do not seem to have a plausible case unless they allow themselves recourse to items from the right column of Table 2 in section 3.2. These items include ideals and context-dependent aims that are, however, not available to them if they are to remain fully self-consistent.

The fourth chapter of this monograph was about how subjects and learners make the outcome of teaching unpredictable and, hence, apt to yield benefits that differ from any pre-specified aims. In the fifth chapter, I argued that how school practice is embedded in complex cultural and historical reality also limits our abilities to design curricula by deriving what to teach and how from a statement of aims to be reached. The arguments of the fourth chapter are influenced by Stenhouse's work, but the arguments in the fifth chapter draw upon Schwab's writings on curriculum as a practical task, rather than a theoretical one. These two chapters show that educational aims cannot be confined to the left column in Table 2. Some of them are constituted, rather than caused, by the means. Some are intrinsic to the means, dependent on subject-specific contexts, ideals that can never be completed, principles of piecemeal reform rather than grand design.

If we are not mindful of how multifarious educational aims and purposes are, it may be hard to resist the allure of a technocratic and rationalistic model. As Peters argued (see quotation at the beginning of section 3.2), such models haunt all our thinking about the promotion of what is valuable: ‘In the educational sphere we therefore tend to look round for the equivalent of bridges to be built or ports to be steered to’ (Peters, 1973a, p. 123). It is trivially true that any worthwhile activity serves an aim of some sort because whatever is worthwhile about it can be described as an aim. It seems also beyond doubt that those who organise schools should be mindful of something that is truly good, desirable, and beneficial and worth learning – that is of good and worthy aims. If what I have said about the first distinction (introduced in section 3.1) is right, it is, however, a mistake to think of these aims as states of affairs or as results that are caused by means, such as educational arrangements, assignments, experiences, or school subjects. It is also wrong to believe that all educational aims are logically independent of the means, or comprehensible outside the context of subjects or intellectual traditions, as I argued in connection with distinctions numbered 2 and 3. Furthermore, it is a mistake to assume that educational aims can generally be completed or reached. Some of the most important of them are not learner-centred objectives but ideals in the sense outlined in distinction number 4. Last, but not least, I have argued that educational aims do not normally function as principles of design in the sense given by distinction number 5.

School education can only be completely aims-based provided we allow all the sorts of aims I have listed to play a role – that is to say, only in a trivial sense. Some of the aims can neither be stated precisely nor used to determine exactly what to do. Because we have to work, at least partially, from bottom-up, they must be what Bobbitt called, in a derogatory tone of voice, ‘large, undefined purposes’ (Bobbitt, 1918/1972, p. 41). Such aims either describe what teaching and learning are good for, or guide piecemeal reform of school practice. If the curriculum is said to be based on such aims, it is only in the weak sense of being compatible with them or being modified to approach them. The short answer to my question about *in what sense and to what extent organised school education can be an aims-based enterprise* is therefore: *In a trivial sense and to a limited extent*.

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[←1]

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[←2]

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