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Textbook Quality

A Guide to Textbook Standards

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Contents

Preface to the English edition

This book is the English-language edition of *The Guide for the Good Textbook* (Ivić, Pešikan and Antić, 2008), originally published in Serbian. This English edition contains some significant changes: new text has been added, some text has been modified and text that refers specifically to the conception and production of textbooks in Serbia has been omitted.

The Serbian edition is based on research into textbooks that took place over more than three decades and was conducted by a research group from Belgrade University. Their systematic and continuous research included the following: an empirical study of a large number of textbooks in Serbia (analysis of textbook content, textbooks' educational design, assignments set for students, textbook language, etc.); the study of a substantial corpus of textbooks from the rich library of textbooks at the Georg Eckert Institute for International Textbook Research, Braunschweig; the collection of good solutions for textbook construction from a large number of textbooks from different countries; theses and dissertations on the topics treated by the textbooks; the conception and elaboration of textbook quality standards for the education authorities of Serbia; the holding of conferences devoted to issues around textbooks; the development of theoretical questions relating to textbooks based on Bakhtin's theory of speech genres and Vygotsky's theory of cultural-psychological tools and cooperation in various forms with the Georg Eckert Institute in Braunschweig.

In this book the authors attempt to define general quality standards for textbooks. Quality standards for the following areas have been defined: the curricular content of textbooks, the didactic design of textbooks, textbook language and characteristics of the media in which textbooks are realised. The catalogue includes forty-three quality standards for textbooks. Each standard contains: the name of the standard (and its code), a definition and explanation of its content and a professional discussion of the reasoning behind each standard. Seen together, the forty-three standards cover a broad range of content and give a very detailed and rich definition of the textbook as a specific type of book, effectively constituting an implicit theory of textbooks.

Although the quality standards defined relate primarily to the textbook as a specific type of book, the potential application of these standards is much wider. They can be used for generating and evaluating all forms of teaching/learning resources, all forms of teaching and instructive aids and all types of media (print media, electronic media, audio-visual media) or combinations of media. For example, there are currently increasing numbers of electronic textbooks. This medium offers new opportunities to create learning resources (multimedia, simulation, electronic networking and internet support for individual electronic textbooks, etc.). However, the successful communication of content for learning alone does not resolve the major educational issues faced by textbooks.

In addition to its central part on quality standards for textbooks, this book examines other, more general, issues relating to textbooks. These include an explanation of the concepts behind modern textbooks and a consid-

eration of the quality of textbooks as a significant component of the general quality of education and of textbooks as an important cultural phenomenon, as well as issues around textbook application in teaching practice.

Although this book was written in Serbia, it relates to general issues related to the process of producing quality textbooks. Its occasional references to specific problems of textbook production in Serbia simply serve to illustrate the problem in countries which have similarities with Serbia in terms of their overall level of development, the characteristics of their education system and the status quo in the field of textbooks.

We hope that this book will be an incentive for productive professional discussion with colleagues from other countries and will further our joint effort to improve the quality of the textbooks used by our children.

The Authors

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We would like to take this opportunity to thank all those who contributed substantially to the making and preparation of this book.

We begin with expressing our gratitude to the Ministry of Education and Sport of Serbia for its financial support for the first and second phases of the project entitled *The Quality of School Textbooks and Quality Assurance Mechanisms* (2003–2004), which served as the foundation for further research conducive to the writing of this book.

We also wish to express our gratitude to all our colleagues and collaborators who participated in various phases of the above-mentioned project; we particularly appreciate the contributions made by Dr Jelena Pešić, Profesor Ratko Jankov and Dr Aleksandar Bogojević, who participated in both phases of the project. We equally extend our thanks to Professors Dragica Trivić and Snežana Marinković for their participation in the second phase of the project and Professor Dijana Plut for her contribution to the first.

Further, we are indebted to Dr Falk Pingel from the Georg Eckert Institute for International Textbook Research in Braunschweig, Germany, for his active participation in our workshops and seminars dedicated to history textbooks as well as for his constructive suggestions and opinions regarding professional questions on textbooks.

Our special thanks go to the Georg Eckert Institute for supporting our work on textbook issues. We greatly appreciate their commitment to collaborating with us and helping us organise conferences in addition to ena-

bling the authors of this book to use the Institute's library, which holds an inspirational collection of textbooks from many countries. Needless to say we are also indebted to the Institute for their support in preparing the first edition of this book.

We thank the Ministry of Science of Serbia for their support for the project *Quality in the Process of Learning/Teaching: theoretical concepts, methodological issues and application*, during which we carried out the theoretical and empirical research on which this book is based.

We likewise owe our thanks to the Novi Sad Platoneum Publishing House and its editor Dušan Vujičić for their important contribution to our joint conferences and seminars on textbook writing, their encouragement of further research and the practical application of a large number of ideas aimed at improving the quality of textbooks.

The Authors

Introductory notes

In order to put the content and purpose of this book in context, it is essential for us to provide basic information regarding our ongoing work on textbooks. Our activities preceding this book have consisted of various initiatives, research projects, practical activities and publishing.

In-depth research on anthropological, psychological and pedagogical aspects of textbooks was initiated by the Institute for Psychology at the Faculty of Philosophy in Belgrade in the mid-1970s. The direct trigger for the beginning of textbook research was the launch by the Public publishing house (Zavod za udzbenike i nastavna sredstva) of a project on the general conception of textbooks, the objective of which was to create and put into practice general concepts for textbooks as well as concepts for individual subjects (see *General Framework for the Preparation of Primary School Textbooks*, 1976). The first of the three authors of this book, Ivan Ivić, was a member of the core team for that project, in charge of the general concepts, while the second author, Ana Pešikan, participated in working out specific concepts for individual school subjects. The formulation of those concepts is directly linked to the content of this book; it is well known that the original concepts which emerged from this project were predecessors of current standards of textbook quality.

The first author of this book accepted the challenge arising from this work on concepts for textbooks and commenced work on the theoretical foundations of textbooks (see Ivić 1976a, 1976b). This in turn initiated

research into theoretical and empirical issues surrounding textbooks – work which is still in progress.

The first project incorporating such theoretical analysis lasted three years and was entitled *Psychological and Pedagogical Analysis of Primary School Textbooks* (1982). It was funded by the public body in charge of the organisation and funding of primary education (the Self-managing Interest Community of Primary Education of Serbia). Twenty researchers were engaged in this major project; from psychologists and educators to linguists.

As part of the above-mentioned project, existing textbooks were subjected to thorough analysis, a process which helped researchers to identify the quality issues affecting Serbian textbooks. This search for the ideas needed for the improvement of textbooks yielded a new and original approach to textbooks, which thus came to be viewed as an important cultural product of paramount formative influence in the lives of children and young people. This theory of textbooks as socio-cultural tools supporting the mental development of children is derived from the general cultural and historical theory of mental development developed by the Soviet psychologist Lev Vygotsky (Vygotsky, 1997 and 2012).

Our long and persistent work in the field of textbook research bore fruit and our efforts were rewarded with an enviable number of scientific publications, diploma dissertations, Masters and doctoral theses in this area. Our dedicated research on textbooks enabled many researchers in our teams to attend international and domestic conferences, write textbook analyses and reviews, advise publishers and set up workshops for teachers on how to improve their use of textbooks in the classroom

(an overview of the main publications in the field is included in the references).

