**Chapter 9**

**Summary, Conclusions and Discussion**

 In my work as a consultant in the field of pedagogic change processes, I repeatedly encounter the same phenomenon. The people I consult with (change leaders) are passionate and motivated about educational reform. They are confident they will be the ones to bring about salvation. They declare that they intend to produce pedagogical change. However, during our conversations it becomes clear that they are actually referring to changes in pedagogic administration, or changes in the pedagogy of the structure of teaching. I tell them something is missing. I explain that past experience suggests that, without planned and meticulous work on the pedagogy of the essence of teaching (without explicitly using this term), the chances they will succeed in bringing about real and positive change in the quality of education are slim. “We leave those aspects to the principals and teachers in the classrooms,” is the answer I often get from the people sitting across the table from me, who often do not work in classrooms or schools themselves. They do not understand the pedagogy of the essence of teaching. In fact, they do not see it at all. It is invisible to them.

I already know how the conversation will end. I can anticipate how, in all likelihood, the change process in which they are going to invest a significant amount of money and energy is going to end. I expect yet another reform replete with all the bells and whistles, but ultimately it will not touch the core of teaching and learning processes. It will make no real change. My heart aches. It is hard for me to make clear the extent to which orderly and meticulously planned implementation of a pedagogy of the essence of teaching and its interaction with general organizational domains, with the pedagogic administration, and with the pedagogy of the structure of teaching, is critical to the process of change.

**Focusing on Deep Systemic Change**

The theoretical literature discusses how to bridge the gap between educational policy on teaching and learning, and the teaching and learning that actually take place in classrooms (Coburn, 2003; Elmore 2004; Lee & Krajcik, 2012; McDonald et al., 2006; Raudenbush, 2007; Zohar, 2013). This is an important and complex issue that has not yet been adequately addressed in educational theory or practice. The literature emphasizes the pressing need for further research, conceptualization, and maintenance of an appropriately high level of intellectual discussion of the subject.

The present book attempts to bridge this gap by examining the fundamental components of a broad and system-wide implementation of changes in the methods of teaching and learning. It is based on Raudenbush’s (2007) definition of teaching as the interactions between teachers and students in the classroom that are carried out around educational content. Following Coburn (2003), the current book deals with the significant challenges inherent in trying to reach a large number of schools while focusing on the **fundamental aspects** of change that are necessary for the coherence and long-term continuation of a reform. Previous researchers, in contrast, have focused on the **depth** of desired change in processes of teaching and learning. For example, Cohen and Barnes (1993) assert that the slow and inconsistent progress in making deep changes in educational systems is due to the considerable difficulties in implementing the qualitative teaching methods to which many reformers, whose goal is to distance themselves from traditional teaching models, aspire. Thus, in their words, in the search for ways to improve implementation, it is necessary to delve into the depths of the processes of teaching and learning, to see how their various aspects are integrated, and how they influence and are influenced by the implementation process. Zohar (2013) argues that reforms do not succeed in changing the quality of teaching and learning because they are based on marginal issues in the education system. Her review of previous studies on the subject concludes that reforms in the education system seldom generate the desired improvement. They feverishly make changes in various aspects of the organizational, economic, and administrative structures of the education system, but do not address the actual processes of teaching and learning at all, or at least do not address them in a serious and planned manner. In any case, they do not succeed in improving these processes.

Zohar (2013) presents a number of recommendations, the adoption of which may lead to progress in this area. One is to view pedagogical change as a focused and explicit goal requiring a clearly stated policy, careful planning, and optimal performance, which take into account the distinctive characteristics of the desired pedagogical change. A second recommendation is to design and support organizational and administrative processes that will assist and facilitate pedagogical change. However, neither Cohen and Barnes (1993) nor Zohar (2013) demonstrate **how** their general recommendations can be expressed in changes implemented across large educational systems regarding a particular pedagogic issue. The authors characterize these processes and the challenges they pose, but they do not address the interactions between policy-making and strategic planning at organizational levels. They do not deal with specific aspects related to the nature of the proposed change.

The present book develops this discussion further while focusing on two levels. First, starting from a general perspective on implementing educational reforms, it investigates aspects of systemic change in teaching and learning in a **specific pedagogic field**. In most research on pedagogical reform, the unit under study is a reform in one organizational unit: a nation, province, regional educational system, school network, single school, and so forth (Cohen et al., 2013; Levin, 2008). In contrast, this book investigates change processes in one pedagogical field, while looking beyond the specific reforms taking place in that field within different organizational units. In this way, the book analyzes the distinctive issues that arise when trying to implement a reform on a large scale.