Our research in how to improve textbooks was given a new impetus when it was incorporated into the international project *Democracy in Education: Education for Democracy*, funded by the Swedish Agency for Development (SIDA/SAREC). In the period between 1997 and 1999, this project was completed in five countries (Sweden, Bosnia and Herzegovina, Mozambique, South Africa and the Federal Republic of Yugoslavia). This project presented an opportunity for us to test the theoretical concepts which originated in our previous work conducted under the auspices of the Institute for Psychology of the University of Belgrade. It also enabled us to apply some methodological solutions to research on textbooks, testing them against international comparative research.[1]

The results of our long-term theoretical and research work received comprehensive practical application in the realisation of a major new project contracted by the Ministry of Education and Sport of the Republic of Serbia. The first phase of that project ended in 2003 and was entitled *A Mechanism for Securing Quality Assurance Mechanisms of School Textbooks*. The finalisation of the first phase enabled the researchers to embark on *The Quality Standards for Textbooks*, which represented the project's second phase, ending in 2004. The principal objective of this

1 Other countries also participating in the project implemented methodology originating from the Institute for Psychology research. Some of the results of this international project are available in works by Ivić and Pešikan, 1997; Pešikan, Pešić and Plut, 1998; Carrim et al., 1998; Plut et al., 2001; Pešić-Matijević and Antić 2001; Plut et al., 2002a; Plut et al., 2002b.

project was to adopt the previously formulated and tested quality standards as national standards to be applied whenever textbooks are subjected to the accreditation process in Serbia.

The first phase of the *Mechanism for Securing Quality Assurance Mechanisms of School Textbooks* project was realised by the Institute for Psychology at the Faculty of Philosophy in tandem with the Belgrade Educational Forum. The head of the project was Ivan Ivić, whose team members included Ana Pešikan, Jelena Pešić, Dijana Plut, Ratko Jankov and Aleksandar Bogojević (Ivić et al., 2003). The second phase of the project was also completed at the Institute for Psychology and the Educational Forum. The head of the project was again Ivan Ivić and his team comprised Ana Pešikan, Jelena Pešić, Dijana Plut, Ratko Jankov, Dragica Trivić (Šišović), Snežana Marinković, Aleksandar Bogojević and Slobodanka Antić (Ivić et al., 2004).

Our work on the *Textbook Quality Standards* ran parallel with another project conducted by the Institute for Psychology in cooperation with UNICEF, entitled *Active Learning* (Ivić, Pešikan and Antić, 2003) and launched in 1994. The principal idea theoretically and practically underpinning the *Active Learning Project* was a shift in focus from "lecturing" to "learning", from a teacher-centred to a learner-centred approach fostering students' active participation in the teaching/learning process. This view of the teaching/learning process as a search for ways of supporting the learning process of the student is embedded in our approach to textbook quality standards, which focuses principally on the educational design of a textbook's curricular content and is most relevant and applicable to standards relating to the design of questions and

assignments included in the textbook (see Catalogue of quality standards for textbooks, E-Dimension: Quality standards for the educational design of textbooks, particularly standards E7–E11). A detailed description of the link between the *Active Learning Project* and the *Textbook Quality Standards Project* has been presented in a number of scientific papers over a period of some years (Pešikan, 2003; Pešikan and Janković, 1998; Pešikan and Antić, 2003; Pešikan and Antić, 2007; Marinković, 2004).

We have benefited from a highly successful collaboration with Platoneum Publishing House and the Education Forum, to whom credit is due for the application and elaboration of the results obtained through our research. The collaboration consisted in organising meetings of experts and academics, some of which were arranged in cooperation with the Georg Eckert Institute, Braunschweig, Germany, as well as publishing project-related scientific papers in the journal *Teaching and History* (Platoneum) and further encompassed the design and realisation of programmes intended for in-service teacher training advising on how to use textbooks, how to choose a textbook from a number of alternatives and how to evaluate textbooks. The programme *The Quality of Textbooks and Improving History Teachers' Competence in Choosing, Using, Evaluating and Creating Textbooks* was carried out jointly by three parties: the Education Forum, Platoneum and the Pedagogical Institute of Vojvodina. This programme, intended for in-service teacher training, was accredited by the Institute for the Improvement of Education and is being implemented throughout Serbia.

We hope that it has become evident from these introductory notes that *Textbook Quality* is the result of con-

tinuing and dedicated work by its authors in both theoretical and empirical research on textbooks.

1. The textbook and its significance

1.1 Introduction

In this book, we will attempt to provide a theoretical and practical definition of "the textbook". The question as to what a textbook actually is is significant from a theoretical point of view because its answer encompasses responses to other questions: What is learning? What, specifically, is learning at school? What is the role of the teacher during the teaching process? And what should a successful thematic unit within a textbook look like?

First, the way in which we define and determine the concept of the textbook will affect its practical realisation as a whole: the appearance of the basic text (the type and quantity of content presented), the kinds of supplementary materials used, the textbook's educational/scholarly apparatus and its aesthetic and typographical format.

Second, the way in which we define the textbook will influence the teaching process itself and will determine whether students will be able to use the textbook independently or whether supervision in the form of a teacher, parent or guardian is necessary.

Third, this book's practical significance is that it indicates which stakeholders and authorities should take part in the creation of the textbook. If we take a history textbook as our example (Stearns, Seixas and Wineburg, 2000; Pešikan and Antić, 2007), the following disciplines, social groups and institutions will have an interest in the book's content and style:

– The discipline of history, embodied in institutions such as universities, academic institutions and academies, professional bodies and societies, etc.
– The disciplines of education and psychology, which seek to ensure that the textbook demonstrates awareness of the psychology of learning and of children's intellectual developmental potential within given age groups.
– Political stakeholders that shape domestic and foreign affairs policies, for instance ministries of education and of internal and foreign affairs. If, for example, a country is planning a long-term alliance with a country with which it used to be at war, such stakeholders would be concerned with the question of the extent of the coverage this war would receive in the textbook and how it would be presented.
– Mainstream society, which has its own interpretation of many events, figures and phenomena in history and is thus interested in representations that agree with the dominant ideology.
– The church, which – whether it is part of the national system of education or not – has been involved in socio-political events until recent times and is therefore very sensitive to the interpretation of its own role and position in historical events.
– Parents and children: Parents are highly engaged with their children's well-being and often have their own personal perspective on particular issues in history, especially when it comes to recent events in a country's national past. Students, in turn, may have their own point of view regarding particular chapters in history. Sometimes this stance manifests itself in the form of stereotypes attached to different ethnic and

social groups (Patton, 1980; Gardener, 1991; Hallden, 1998; Voss, 1998; Pešikan and Marinković, 1999; Pešikan, 2001; Pešikan and Marinković, 2006; Antić, 2007a). When we consider the way in which history is taught in our schools, it is obvious that this type of content does not reach the children. History is one of the least popular school subjects (Pešikan, 1996).

During the process of writing a textbook, it is important to keep in mind the points of view and the needs of these and other relevant social groups. Very often, the influence of these stakeholders is reflected in the structure of the textbook, so that it is sometimes highly obvious that some parts of the textbook have been specially created to satisfy the interests of some of these interest groups.