The pedagogical field chosen for this study is the transition towards education for critical thinking. As seen in the first chapter, this is currently a policy focus in many educational systems around the world. Therefore, a broad perspective, including a variety of aspects related to the introduction of systemic changes in the field of teaching critical thinking, beyond a specific reform, is particularly valuable because it may help to improve future reforms in the field. In this sense, education towards critical thinking serves as one example illustrating a general argument regarding the impact a specific pedagogical issue has on decision-making processes related to the determination of educational policy and the planning of implementation. The case of a broad, systemic implementation in the field of development of critical thinking skills may serve as a model for future work dealing with relationships between models of pedagogical change and a specific pedagogic field (for example, improving literacy in writing, reading, or mathematics). One of the major innovations in this book is its focus on this point through examination of connections and creation of contexts between four main sources of knowledge: (1) theoretical literature in the area of teaching and learning in general, and teaching critical thinking skills in particular; (2) analysis of processes of systemic implementation in the Israeli educational system in the field of developing and teaching critical thinking; (3) literature on systemic implementation of change processes; and (4) personal experience in the implementation of education for higher order thinking.

The second contribution of this book relates to the perspective of people engaged in education towards critical thinking. On this level, the book analyzes the challenges involved in disseminating and widely applying the concept of education towards critical thinking. It offers those who work in this field insights that can truly help to overcome these challenges.

**The Pedagogy of the Essence of Teaching and its Role in Change Processes**

As noted at the beginning of this chapter, I have participated in numerous discussions on educational change processes in which my dialogue partners used the phrase “pedagogic change” to describe changes in aspects as varied as budgeting, the schedule of class hours, organization of school learning, administration, integration of students with learning disabilities, establishing a network of schools, supporting new teachers, and more. It is true that optimal functioning in all these realms is important, and may even be even necessary to successfully impact fundamental processes of teaching and learning. However, simply addressing these aspects does not necessarily affect teaching and learning on a deep level. In most cases, it fails to bring about any meaningful change at all.

To sharpen the distinction between pedagogical changes at the heart of teaching and learning processes and more peripheral types of changes, I distinguish between three types of pedagogy: **pedagogic administration, pedagogy of the structure of teaching, and pedagogy of the essence of teaching**. In the present discussion, the pedagogy of the essence of teaching (or essential pedagogy) is the most vital. This concept deals with essential patterns of teaching and learning. It addresses issues such as: teaching towards understanding; achieving change in the way students perceive concepts and processes; integrating critical thinking into the teaching of content; integrating discussion of social, moral and ethical issues in teaching of content; improving reading comprehension; using metacognition; assessing the ability to think critically; and applying learning to new contexts. Taking serious action towards dealing with such issues necessitates dealing directly with improving ways of understanding and thinking. Therefore, it can enable a profound change in the quality of teaching and learning processes. It affects the vision held of the graduates of an education system.

Other researchers have expressed similar ideas, even if they did not use the specific set of concepts embedded here (Elmore, 2004; Spillane, 2000). This book argues that, in order to connect conceptual islands into a continent, and to bring about the desired improvement in the quality of educational systems, it is crucial to introduce change not only in the pedagogic administration or the pedagogy of the structure of teaching, but in the pedagogy of the essence of teaching. This argument is relevant to pedagogic change of various scopes: reforms in the education system as a whole, and reforms in smaller systems, such as a school network, a single school, one academic subject, or a certain age group within a school.

What is required, then, to succeed in bringing about real change in the pedagogy of the essence of teaching? The answer seems simple. One necessary condition for suchchange (although even this is insufficient alone) is that the process will deal in a focused, planned, and intensive manner with aspects related to the pedagogy of the essence of teaching. While this statement may sound self-evident, it is surprising to discover how rarely this condition is met in systemic change processes, whether within a single school or throughout entire educational systems. The problem is that many reforms described as “pedagogical changes” are concerned with improving pedagogical administration or the pedagogy of the structure of teaching, while the pedagogy of the essence of teaching remains invisible. While this is supposedly the core of the education system (Elmore, 2004), most people do not see it as a factor to be considered in the planning and implementation of educational reform processes. Following the definition of a pedagogy of the essence of teaching, one of the main arguments of this book is that, in order to bring about a real change, the often-ignored **essential pedagogy** must be included in the planning and implementation of an educational reform.

This is the common denominator underlying the issues discussed in the chapters of the book. An effort is made to present various aspects of pedagogy intrinsic to education for higher-order and critical thinking, and to demonstrate how these aspects relate to various issues and examples connected to the process of implementing systemic pedagogic changes.

1. Chapters 6 and 7 deal with integration of critical thinking in citizenship studies and the “meaningful learning” reform. This demonstrates the need for detailed pedagogic planning alongside planning at the organizational level.
2. Chapter 2 explains that the aims of education in the 21st century combine content, strategies of thinking, and an epistemic approach. The complexity of these goals makes it clear why it is so difficult to enact the deep changes in teaching that are necessary in order to achieve it. The chapter illustrates this through the example of the Israeli education system, which has moved beyond a pedagogic stage in which a deterministic conception of knowledge was assumed, but has not yet reached a pedagogic stage which assumes an epistemic grasp of knowledge. In other words, the system is “stuck” at a stage of pedagogy in which a multifaceted perception is assumed. This creates problems in addressing essential aspects of knowledge and generally impairs the ability to engage in deep intellectual activity. Under these conditions (in which teachers lack an advanced epistemic approach), education towards critical thinking involves a collection of isolated strategies, but cannot influence the way that knowledge is constructed through critically examining and evaluating statements. The discussion in Chapter 2 raises the necessity of designing criteria for the quality of knowledge and creating relevant learning and assessment materials to be used by teachers and students. Therefore, in systemic planning, there is an urgent need to allocate resources to this, such as funding a team of experts and developing learning and assessment materials.
3. Chapter 5 deals with learning through inquiry and research. It illustrates the complexity of this, and notes that inquiry-based learning processes may be modular. The chapter presents the design of the systematic integration of research as a complex decision-making process pertaining to the scope and nature of the inquiry. This process involves questions and considerations relating to the policy objectives of inquiry-based learning and strategic, long-term planning of its implementation. For example, assuming that the goal of in-depth learning is not abandoned, is it appropriate for policy documents to state the goal of implementing inquiry-based learning in various educational subjects and for a diverse student population? It may be preferable to settle for more modest goals, such as working on the strategies of thinking that underlie inquiry. Another option would be to critique other researchers’ work, rather than designing large-scale independent student research projects. Similar considerations also influence the strategic planning of policy implementation and dictate timetables and stages for achieving a range of intermediate objectives related to the implementation of the goals. Without a thorough understanding of these latter aspects, research conducted in the classrooms will be technical and superficial, even if the first two levels are well integrated.
4. Chapter 8 deals with evaluation. It shows that, under a policy of accountability which perpetuates the perception that exams are high-stake, adding a few critical-thinking items to standardized tests does not necessarily lead to education towards critical thinking in any meaningful way. This chapter indicates it is possible to memorize answers to items designed to test critical thinking. When pressure is exerted by the educational system on teachers to prepare their students for tests, even critical thinking items are dealt with mechanistically. Active, in-depth thinking on the part of the students is prevented. This reinforces the argument, discussed extensively in the literature, regarding the impact a policy of accountability has on teaching and learning. The findings indicate it is not sufficient to improve tests by including a few critical thinking tasks. It is also necessary to reduce the degree of personal risk experienced by principals, teachers, and students from the mechanisms of evaluation. If this is not done, the goals of inquiry-based learning and development of critical thinking cannot be realized, despite pedagogical work undertaken to improve exams. Therefore, the desire to facilitate development an essential pedagogy for teaching higher-order thinking requires a policy that will provide teachers with a great deal of autonomy.
5. Another point to be considered is whether implementation of education towards critical thinking is done through general processes, or if it is carried out according to an approach that integrates critical and higher-order thinking (Zohar, 1995). This issue will have a profound impact on the infrastructure of professional development, designing educational materials, creating teacher-training courses (within schools or disciplines), and evaluation.
6. A final point concerns knowledge held by teachers and other education professionals. Chapter 4 details the knowledge teachers need in order to be able to help their students learn to think critically. It clarifies the magnitude of the task involved in professional development in this field. In order for the implementation process not to be merely technical and superficial, it is vital to work with teachers on the micro level. That is, it is necessary for work to be carried out all the way down to the level of individual interactions in teacher-student discourse. Therefore, the outcomes of an implementation process may succeed or fail based on the quality of the training processes at the level of essential pedagogy. However, large-scale implementation processes do not usually provide the pedagogic and organizational infrastructure necessary for such training. This raises two issues. The first is the need for detailed planning of content-based professional development that also relates to aspects of essential pedagogy, as well as the organizational and budgetary infrastructure. The second issue deals with the need to adapt the stated goals of the proposed change, and the range and pace of implementation, taking into account the extent of the knowledge and professional development obtained by teachers and other professionals. Due to the importance and complexity of this point, I will elaborate on it in the next section.

In conclusion, the pedagogy of the essence of teaching has a strong presence and high visibility in all the issues and examples of systemic implementation discussed throughout this book. In all of them, a deep knowledge of essential pedagogy is critical in order to enable planning and implementation of broad systemic implementation processes so that the outcome will not be technical or superficial. Moreover, the argument is made that a profound change requires designing the administrative and organizational structures so they support the objectives at the level of essential pedagogy, rather than trying to “make do” with organizational and administrative structures that are designed in isolation from this concept.