Furthermore, one of the most serious problems in education – not only in Serbia – lies in the quality of school textbooks (Ivić, 1992; Johnsen, 2001; Ivić et al., 2003; Pešikan and Ivić, 2005b). The evidence for this can be found in professional research papers and it is also a view held widely in public opinion, particularly by parents and teachers.

In order to improve the quality of textbooks within the shortest period of time and without great expenditure, it is necessary to ensure that the prerequisite conditions (i.e. institutional and human expert resources) for both the writing of the textbooks and their academic study are in place. By improving the quality of textbooks, we can make a significant contribution to the improvement of education as a whole, because the quality of textbooks is a very important component of the general quality of education. Once good textbooks are written, they reach schools, teachers and students. Therefore, particularly in developing countries, there is no single

factor in improvement in the quality of education which is comparable with textbooks in its impact.

This publication, as a guide for good textbooks, is mainly concerned with improving education by raising the standard of textbook quality.

1.2 Do we need textbooks at all?

Not all countries have textbooks and many more do not have textbooks which are used on a compulsory basis[2] (Mikk, 2000; Johnsen, 2001). Instead of the type of textbooks we are familiar with, these countries use sets of instructional materials which vary from school to school.

Therefore, the first inevitable question is whether in today's educational system there is a need for textbooks at all. This should not be an abstract question to be resolved in an abstract way, i.e. treated separately from specific conditions affecting the development of the teaching process in a given country. If the real conditions in each country are taken into account, then we can categorically state that in all developing countries there is a need for textbooks of guaranteed scope and quality, because this is one of the most reliable and easiest ways to secure the quality of education as a whole.

If a democratic country wants to provide quality education for all its children and young people, but is not yet economically strong enough to rely on the population's

2 In some schools in Serbia there is no such thing as a "Bukvar" (a universal Serbian spelling book), which in Serbia is also called "the very first school book".

purchasing power and market forces, then concern with the quality of textbooks is a very important means for it to safeguard a bare minimum of quality in the educational process. Teachers' competence and the success of the learning outcomes they generate may vary; similarly, the types of communities that students and teachers belong to may range from wealthier, and thus able to provide more stimulation to students, to poorer, and therefore often less stimulating. Other variables include the educational level of parents/carers, the standard of living and level of cultural development in the local community and the facilities and quality of the school as an institution. Quality textbooks would, however, provide a uniform optimum standard of education, transmitting an aspirational message to the students as well as the teachers and parents in such areas.

A high standard of education can also be achieved without compulsory textbooks, but in order for this to happen the following conditions have to be met: first, an abundance of learning resources such as school and other institutional libraries, with diverse literature, encyclopaedias, popular science books, dictionaries, thesauri, children's books, etc.; second, there needs to be well-equipped media libraries, laboratories with excellent facilities, computers and internet access, opportunities for educational expeditions and excursions; third, there is a need for highly educated teachers with opportunities for continuous training and development and specialised teaching assistants and other learning support staff. Without such resources, the process of learning largely depends on textbooks. There are a few fundamental reasons for this.

In many schools, particularly in less economically developed countries, textbooks are the only teaching media available. (Unfortunately, sometimes conditions are even below this standard and learning takes place without any formal instructional material and only from unreliable "notes".[3]) Given that the textbook is a public educational tool in mass use, most countries have established a degree of public supervision to ensure its quality. What is even more relevant, however, is the fact that even in conditions of poverty, it is possible to attain a solid level of textbook quality, provided that there are adequate expert and publishing resources available. Increasing the quality of textbooks facilitates the provision of one very important constant in standards of education as a whole, since it means that in every school every single student can, at the least, access the same content for a given subject. This is why it is very important to ensure the quality of textbooks as one of the reasonably available measures for the improvement of the quality of education for all.

Studies by various international bodies have confirmed that in developing countries, in conditions where there are limited resources, the primary focus should be investment in the quality of textbooks, much more so than in the training of teachers (Moulton, 1997). The majority of countries in the developing world used to invest a great deal in the improvement of teacher training. However, such efforts have proven to be inadequate unless there have happened to be good textbooks avail-

3 As Perkins would say, school-generated knowledge is what passes from the teacher's notes into the pupil's notes (Perkins, 1992).

able to support the process of teaching. Educational experts in most developing countries are now aware that the quantitative and qualitative improvement of school textbooks is a decisive factor in the improvement of teaching in schools (Seguin, 1989). Research shows that the availability of textbooks or their increase in number tends to be the one constant indicator of rising levels of school achievement and that the availability of books is much more effective as a measure than raising standards in teacher training. In the Philippines, UNESCO invested 25 million dollars in high-quality school textbooks, with a measurable positive impact on the academic achievements of students: an additional 1% expenditure on education per head yielded a 14% improvement in school results (Seguin, 1989).

Another question that arises is whether every school subject needs textbooks. For instance, is it necessary to have textbooks for subjects such as citizenship education? This is a particularly apt question, given that the aim of such subjects is to develop citizens who behave appropriately and take an active part in the life of their community. Is a textbook for this subject necessary or even possible? If so, what should it look like, if its aim is primarily to shape and influence children's behaviour outside the classroom?

The importance of this question is twofold: first we must ask whether a textbook can influence behaviour at all, if behaviour is learnt in practical action rather than theoretical reading. Provided the answer to this question is affirmative, a further question arises in relation to the limitations of such a textbook: to what extent can it influence the students so that they engage in the desired behaviour? The answer is not entirely straightforward.

This publication is one approach to exploring and explaining this issue.

1.3 The textbook – a cultural value resource

We have already emphasised the integral role of textbooks in raising the standard of education in many countries. The recent focus on quality standards for textbooks is part of a wider trend that seeks to provide quality control within industry as well as culture (one example is the ISO 9000 family of quality standards).

There are numerous reasons why addressing the problem of the quality of textbooks is a vital issue of fundamental social significance. From a quantitative perspective, the output of the film industry and the production of electronic media are unparalleled as far as cultural mass products are concerned. In terms of print media, textbooks are at the very top in terms of the numbers of their users. In order to fully comprehend the scale of this cultural phenomenon, we only need to recall the amount of public attention that other types of books receive, such as political or controversial books, which have a significantly smaller circulation. The high circulation of textbooks clearly has economic implications for publishing houses, which we need to take into account. These reliable quantitative facts indicate that textbook publishing is of primary national and cultural importance.

This conclusion becomes even more compelling if we think about the importance of the textbook in terms of qualitative facts. Textbooks, by default, play a major role in the life of every person in the early stages of his or her development. This is the crucial period for the acquisi-

tion of knowledge and skills and the development of reasoning, personality traits, points of view, values, needs and habits (Ivić, 1976a; Patton, 1980; Zujev, 1988; Plut, 1990; Ivić, 1992; Pešikan, 1996; Marinković and Pešikan, 1998; Pešikan, 2001; Mikk et al., 2002; Selander, Tholey and Lorentzen, 2002; Plut, 2003, Plut and Pešić, 2003; Pešić, 2005a; Pešić, 2005b; Kalmus, 2003; Marinković, 2004; Trebješanin and Lazarević, 2001; Pešikan and Marinković, 2006). It is often assumed that we disseminate culture through the content of textbooks, culture in the sense of global and national heritage. Further, students' interaction with school books will to a large extent influence their attitude towards books in general, their attitude towards reading and academic work (Patton, 1980; Seguin, 1989; Trebješanin, Pešikan and Kovač-Cerović, 1990; Plut, Daničić and Tadić, 1990; Pešić, 1998). Years of experiences with school books will to a significant extent determine whether a person will begin to enjoy books and become an active, selective, analytical and critical reader. Will he or she be able to form a thorough, personal perspective on a given matter? Will these early users of textbooks later be able to research and apply information from books to their own personal and professional lives? In a nutshell, from our experience of textbook use we create the habit of using books in general; this is one of the greatest achievements in the process of school education and one of the most fundamental characteristics of an educated person.