**Developing Professionals’ Knowledge**

Following the conclusions of other scholars (Elmore, 2004; Fullan, 2007; Levin, 2008), the discussion presented in this book shows the vast importance of thorough and meticulous development of individuals’ capabilities so that they can enact changes in the subject to be taught and learned. In-depth knowledge of the subject of the change process (for example, aspects of higher order thinking) and specific pedagogical knowledge about this subject are necessary preconditions for teachers to be able to implement a deep change in classroom teaching and learning, meaning a change that touches on the pedagogy of the essence of teaching. While researchers agree on this point, educators still struggle with the question of how to develop relevant capabilities, especially when it comes to working on a system-wide scale. They see this as a significant challenge (Luft & Hewson, 2014). Discussion of the knowledge that professionals need to make an implementation successful is interwoven throughout this book, from different angles: pedagogic leadership, professional staff development, inquiry-based learning, intensive professional development in citizenship studies, and the role of teachers in meaningful educational reform. Chapter 5 is devoted to the issue of teachers’ professional knowledge and offers relevant insights for discussion:

1. **Required teachers’ knowledge must be defined clearly**. Educators’ in-depth knowledge on the process of change constitutes an Archimedean point, the fulcrum on which profound change in essential pedagogy pivots. In order to plan the professional development processes required for this purpose in an informed manner, the required knowledge must be defined explicitly, clearly, and in detail. Chapter 4 presents an example of such a definition in the field of development of critical thinking.
2. **Strategic planning of professional development at three levels of pedagogy**: Naturally, strategic planning must take place at the levels of pedagogic administration (allocation of budgets, time, space resources, decisions regarding paid teaching staff, framework for professional development, etc.) and the pedagogy of the teaching structure, (decisions regarding use of educational technology during training, the size of study groups, etc.). However, all this may be useless if it lacks in-depth work on the pedagogy of the essence of teaching. To succeed, it is necessary to plan what knowledge will be the goal of the professional development course, and the pedagogy of structuring this knowledge for the teachers. Therefore, strategic planning must also include the level of pedagogy of the essence of teaching. Explicit definition of the knowledge necessary for teachers enables decision-making about the goals and priorities for professional development. It then becomes possible to develop learning materials and activities for teachers that will help to build the necessary knowledge. For example, defining the knowledge necessary for teachers to integrate higher order thinking into content-based teaching indicates the need to work with teachers on the development of contextual tools for teaching critical thinking. Chapter 4 mentions multiple examples of such tools that enable teachers to:
* Help students construct and analyze complex evidence-based arguments;
* Guide students in the construction of a fruitful research question;
* Build criteria for analysis, evaluation, and subsequent improvement of critical thinking tasks.

The theoretical analysis and the data presented throughout the book indicate that working on such tools, which touch on the specific details at the level of student-teacher interaction in the classroom or the construction and evaluation of learning materials, is a vital component in the implementation process. Without these tools, the implementation will be technical and superficial. **Therefore, the results of the entire implementation process may succeed or fail based on the quality of the training processes that work on the level of the pedagogy of the essence of teaching**.

In order to create a comprehensive and coherent picture, the training processes for structuring teachers’ knowledge at the level of essential pedagogy must, of course, be integrated into and coordinated with the strategic planning of the levels of pedagogic administration and the pedagogy of the structure of teaching. Take, for example, the decision to change matriculation exams so that a percentage of the grade will be based on a research project. This requires work on aspects such as scheduling the implementation of this change, allocating human resources to it, scheduling class hours, and running a public relations campaign aimed at preparing those working in the field to cooperate with the change. It must also be understood what new knowledge teachers need, and a plan needs to be made for how this knowledge will be developed among various groups of professionals. Strategic planning at the level of essential pedagogy includes decisions such as:

* aspects of the teachers’ knowledge that must be addressed in the first stage of professional development
* aspects to be addressed in later stages
* designing learning materials and examples of instructional processes to be used at various stages of professional development
* designing activities and educational experiences most appropriate for developing teachers’ professional development

This book explains how considerations at the level of essential pedagogy also help direct the planning and implementation of changes at the levels of pedagogic administration and pedagogy of the teaching structure.