Therefore, if textbooks can stimulate the development of such important skills and influence personality traits, then we will see an increase in the number of successful students as a result of the use of good textbooks. And conversely, if textbooks are of poor quality, then we will

see an increase in negative effects: students developing a negative attitude towards books and reading, discarding and damaging books and finding themselves unable to academically cope with written texts.

1.4 What is a textbook?

1.4.1 The textbook: transmission or construction of skills and knowledge?

First, it is necessary to determine how we define a textbook; we will attempt to do this in a pragmatic rather than abstract and theoretical way. We will endeavour to make the definition relevant to the politics of the writing, production, use and evaluation of textbooks in current conditions in a given country.

Independent of theoretical definitions, textbooks have fulfilled a dual function in the practice of publishing in Serbia, to give an example. On the one hand, the textbook has been the "operationalised school curriculum" (Ivić et al., 2003, p. 9). One of the imperatives which have driven the creation of textbooks has been for the textbook to "cover" the entire school curriculum. For many teachers and for all students the textbook was the only form of the school curriculum with which they came into direct contact.

On the other hand, for the students themselves the textbook has been the basic instrument of their education, the fundamental and often the only means of studying and most frequently a tool for reproductive or repeti-

tive learning.[4] The primary role of the textbook has been that of transmission of information predetermined by the school curriculum for a given subject in a given school year. In fact, the textbook has been, and still is, almost a literal translation of the front-of-the-class teaching style. The main text is almost a written version of the lessons, and the book's so-called "pedagogical apparatus" often only replicates the student's active involvement in the form of reproductive questions, non-stimulating tasks, pseudo-questions, etc. (Ivić et al., 2003; Ivić et al., 2004; Pešikan and Janković, 1998; Pešikan and Antić, 2003; Pešikan and Antić, 2007). In this way, the structure of textbooks reflects the dominant model of the transmission of knowledge in the context of learning and teaching in schools.

Unlike this narrow meaning of "textbook" as the carrier of curricular content, in the current literature the use of the term "textbook" is sometimes too broad and imprecise. For example, a textbook, thus defined, can be any book which is used in the classroom, or any item of photocopied material created by the teacher, or worksheets taken from other sources, or parts of unpublished material (Johnsen, 2001).

The active learning approach which we are proposing (Ivić, 1992; Ivić, 1996; Ivić, Pešikan and Antić, 2003; Pešikan, 2003; Ivić et al., 2004; Antić, 2007b), focuses on

4 Reproductive forms of learning are those where students repeat the given content of lessons, sometimes, unfortunately, mechanically and lacking in understanding.

learning itself and on who is doing the learning.[5] This naturally lends itself to a different understanding of the textbook *per se*. With its content and pedagogical apparatus the textbook supports the construction of knowledge undertaken by its user (Pešikan, 2003, pp. 3-33). This change of view implies two drastic shifts in the perception of the textbook, whose primary role thus becomes developmental and formative, rather than pre-

5 The Active Learning/Teaching Programme's (ALT) main objective is to change learning/teaching methods in our schools so as to enable children to acquire knowledge and skills needed for their future professional and private lives in socio-economic circumstances which have been subject to dramatic change. Typical teaching practices in Serbia do not pay enough attention to social and emotional factors, extra-curricular skills, freedom of choice in decision-making, freedom of expression, individuality, initiative and privacy. The child is reduced to such cognitive activities as memorising and simplified modes of thinking. The result of such practices is a low efficacy of learning in schools. Students in schools acquire clusters of knowledge that are isolated from one another; thus they are unable to apply them to different situations either in or outside school. The objective of ALT is to improve the educational effect of school teaching and to enrich every child's personality development by expanding the scope of teaching methods while carrying out a study programme. The ALT is equally concerned with the child's motivation for learning and with teaching the child to learn independently. What ALT particularly emphasises is paying attention to numerous activities ranging from engaging children in dialogue to teaching them how to present their own ideas, how to co-operate with other children to make choices and how to create new solutions to problems. All these activities will help children acquire and construct their own knowledge.

dominantly transmissive (simply transmitting knowledge):

– The first shift moves the focus from the content of the textbook to the process of acquiring and studying that content – we are shifting from *what* to *how*. We are now not only concerned with the content itself, but with how this content is mediated. Such a shift does not mean neglecting the content – quite to the contrary. Although it is vital that the textbook's content be accurate and representative of the subject in question, this is not sufficient in itself. The content of the textbook and its presentation cannot be viewed separately. Content selection is not only representative of the subject but must also take into account for whom it is intended (students' prior knowledge, the intellectual capacity of students of a given age, individual differences, etc.). All this will affect the presentation of the textbook's content.
– The second shift moves our attention from the exposition and direct transmission of knowledge to learning in the form of the production of knowledge: the process of actively constructing reliable and useful knowledge through the student's efforts, attitudes and actions. The shift here takes place within the issue of the *how,* i.e. it questions how the content is being handled. The focus moves here from the direct transmission of information to the creation of conditions for the student's independent construction of knowledge. This clearly highlights the main function of content in the textbook: it is there to create the necessary learning conditions for the person using it in order to produce specific and relevant knowledge for the given subject.

To put it more simply, the transmissive function of the textbook relies on a cumulative learning principle. The developmental and formative function of the textbook, on the other hand, is to create the conditions that enable the student's own construction of knowledge. In other words, developing a textbook means focusing on choosing the most effective means of organising a meaningful interaction between the body of knowledge to be contained within the textbook and the students, in such a way that it engages their intellectual and other abilities (Seguin, 1989; Mayer, 1989; Mayer, Sims and Tajika, 1995; Mayer et al., 1996; Ivić, Pešikan and Antić, 2003; Pešikan, 2003; Antić, 2007b). One of the primary functions of a textbook has historically been, and continues to be, the imparting of general knowledge in a given subject. However, this is no easy feat, because it is not sufficient to simply present the core information and facts to students in order for them to automatically acquire them; the ability to simultaneously reproduce content and understand the subject matter does not necessarily guarantee the retention of this knowledge. In order for the subject matter to be presented in such a way as to enable students to master, generalise and apply this knowledge in situations outside the classroom, a number of requirements need to be fulfilled. Defining these requirements is one of the aims of this project on textbook quality.

Given the developmental role of textbooks in the process of learning and the goals to be achieved, it seems essential to shift our focus from the narrow definition of "textbook" as a literal book for student use to the more comprehensive textbook set. It is thus necessary to detail all the different possibilities inherent in the production

and use of textbook materials. Finally, it is important to explore the different ways of combining these textbook materials depending on the subject and the teaching objectives set for a given age group (see chapter 1.7).