1. **Professional development of pedagogical experts, change leaders, and facilitators (school principals, instructors, professional coordinators, etc.)**. The significance of and need for pedagogic leadership in various circles of leadership and pedagogical guidance indicate that professional development for teachers alone is not sufficient. There must also be serious and systematic training for pedagogical experts, change leaders, and facilitators. This analysis indicates there are not enough leaders in the educational system who have the deep pedagogical knowledge connecting theory and practice that will enable them to lead the type of change described here. There is a need for leaders who can work with teachers at the micro level and support them in the details that arise when teaching critical thinking in the classroom. This training is not simple. It requires a combination of theoretical and practical knowledge, and it must be ongoing. Part of the problem lies in the absence of an administrative infrastructure. This leads to rapid turnover of people in critical pedagogic roles (Zohar, 2013). At the same time, it should be remembered that people in senior positions tend to have busy schedules, leaving little time for professional development courses. However, in the absence of the necessary professional knowledge among those leading systemic change, the entire organizational infrastructure for implementing pedagogic reform may be meaningless. Much is invested in planning, budgeting, recruiting instructors, creating training frameworks, and bringing teachers to courses, but this organizational structure cannot bring about the desired change at the level of essential pedagogy. First, there is nobody capable of planning professional development at the level of the essential pedagogy. Second, there is nobody to transmit in-depth knowledge from change leaders to instructors and facilitators so they can build and support the teachers’ professional capabilities. For this purpose, it is necessary to plan and implement processes that enable strong and systematic construction of knowledge among those working at all levels of implementation.
2. **Making the scope and pace of change appropriate for teachers’ level of knowledge**. The magnitude of the challenge in the implementation of a deep pedagogic change (such as the integration of higher-order thinking in content teaching) must be recognized. This includes the professional development of educators involved in the process. It raises the question of the widespread incompatibility between goals and performance. Is it possible that policy statements define goals that require educators to do too much too fast? If we are to take seriously the idea that an understanding of the pedagogy of the essence of teaching is necessary to bring about profound change, then, as shown in this book, the depth of change cannot possibly exceed the depth of knowledge transmitted through professional training. The present discussion concludes that superficial and “technical” change is something to be avoided at all costs. It follows that when a decision is made regarding the scope of an educational change presented in a new policy or curriculum, it must be seriously considered whether the pedagogical knowledge of the educators involved in the implementation processes is adequate. Their level of knowledge should be taken into account as a central factor in the planning process. At the same time, the data presented here indicate that large educational systems tend to give limited support to professional development of teachers in the field of higher-order thinking. In light of this, Chapter 4 emphasizes that serious consideration of the knowledge needed to support profound change processes, combined with a realistic assessment of the likelihood that such courses will be offered on a system-wide scale, may indicate a need to adjust expectations of what change is realistic.

This conclusion has several implications for the field of education for higher-order thinking. First, the grandiose and sweeping statements that often appear in policy documents and curricula should be viewed with suspicion. Often such statements are too ambitious to be implemented in a meaningful way, taking into account the limitations of teachers’ knowledge. This is especially true when changes are intended to be implemented within a short period of time. In order to avoid superficial and technical implementation, it is recommended to phrase such statements in a modest manner, appropriate to teachers’ existing knowledge and the scope of professional development courses that can be expected to be offered. Alternatively, it is possible to retain an ambitious vision as a final goal, but to supplement it with a strategic plan that distinguishes between the long-term vision and more realistic short-term goals and actions.

**Change Agents as Pedagogic Leaders**

As we have seen, change agents at multiple levels within educational systems often know how to lead organizational changes in the system. They may even be able to lead changes that address the levels of pedagogic administration or the pedagogy of the structure of teaching. However, as emphasized in Chapter 3, **to successfully produce change in the pedagogy of the essence of teaching, there is a need for change agents who are also pedagogical leaders**. Pedagogic leadership (at all levels of the system) is a necessary condition in order to address the essence of teaching, and not only the specific structures, frameworks, and conditions under which teaching is carried out. In addition to general leadership skills, pedagogic leadership requires in-depth knowledge of the specific field in which they hope to generate a change in teaching and learning. Thus, expanding the circles of leaders who have relevant theoretical and practical pedagogical skills and knowledge is a necessary condition for the success of systemic change. Investment in developing the pedagogic knowledge of ever-expanding circles of leaders is a requirement for the reliable transmission of a message through a ‘top down’ transformation process. There must be sufficient professional personnel to support the teachers in making the expected changes in their teaching. In-depth knowledge of the desired learning and teaching processes is also a condition for participants in the change process, so they will be able to use their own experiences and creative thinking to generate the desired changes from the bottom up. All this can occur only when the education system has a culture of agreement rather than contract, and when educators feel they are granted personal dignity and autonomy (Sergiovani, 1998).

**Essential Knowledge for Systemic Implementation of Essential Pedagogy: Generic and Contextual Aspects**

There are critical differences between a small, successful project and broad, superficial implementation. One difference is that in a small, successful project, the pedagogical information on the core subject, and knowledge of the educational context tend to be at a higher level of accuracy and relevance. In broad implementation, these tend to be lower. Such knowledge makes it possible to enact deep changes in the essential pedagogy. Therefore, the challenge is how to transmit the relevant knowledge to those who will implement a system-wide change. To deal with this challenge, it is appropriate to ask what characterizes the knowledge involved in addressing essential pedagogy in a broad, system-wide implementation.

Previous researchers discussed the types of pedagogical knowledge necessary for high-quality teaching (Shulman, 1986; 1987). Following their conclusions, the knowledge needed for broad implementation of a pedagogical innovation is pedagogical content knowledge (PCK) that includes both generic and content-dependent aspects. In other words, in addition to general knowledge of essential pedagogy in processes of systemic change, there are also elements that depend on the specific context of the project to be implemented. For example, the model described in Chapter 4 indicates a number of knowledge components specifically associated with education for higher-order thinking. Examples in other chapters detail the elements of knowledge that are distinctive to teaching critical thinking. Other goals of pedagogical change, such as the development of reading and writing literacy (Levin, 2008) or implementing evaluation for educational purposes (Birenbaum, 2016) will, of course, require different components of pedagogical knowledge.