If we want a textbook to support students' independent learning, we need to take the following factors into account during its development and production:

- the nature and diversity of the knowledge and information which constitute the content of the textbook;
- the function of the textbook;
- the addressee, that is, the student for whom the textbook is intended (taking into account his or her age group, level and the type of education to be provided);
- the medium in which the textbook is implemented.

1.4.2 The textbook as a specific type of book

We derive our theoretical framework, that is our understanding of the concept of the textbook as a specific type of book, from Mikhail Bakhtin's theory of speech genres (Bakhtin, 1986a, 1986b, 1991, 1993). The basic idea behind our application of this theory to the textbook is that the textbook is a book with a series of specific functional and structural features by which it is distinguished from other books.[6]

6 When we speak of "books", we are, here, also referring to multimedia textbook sets and textbooks in all types of media, including electronic and interactive media.

Bakhtin's principal idea is that every individual genre is a tool used for a given type of communication, determined above all by the aim of the communication and the addressee. Bakhtin places particular emphasis on the addressee. The type of communication, its functions and the addressee determine all functional and structural characteristics of a given genre. The following are examples of Bakhtin's speech genres: everyday speech, personal or business letters, military commands, business documents, journalistic writing, scientific studies, the novel, the socio-political treatise. It follows, then, that speech genres may be oral or written. This theory also indicates that speech genres may be simple (such as the letter) or more complex (in the case of the novel, which can include within itself a simple genre such as the letter). Complex genres are those which we today might call complex narrative structures. Thus every genre is a form of communication which is directed to an identified partner (the addressee). It has its own function, from which originate all its characteristics, such as structure, style and language (its specific lexicon and syntactic form).

The textbook falls into the complex category of genres, as it can contain genres such as poems, stories, historical documents, journalistic writing, etc. Therefore the textbook is a complex narrative structure with its own specific functional, structural, stylistic and linguistic characteristics.

We take as the starting point for the textbook's production and comprehension the fact that the textbook is one of the most elementary means of didactic communication. The content of this communication is the content of the school curriculum, that is, what the student is

supposed to learn. The addressee to whom the textbook is directed is a student of a given age and educational level. All characteristics of the textbook originate precisely from this particular function and the addressee to whom it is directed. It is important to emphasise that the addressee – the student – has to be fully embedded in the structure of the textbook if the book is to belong in the textbook genre.

Lev Vygotsky's theory of cultural-psychological tools and their role in the development of the mind supplements Bakhtin's theory of speech genres. Bakhtin's theory defines the specific characteristics of cultural products, such as different categories of speech genres. Vygotsky's theory as a whole, and especially his work on cultural-psychological tools, defines the psychological processes necessary for cognitive development (Vygotsky, 1997). According to this theory, cognitive development is closely linked to and dependent on underlying cultural systems (i.e. the cultural systems which act as the predominant support for the cognitive development of the individual). Vygotsky himself carried out famous studies on the role of cultural systems such as language (and its part in the development of higher cognitive functions such as verbal reasoning) and the system of scientific concepts. The capacity to acquire a system of concepts is the basis for all intellectual development during schooling and forms the foundation of abstract thinking.

Following on from Vygotsky's ideas, we define the textbook as a very powerful cultural-psychological tool for the stimulation of intellectual development. Here, of course, we are only referring to the textbook as created according to the theoretical principles outlined above. The book has to fully take into account its own function

in pedagogical communication, in which the characteristics of the addressee/student are firmly embedded. It generates and secures pedagogical communication in the form of cultural communication and interaction.

In the light of Vygotsky's theory of cultural-psychological tools as supporting or amplifying an individual's cognitive faculties and development, the textbook is also a powerful and common cultural tool for educational communication. In their interpretation and development of Vygotsky's ideas, the authors of this book have defined the form of pedagogical interaction that takes place between student and textbook as cultural communication (communication with a cultural product, with a psychological-cultural tool). Cultural communication via textbooks is implicit social interaction, because the implicit presence of an adult communication partner is embedded in the structure of the textbook. This social partner (the representative of culture, the author of the textbook, the teacher) is embedded within the structure of the textbook in a number of ways, which include the selection of content from the curriculum, the pedagogical processing of that content and the monitoring of language in order to tailor the textbook to the intended school age group. The adult partner is most importantly present in questions designed to stimulate reasoning and discussion, tasks for independent work, revision questions and tests for the students. These are specific features of the textbook and primary components of its content and structure. It is precisely these components that ensure that the cultural communication facilitated by the textbook as a specific form of social interaction is realised by means of the student's independent use of the textbook as a learning (educational) tool.

Defining general standards for the quality of textbooks, an endeavour which constitutes the core of this book, is nothing other than defining the textbook as a specific complex genre. Thus the primary parameters that specify the characteristics of the textbook as a specific book, or a specific genre in the Bakhtinian sense, are in fact the clearly defined quality standards of a textbook.

Everything discussed thus far about the textbook – its significance as a cultural resource or asset, its role in the process of learning through the construction of knowledge and skills rather than its mere transmission and its developmental formative function – has been derived from the theories of Bakhtin and Vygotsky. However, we do not seek to demonstrate the complex process of extracting characteristics of the textbook from these ideas. Our main intention is to define the specific features of the textbook, which follow from these theoretical positions, in the most practical and concrete way.

The quality standards for textbooks which form the core of this book are the result of the authors' independent efforts to translate these ideas into a number of defining characteristics of the textbook as an independent genre. The quality standards for the different levels of textbook structure are further steps in the pragmatic definition of specific textbook features (see chapter 3). Standards describing levels of structure can refer to the textbook set, a textbook in the narrow sense of the word as a book for the student, thematic units and iconic/typographical components of the textbook.

The uniqueness of the textbook as a genre stems from specific standards of quality for the content of the textbook, its didactic design, its language and the quality of

its electronic or interactive media. Only these concrete characteristics are able to define the textbook genre in a comprehensive way. We must emphasise that only a textbook created according to these standards can take on the desired role in the cognitive development of the child as projected by Vygotsky's theory of psychological-cultural tools.

The fundamental factors involved in defining the textbook as a specific type of book are the following:

– The content of the textbook: The textbook is a cultural product which represents the basic structure of a given subject or a part of that structure intended for a specific age group or educational level. Therefore it contains within itself the basic system of concepts at the core of a particular subject or discipline. This is how the textbook differs from other genres of books on the same subject matter, such as memoirs, studies, encyclopaedias, chrestomathy, popular non-fiction, etc.
– The didactic design of the textbook's content:
  Content alone does not suffice for a cultural product to be classified as a textbook. The content must be didactically designed to ensure that the basic structure of knowledge it represents can be acquired by the readers for whom it is intended. This criterion means that the target audience has to be seriously considered so that the book may be able to communicate effectively with its readers. The textbook must take into account their developmental level, the level of their previous knowledge on the subject, their motivation for learning, their socio-cultural background, their values, etc. To put it succinctly, the textbook must be directed towards the student.

Viewed in this way, the textbook is no longer merely a means for the concrete realisation of the school curriculum, nor is it a direct substitute for lessons or a tool for reproductive learning. Instead, it is the elementary tool for the organisation of the student's learning process on the one hand, and for a rich pedagogical interaction between student and textbook, and between teacher and student, on the other.[7]

If the criteria for quality meet both of these conditions, then the textbook becomes a very important factor in the quality of education. The quality of education consists of the following essential factors: the quality of teaching and instructive resources; the quality of the learning environment; the quality of the teaching process and the quality of achievement attained by the students (see chapter 2.1).

As we can see from previous discussion, a textbook must by definition have a functional quality, because it is a very specific medium which cannot be defined outside of its function of facilitating learning. The word for textbook in Serbian is "udžbenik", which literally means a book for learning or a book from which one learns – a literal meaning not implied in the English word "textbook", which could theoretically refer to any book containing a text. In other words, the textbook is a particular type of didactically designed cultural product whose purpose is to act as a support for learning and for the intellectual development of young people (Ivić, 1976a and

7 We will further elaborate and nuance this general and concise definition of the textbook by defining its parameters of quality.

1976b; Richaudeau, 1979; Vygotsky, 1997; Seguin, 1989; Pešikan and Janković, 1998; Pešić, 1998; Plut, 2003; Plut and Pešić, 2003; Pešić, 2005b; Pešikan and Antić, 2003; Pešikan, 2003; Gerard and Roegiers, 2003; Ivić et al., 2003; Pešikan and Ivić, 2005a; Pešikan and Ivić, 2005b; Braslavsky, 2006; Pešikan and Antić, 2007).

> A textbook is any teaching tool or combination of teaching tools which contains a systematisation of knowledge and information on a particular subject matter and which is didactically designed for a specific educational level and student age group in order to fulfil a developmental and formative role in students' construction of knowledge.

1.4.3 The textbook and the nature of knowledge in specific subjects

School subjects vary significantly in terms of the types or nature of knowledge they encompass (Ivić, 1992; Ivić, 1996). Some bodies of knowledge are systems of axioms; some are systems of scientific concepts organised as systems of taxonomic categories, very similar to conceptual knowledge; some subjects consist of factual knowledge, i.e. isolated individual facts, or declarative knowledge; other subjects are viewed in terms of skills and practical abilities, or what is often referred to as procedural knowledge; still other kinds consist purely of

practical, intellectual, social or technical skills and abilities and some contents of the school curriculum represent different types of value systems: aesthetic, moral, cultural, religious, etc. When we take into account the diversity of subjects in terms of the nature of the knowledge they encompass, we would expect this to have significant consequences for the concept, form, content and medium of a textbook.

Textbooks for different subjects, then, must differ from one another for an important reason: The types of knowledge within a given subject will significantly determine the learning methods necessary for acquiring this knowledge (Ivić, 1992; Ivić, 1996; Ivić, Pešikan and Antić, 2003). By way of a simple illustration, creativity cannot be developed by merely memorising texts about creativity, and practical skills such as riding a bicycle, using the computer or creating a geographical map cannot be taught without practising these skills. Value systems cannot be developed through declarative verbal moral instructions, but rather require the provision of examples of different behaviours and their evaluation, as well as the practice of moral behaviour.

Therefore, for the textbook to be able to fulfil the role of an important educational tool that can guarantee the acquisition of relevant knowledge within the school curriculum, the character of the textbook must be compatible with the nature of the knowledge to be acquired within a given subject and the book must contain the learning methods specific to that type of knowledge (Pešikan and Janković, 1998; Pešikan and Ivić, 2005a; Pešikan and Ivić, 2005b; Ivić and Pešikan, 2006; *National Science Education Standards*, 2006; Mayer, 1989; Mayer, Sims and Tajika, 1995; Mayer et al., 1996; Pešikan and

Antić, 2007; Antić, Pešić and Pešikan, 2008; Pešikan and Antić, 2008).

Such compatibility between the nature of subject knowledge and the nature of the textbook is the primary indicator of the textbook's quality (see: The catalogue of standards, group D). This alignment between the nature of subject knowledge and the form of a textbook brings together two very important aspects of textbook quality: the quality of textbook content and the quality of its didactic characteristics.

As we have outlined, different learning methods depend on the nature of the knowledge to be communicated, that is, the specific discipline to be taught. However, we may have different structures of textbooks even within the same discipline, i.e. different materials within the textbook and the supplementary materials.

In the light of these considerations, we can formulate at this stage a fundamental principle of the effect of the textbook on the process of learning: The textbook will reflect the nature of the process of learning, because different textbooks have different potential to stimulate the acquisition of knowledge and the development of skills and competencies.

If a textbook's purpose is merely to showcase content, then in the best-case scenario it may potentially facilitate the successful memorisation and reproduction of the given material with comprehension. In the worst-case scenario, it enables only memorisation or rote learning. We can secure the development of a student's problem-solving skills for a given subject by integrating a range of problem-solving tasks into the basic textbook material. By including a selection of primary sources for the student to analyse independently and from which to draw

his or her own conclusions, we can facilitate important skills for further independent intellectual development. Further, in scientific disciplines, providing a student manual for laboratory work, whose purpose is to involve the student in small experiments, can help ensure that the student's scientific or research skills are properly developed. Finally, if we include tasks which require the student to take a critical stance, we will help to foster a culture of critical thinking.

In the history of textbook publishing, textbooks have shown considerable variation from subject to subject. For example, many parts of mathematics textbooks may resemble workbooks of problems rather than conventional textbooks. Textbooks for literacy acquisition in students' mother tongue may consist of a reading book, which is simply a selection of literary texts. Some parts of a science textbook may be very similar in form to a students' manual for laboratory exercises. Such examples demonstrate just how important it is to take into consideration the distinctive nature of a particular subject when writing a textbook. Nevertheless, too much uniformity still prevails in textbook publishing. Thus, textbooks for music, or for ICT, may be an imitation of a "standard" textbook, despite the ranges of subject-specific features which should ideally be reflected in the style and the structure of the whole textbook set in these subjects.

Even though this book uses the term "general" for standards of quality, we are not in this instance referring to universal, fixed requirements which remain the same for all textbooks regardless of the subject or age group targeted. In the central section of this book, the catalogue for the quality standards of textbooks, we detail alongside every standard a set of clearly outlined condi-

tions which will determine whether the standard is applicable or not in a particular instance. The standards have to be adequately adapted to different subjects, age groups, teaching objectives and different contexts. This flexibility of the standards is important in order for the textbook to be able to fulfil its most basic role – facilitating the acquisition of permanent and useful knowledge and the development of skills and competencies (this is the developmental and formative function of the textbook we are referring to in this publication).

1.4.4 The implications of the textbook's role

If we are to claim that the textbook has a primarily developmental and formative role, we must first ask what the implications of such a definition might be (Pešikan and Antić, 2007).

First, the textbook thus understood becomes a tool for the organisation of the student's learning. The textbook is an instrument which creates the conditions for independent and more efficient learning, rather than simply a file of selected content. The textbook is the organising body of the conditions and content of learning.