However, the knowledge required for broad system-wide implementation is not identical to pedagogical content knowledge (PCK). An additional component is required, which is absent from traditional discussions of PCK. That is, there are elements of knowledge necessary for broad system-wide implementation, but which are not needed by teachers in the classroom. In the discussion below, pedagogical content knowledge necessary for system-wide implementation is termed “scaling up pedagogical content knowledge” (SUPCK). Throughout the book, many examples of SUPCK are given. For example, Chapter 4 explores how teacher training can be structured so that it includes important aspects of essential pedagogy in the context of teaching critical thinking, while also taking into consideration the conditions that typically limit scaled-up implementation (SU), such as the time allotted for professional development and the lack of training in the field. In cases of small projects, leaders often wonder how to design a professional development program so that it achieves the greatest effect under optimal conditions. In cases of broad, system-wide implementation, leaders must address the complex challenge of determining which of the teachers’ components of knowledge, familiar from their experiences in carrying out small-scale projects, will be most resistant to the process of dilution or “tossing things out the window” that are typical in wide-scale implementation (Dede, 2004; Fullan, 2007). Chapter 6 explores criteria for indicators to be used in a school’s assessment of the implementation. These indicators need to be appropriate both for the major program goals and also for the teachers’ level of knowledge regarding these goals. They also need to be appropriate to the type of qualitative assessment that can realistically be expected to be carried out, taking into consideration teachers’ prior knowledge and the number of hours allotted for professional training. In the field of inquiry-based learning, Chapter 5 discusses the range of pedagogical and organizational issues that should be taken into account when designing the assessment process so that it can be undertaken on a large scale in a realistic manner. **Issues such as these must be taken into consideration when planning implementation.** In addition to considerations such as the scope of political support, the budget, the organizational infrastructure, and so forth, these considerations must also be integrated into decision-making processes regarding the strategic planning of a pedagogic change. In order to avoid technical and superficial implementation, these considerations are necessary to determine the operative objectives that can be defined for the first years of the implementation process and / or for later years.

Because of the specificity of the SUPCK for any field of pedagogical innovation, the knowledge in question cannot be generic. It must be developed separately for each pedagogical subject. The practical work and research required in this field will be best achieved through close collaboration between people whose field of expertise is administration in general and pedagogic administration in particular, and people whose expertise is in essential pedagogy for the field in which they wish to implement a change. As seen in the literature review, the study of system-wide implementation of pedagogic innovations is still in its infancy. The implication of recognizing that the knowledge required for deep and system-wide implementation also includes content-dependent aspects means that much research and development work still needs to be carried out in a variety of pedagogic content areas. Research findings similar to those described here on the topic of teaching higher order thinking indicate that in the future, the existence of numerous examples of pedagogic plans may, over time, enable more accurate and useful generalizations and conceptualizations than those currently available to guide policymakers and strategic planners of change processes.

**Centralization and Autonomy in the Knowledge of Essential Pedagogy**

As mentioned, in order to make the necessary adjustments to the educational context of each school and each class in which the implementation takes place, a thorough knowledge of the educational context is required. This knowledge can be found most reliably and in the greatest detail among people working in the field, such as teachers and principals, since only they are intimately familiar with the educational environment in which they operate. It is therefore essential that they be the ones who make the adjustments to the particular context. At the same time, the change theory presented in Chapter 6, based on Fullan (2007) and Hargreaves and Fink (2006) emphasizes the need to strike a balance between autonomy and transforming top-down processes into bottom-up processes. In order to harness the motivation, energy and creativity of people working in the field, it is essential to enable them to feel that the change process encompasses their professional goals and needs (Hargreaves, 2010). **This need can only be met by allowing for pedagogical autonomy.** Accordingly, they cannot simply be “technicians” of the change process. They must have a high level of professional knowledge that will allow them to be reflective about their profession. Chapter 7 analyzes the negative consequences of this type of imbalance by looking at an extreme case in which no consideration was given to the previous state of teaching biology and chemistry during the implementation of a major educational reform.

It seems that finding the delicate balance between the extent to which a top-down mandate conveys a precise message, and the degree of autonomy granted that encourages the imagination and creativity of the people in the field, plays a critical role in the success of the process. Finding a balance is always complex, and here, too, there is no simple recipe for miraculous success. However, a general recommendation is to maintain a reliable connection between, on the one hand, the level of specific pedagogical knowledge regarding the subject undergoing change and teachers’ personal capabilities and professional skills and, on the other hand, the degree of autonomy they are granted. The higher their level of capability and knowledge, the greater the level of autonomy that can be granted.

In Finland, for example, a great deal is invested in the human capital of teachers. This investment begins with teacher training institutions selecting the most outstanding candidates as teaching students, since the ratio of applicants for education studies to those accepted is 10:1. Subsequently, Finland invests heavily in the process of teacher training. All teachers have a master’s degree in their field and acquire comprehensive and in-depth pedagogical knowledge during their studies. Accordingly, the system trusts them and treats them as highly skilled professionals. It sets goals for them, but does not mandate how to achieve these goals. Instead, the system encourages teachers and students to try new ideas and approaches. In other words, it encourages them to put curiosity, creativity, and imagination at the heart of teaching and learning processes. All of this ensures that teachers and principals are good at what they do in their classrooms and schools, and that they have an in-depth understanding of how to improve learning. Under such conditions, it is sufficient that the central system establishes general goals for schools and teachers, then leaves them with complete autonomy to develop and design, as they see fit, the ways in which they will meet these objectives. The success of the Finnish education system has been well-known for many years, and is evidence that this change strategy worked (Sahlberg, 2011).

At the same time, even under optimal conditions, achieving a profound change in essential pedagogy requires extensive professional development focused specifically on developing the necessary pedagogical knowledge. That is, even in a country with excellent teachers and strong achievements on international tests, it is impossible to assume that the people working in the field will succeed in building the knowledge of essential pedagogy that is needed to make a profound change without a guiding hand and “top-down” effort. There is evidence of this, for example, from implementation of a curriculum in New Zealand that focuses on development of capabilities for the 21st century. This implementation has encountered difficulties stemming from the lack of teachers’ pedagogical knowledge of the essence of teaching that is necessary for them to be able to support the change processes. The curriculum in New Zealand is a rather loose framework of goals and allows schools to weave around it locally appropriate curricula that will meet the needs of students and their community. An integrative reading of the curriculum indicates that the main capabilities or skills (such as critical thinking skills) are supposed to change how students relate to the knowledge of traditional subjects and the epistemic thinking involved in learning (Hipkins, Bolstad, Boyd, & McDowall, 2014). The curriculum includes a section with advice on effective pedagogy. However, the schools did not receive any materials that demonstrate how to teach in the new way, and the teachers did not undergo any professional development processes that would give them the necessary knowledge to do so. Recently, educational researchers in New Zealand have warned that the implementation of the curriculum was too loose at the pedagogical level. They note that absence of clear epistemic criteria for teaching, professional development, and evaluation, and the lack of adequate training, led to great difficulties in implementing this progressive pedagogy. As a result, these researchers point to the need to tighten up the implementation processes, and especially improve the aspect of professional development, so as to give the staff working in the field adequate guidance and to provide them with the necessary level of pedagogic knowledge (Zohar & Hipkins, in press).

In sum, the classic understanding of centralization and autonomy generally focuses on the organizational and managerial aspects of change processes. The discussions in the previous sections suggest a similar, but not identical, understanding of centralization and autonomy, focused on essential pedagogy: “top-down” guidelines for the implementation process are provided by the managing entity, in the sense of setting pedagogic goals using SUPCK. This entity also decides what bodies of knowledge teachers and change leaders need in order to have the tools that will enable successful implementation of new teaching methods, and in order to plan and implement in-depth professional development processes. At the same time, people in the field (teachers, principals, instructors, etc.) are given the autonomy and resources to adapt these teaching processes to the educational context in which they work, and to tailor them according to their personal tastes, needs, and educational goals. The factor determining the optimal balance between the degree of centralization and the degree of autonomy in these processes is the level of the professionals’ relevant knowledge. This reveals an important insight: professional development as outlined above provides teachers with professional tools and enables them to teach differently, but it does not dictate how to apply these tools in their classrooms. Therefore, professional development does not reduce autonomy, but rather increases it.

**Can Pedagogical Reforms Succeed?**

In conclusion, we return to the main challenge and question posed in the first chapter: in light of all the issues discussed throughout this book, is it possible for pedagogical reforms to succeed? Can the islands be connected to form a continent? Is there room for optimism that the profound pedagogic change to the very nature of instruction that is needed in the education system will be successful? The answers to this question provided in this book involve both bad news and good news.

In order to answer the question, we need to reexamine what we mean when we talk about the success of a change, or about the nature of the change itself. If the expectation is to achieve a drastic and rapid change that will revolutionize the quality of teaching and learning, the findings described in this book indicate this is impossible. Observation of the necessary conditions for implementing a reform in essential pedagogy indicates that there cannot be rapid revolutionary change. The bottleneck is the learning and development abilities of human beings. Making a profound change requires a change in the consciousness, knowledge, and beliefs that comprise human capital. This takes time, especially in large systems. In this sense, the findings in the book are bad news: a quick panacea that will immediately improve the education system is neither available nor possible.