Second, in order for a textbook to be a tool for the student's construction of knowledge, it must be adequately adapted to its user, the learner. This means that the textbook must take into account the user's age group, level of cognitive development, intellectual abilities, level of previous knowledge and experience, sociocultural background and purpose in learning. The textbook can fulfil this role in a number of ways. The key is

to inspire and encourage a range of learning methods specific to the nature of each discipline. Problem solving in history, which entails questions such as "How reliable are our sources?" and "Which interpretations are plausible?", is very different from the kind of problem-solving applied in mathematics. In the former, problem solving requires a predominantly probabilistic way of thinking, that is, working with ideas of what is more or less probable[8] rather than with definite facts. In the latter case, that of mathematics, we may draw on a number of different processes ranging from the application of algorithms to solve simple, typical tasks, a process no more complicated than the reproduction of knowledge, to complex processes of deduction bordering on a capacity for inventiveness. Another way in which the textbook can fulfil its role is by helping to develop intellectual abilities specific to the given discipline. For example, the preparation and organisation of working material for technical drawing is very different from the preparation required for a the-

8 "The historical interpretation of the past is only one possible version of it, which can never be verified completely, i.e. it is always only probable; awareness of this fact helps the development of probabilistic thinking. Bruner and other authors (Watts, 1972) discuss the student's inability to apply probabilistic thinking, which is important not only for mathematics and the sciences, but also for the analysis of social problems. History essentially deals with uncertainty and probability. Historians can never consider their work complete. They can never affirm that their version of the past is truly representative of actual events that have taken place, so their conclusions can only ever be plausible. This is precisely why, if taught properly, history helps to develop a probabilistic way of thinking." (Pešikan, 1996, pp. 16–17).

matic unit in chemistry; preparation must take into account the specific characteristics of each subject.

Third, the textbook should establish a link between the student's everyday life and his or her concrete educational objectives and the knowledge he or she is to acquire in school. In this way, the textbook fulfils two functions: it makes sense of the material and provides additional clarification of knowledge taught in school, while at the same time motivating students to study and develop their intellect. For teaching to be effective, it must always enact a dialectic between daily life and the systematic tools of school discourses (Ausubel, 1968; Vygotsky, 1997; Ivić, 1992). Teaching must facilitate the acquisition of scientific concepts and constant interaction between student and textbook, while at the same time generating interaction between a system of academic and scientific concepts and everyday concepts.

Fourth, an important practical implication of this theoretical definition of the textbook is that it means that the textbook becomes one of the elements in the design and creation of the teaching situation, the situation or set of conditions required for learning. The teacher uses the textbook to provide a richer "pedagogical interaction between the student and the textbook and between the teacher and the student" (Ivić et al., 2003, p.12). In a study consisting of approximately a thousand hours of classroom activity, which originated within the project *Active Learning/Teaching* (ALT), we observed a more frequent, versatile and more effective use of textbooks in the teaching process itself in contrast to current practice, in which the textbook has usually been merely a book used for homework. The teachers participating in ALT have shown considerably increased creativity when using

textbooks in class, whether for the teaching of new material or the consolidation and organisation of previously taught knowledge.[9]

9 It is important to emphasise that the teachers taking part in this project have all had conceptual training (Antić, 2007b). Every type of training, including teacher training, can be differentiated on a spectrum ranging from direct to conceptual training. At one end of the spectrum, there is a very concrete, clearly defined type of training which teachers can complete in a very short period of time. This training involves the application of complete, closed procedures in teaching (a "lockstep" type of training) which are followed to the letter in all situations; put more simply, those undergoing this training receive what one might call a complete formula for teaching. At the other end of the spectrum is conceptual training, which means that teachers become acquainted with the conceptual framework for a given method of teaching/learning, after which it is up to them to translate these concepts into practice and incorporate them into their own individual lesson plans and activities in ways that best fit their specific objectives and the conditions they are working in. Although direct teaching/training seems more efficient at first glance because it is easy to apply and takes less time to complete, conceptual teacher training has a more permanent and sustained effect. Conceptual training is long-term; when assimilated by teachers, it becomes part of their teaching style for the duration of their entire career. It is also more effective because it enables teachers to transfer the skills they have learned to many different situations. The programmes led by this group of authors (ALT and The Quality of the textbook: the development of competence for history teachers in terms of the selection, use, evaluation and production of textbooks) are typical examples of conceptual teacher training, in which teachers are instructed in basic ideas and concepts for designing activities for students. The teachers can then independently plan for their own teaching situation, in which these ele-

Fifth, if there is a shift in emphasis from the exposition and imparting of knowledge to the process of learning and constructing knowledge, then it follows that the term "textbook" will acquire a broader meaning. The "textbook" does not consist of only one basic book from which the students study, but also of additional materials necessary for the study of a given subject (Ivić et al., 2003). All of these supplementary materials need to be justified by having a particular role that corresponds to a specific aspect or segment of learning which the textbook defined in the narrower sense cannot address on its own. All of these materials together form the textbook set.

1.5 The textbook, the textbook set and its materials

Very often, the term "textbook" has two meanings: the first is to denote the book from which the students are studying, and the second is to refer to a collection of textbook materials for a given subject at a given level ("textbook set"). In this second sense, the term is here used synonymously with that of the "textbook set".

Possible materials belonging to a textbook set are:

(A) core book for the student;
(B) printed textbook materials;
(C) books with assignments;
(D) collections of texts, illustrations, notations (e.g. a collection of poems, a history reader, a collection of art reproductions);

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ments will be applied and adapted to their working conditions and the needs and abilities of their students.

(E) anthologies;
(F) dictionaries;
(G) workbooks;
(H) atlases, charts, maps;
(I) posters and banners;
(J) manuals for laboratory work, experiments and practical work;
(K) tests;
(L) teacher's manuals;
(M) audio-visual tools;
(N) different types of electronic textbook materials or e-books.

All units in a textbook set are directed towards the same aim and must complement one another. In other words, each textbook material takes on a different role in stimulating the process of knowledge construction, but they all have the same aim, which is the construction of long-term, useful knowledge in a given subject (see catalogue of standards, group A standards).

> There is no such thing as a single best combination of materials of the textbook set which is applicable across all subjects and for all teaching/learning objectives. The combination of materials must support the nature and the specific characteristics of the subject; therefore, different subjects will have different combinations of materials.

If the textbook is to fulfil its basic function of facilitating different types of learning specific to a given subject, it is necessary to supplement the primary textbooks with additional materials. In textbook publishing practice, however, we have come across a different way of generating materials for textbook sets. The criterion for the introduction of new material should be that it fulfils functions not realised by the textbook itself; however, more often than not, new textbook materials are printed in the form of templates for all subjects, regardless of their inherent qualities and any teaching objectives. For example, a textbook and workbook might be produced for every subject, or if a textbook in one subject is accompanied by a CD this might start a trend of introducing CDs for other subjects for no valid reason. It is very easy to distinguish the materials of the textbook set which have been created as additional study aids to facilitate students' learning from those which are no more than imitations of a given model, or something that authors spotted in a different marketplace and simply reproduced without thinking through the material's true purpose and function.

A textbook set consists of any combination of textbook materials that harmonise with learning objectives in each case and the specific nature of a given subject. For every individual subject it is necessary to have experts for the subject and for the psychology of learning define the minimal textbook/textbook set (without which a quality outcome cannot be guaranteed) and the optimal textbook/textbook set, whose realisation will be contingent on financial conditions.