In another sense, however, the findings of this book are actually good news. If we moderate our expectations and have patience, there is room for optimism. If the expectation is for a gradual process over the course of years, during which a slow but steady improvement in the quality of teaching and learning will take place, the findings indicate that such a change is possible. In fact, this change has already begun. We are in the midst of it. As pointed out by David Cohen (2010), processes that promote advances in teaching are slow by nature. Therefore, despite years of progress, this process is still in its infancy and needs many more years to reach completion. Cohen writes that, at this stage in the history of education, it is impossible to know whether we are at the beginning of a lengthy process that will eventually bring about the desired change, or whether the change will not succeed. Therefore, the educators who are working towards it are trapped in a long romantic dream (for more on this, see Zohar, 2013). In this sense, the findings of this book offer hope.

There are no shortcuts. One cannot believe the promises of politicians or others who claim there is a quick fix for education. However, this book indicates that a combination of detailed planning at the level of essential pedagogy, strategic planning at the other levels, and ongoing implementation of plans over time, may lead to progress. While this progress is expected to be slow, there is a reasonable possibility that it will lead the education system in the desired direction. In a general way, one reform follows another, again, again, and again (Cuban, 1990, p. 3) but education does not improve. However, this vicious cycle may be broken if we understand that an important part of the problem lies in the superficiality of the pedagogical implementation prevalent in most reforms. **The key to success lies in serious and systematic work on the pedagogy of the essence of teaching.** For this, there is no opportunity to discuss a history of failures, since this direction has not yet been adequately tested, in Israel or other places around the world. As noted by the education researchers quoted in the first chapter, we are still only at the beginning of the road. Of course, this direction does not render irrelevant or redundant the extensive research and resultant projects regarding other aspects of reform, especially on the administrative, political, and organizational levels. To succeed, all these aspects are necessary and need to mutually support and be supported by one another. However, the very idea of a new direction that has not yet been fully explored provides a new horizon for future work, and a place for hope.

**Is Essential Pedagogy Important in the Information Age?**

One possible criticism of this idea relates to the gap between the slow schedule required and the rapid pace of changes in our era. Another criticism, related to the first, holds that the changes we are witnessing in the areas of technology, knowledge creation, management, and the labor market, are altering the rules of the game so radically that everything written here will soon be irrelevant because the goals of education, too, are likely to fundamentally shift. Some claim that the institution of the school itself will be abolished in the future because children will be able to learn everything outside of school, via technology, without the need for teachers. As noted in Chapter 2, even some reformists who do not advocate abolishing the school believe that, since all the information is available at our fingertips through the Internet, learning facts and information should no longer be one of the central goals of the education system. Chapter 2 addresses this last argument at length. I agree that in the world of today and tomorrow, it is indeed necessary to change the basic goals of education and methods of teaching. However, this chapter also makes the claim that the structuring of knowledge, critical thinking skills, and meaningful epistemic knowledge continue to be central and necessary goals for schools, and will remain so in the future. The challenges to teaching and learning in our rapidly changing world do not make education simpler, but rather, more complex. The fact that so much information is available at students’ fingertips does not mean that their system of concepts and intuitive thinking skills (i.e., knowledge of the world they acquire outside the formal education that takes place in school) enable them to internalize and utilize this information in the best possible way.

One of the main and most important findings of recent research in the field of education is the importance of prior knowledge and appropriate thinking skills for the assimilation of new knowledge and to enable deep understanding of it. Therefore, in my opinion, despite changes in the accessibility and structure of knowledge (for example, it is no longer hierarchical and linear, but rather dynamic and intertwined), the need for prior knowledge, skills for acquiring additional knowledge, and basic language and learning skills, will not be eliminated. There is a phenomenon of young people who did not receive a formal education yet are amazingly successful in professions and segments of the job market that the education system still does not even recognize that they should be teaching. Nevertheless, these examples should not confuse discussion of the issues. There have always been individuals able to express their talents in a variety of fields even without an education. The system needs to provide for the whole population, not a small segment of it.

Prophecy is indeed given to fools. However, in my humble opinion, in light of the matters discussed in this book, the transformation we are witnessing does not make the education system redundant, but rather challenges it. Indeed, the role of teachers is likely to continue to change, even more than it has changed thus far. The trend of teachers who do not simply transmit information, but rather mediate the acquisition of knowledge, will continue to grow stronger. This trend is not going to make teachers unnecessary. On the contrary, their role in mediating and developing dynamic knowledge and in helping students to develop critical thinking skills and acquire learning tools will be more complex than ever. Accordingly, the teachers’ role will necessitate an even higher level of personal and professional skills. Therefore, the need will only increase for professional development in innovative teaching methods that enable teachers to lead the building of students’ in-depth knowledge, independent thinking, and ability to learn. As a result, I predict that the search for ways to implement, in a meaningful and systematic way, innovative teaching methods while addressing the pedagogy of the essence of teaching, will become an even more important goal than it was in the past.