1.6 The structural and organisational components of the textbook

In section 1.4, we discussed what we consider a textbook to be and what its key determinants are. We will now shift our attention from the textbook as a whole, that is, the textbook set, to the more fundamental level of constructing the textbook proper – the book the student will primarily use.

Within a textbook, there can be different structural components, which help to facilitate and improve students' acquisition of the content presented, and make the book easier to use. At one time there were only a few components in the structure of a textbook: chapters and/or thematic units and questions and assignments. In time, with the development of textbook theory and an increasing demand for textbooks that facilitate more accessible learning, there has been a rise in the number of their structural units (Pešikan and Antić, 2008). For instance, some textbooks appended boxes of additional information to the text, referencing and linking the new with previously learned material or with the students' previous knowledge, providing graphs, diagrams, maps or definitions of unfamiliar words. The sole aim of including this additional information is to clarify the text and present the content in a variety of different ways to enable students to better understand it.

With the increase in number of structural components, there has been a change in the traditional composition of the textbook, which once generally comprised the core text followed by questions and assignments. Some of today's textbooks do not place the core text at the beginning. They use an entirely different method:

starting from the student's activities in relation to a given text, new content is gradually introduced followed by explanations. This is followed by questions and assignments; only at the end is a summary of the material provided – an element which recalls the traditional structure of a lecture (see Bouvet and Lambin 2000). These new structures are a result of the practical implementation of the considerations outlined above on the developmental and formative role of the textbook. They are the fruit of great efforts to supplement the material presented in textbooks in a way that brings it closer to the student. Ideally, the actual presentation of learning material should lead to meaningful activities resulting in the student comprehending the subject.

We will now take a closer look at the structural and organisational components of the textbook. The aim of the structural components is to contribute to a better understanding of the content by linking it to the students' previous knowledge and experience and by establishing a meaningful connection with other content from the same subject or other disciplines in order to increase the students' understanding of a given content and improve their learning efficiency. For its easy recognition, each structural component should be consistently marked throughout the textbook in a specific way, with a particular colour, symbol or distinctive graphic design. The following list gives examples of structural components:

– the table of contents;
– the core text;
– the opening question for the whole chapter or thematic unit, i.e. the key question;
– maps, graphs, diagrams alongside the main text;

– timelines;
– a box with key information pertaining to a specific part of a thematic unit;
– a box containing key words;
– a box with interesting facts or information;
– a box with puzzles;
– a box with content from original documents;
– a box containing stories with content relevant to the thematic unit;
– a question or task alongside the main text of the thematic unit;
– photographs, images or illustrations;
– questions and assignments positioned next to photographs, images or illustrations;
– questions and assignments at the end of a thematic unit;
– historical sources relevant to the thematic unit;
– a checklist to track students' comprehension of small sections of reading ("Is everything clear?") – such an element represents something mid-way between a summary and follow-up questions and tasks;
– a box containing a summary of a part of the thematic unit;
– a summary of the thematic unit;
– a list of key terms to remember from the thematic unit;
– a list of key terms from the whole chapter that need to be learned;
– a concept map providing an organisational chart with all key concepts from the thematic unit and how these concepts relate to one another;
– a review of the entire content and structure, indicating how each of the themes relates to the others;

- a concept map or chart for the thematic unit;
- meta-cognitive materials (explanations and directions on how to interpret diagrams, graphs, tables and charts, illustrations, etc.);
- a review of materials previously covered;
- links to other parts of the text in the textbook;
- a timeline or list of key dates and events from a thematic unit;
- references to additional sources, CDs, web pages, etc.;
- a glossary at the end of the book;
- biographies of relevant historical figures at the end of the book;
- a set reading list;
- suggestions for further reading;
- a jump-in-time (showing how the phenomenon discussed in the thematic unit relates to the present time).

This is by no means a complete list of possible structural components; every textbook may create its own.

Organisational components have a technical function and facilitate more efficient use of the textbook. Their primary aim is to enable students to easily navigate their way through the textbook. Indirectly, these units contribute to the better learning of the material presented in the textbook.

The following list gives examples of organisational units:

- table of contents;
- different types of indices:
  - subject index,
  - author index;
- list of abbreviations;
- list of illustrations;

– various kinds of additional tables (for logarithms, climatic features, chemical elements, etc.);
– introductory explanation of the textbook's structure;
– introductory explanations for each illustration, symbol or colour;
– tags and references for each illustration, graph, source, etc.;
– bibliography;
– notes on the authors.

Readers may wonder at this point how the table of contents can simultaneously belong to both the structural and organisational components of the textbook. Its place in the organisational components is clear, because when we look for a given topic we first reach for the table of contents in order to locate the correct page. In addition to this, the table of contents can also have a hierarchical structure, demonstrating how different topics and units within the textbook relate to one another. When the book's graphic design supports this structure (by using, for example, different fonts and different spacing in relation to the margin), then the function of the table of contents is to help the student to see each part of the textbook in the context of the entire material and become aware of its relationship to other concepts and topics. If the table of contents fulfils this function, it can rightly be considered to be one of the structural components of the textbook.

> The textbook is a book for student use, and on its own is not omnipotent; in other words, it cannot meet all the objectives and require-

ments related to a given subject. For this reason, additional materials may be introduced; together with the textbook itself, these make up the textbook set. Every single one of the materials of the textbook set must justify its existence by realising outcomes that the textbook cannot achieve by itself and thus making learning easier and more efficient. Likewise, the purpose of organisational and structural components is to make it easier for students to navigate their way through learning materials and to contextualise them.

1.7 The textbook and different forms of media

We will now add to our practical definition of textbooks by detailing the types of media in which learning materials are realised. There are three kinds of media:

– print media (including the text and iconic-pictorial tools);
– audio-visual media;
– electronic media (CDs, online formats).

If we keep in mind the range of potential combinations of these three types of media, we will discover very rich possibilities in terms of the spectrum of forms in which textbooks can be realised.

A. The textbook – a printed book

– A textbook might be a printed book for student use (with a range of variations).

– A textbook might be a printed book for student use which contains additional printed material (for example, a book with a pouch on the inside cover which may hold the text of the national anthem, stickers, a spelling book, a concept map, timelines, a genealogy, the periodic table of elements, etc. It could also form a three-dimensional shape when folded. The key point here is that this additional material is an integral *part* of the textbook).

B. The textbook set – a printed version

– A textbook might also be a printed book for student use in combination with other printed materials from the textbook set, such as a workbook, a book of tasks and problems, a laboratory manual or a history reader.
– Another format that is thinkable is a combination of printed textbook materials without an actual "textbook" in the narrower sense (for example, there might be a workbook and an atlas).
– Printed learning materials only (a number of separate worksheets, additional written material for classwork or homework and so on) without a "textbook" and without other printed material from the textbook set.

C. The printed textbook in combination with audio-visual material

D. The printed textbook in combination with electronically based material (educational CDs, online formats, a website belonging to the textbook)

E. The multimedia set (different combinations of printed materials from the textbook set with audio-visual and electronic material)
F. The teacher's manual[10]

– A teacher's manual and a printed textbook for student use.
– A teacher's manual and other materials of the textbook set in different media formats.
– A teacher's manual with learning materials in different media formats (for example, alongside worksheets there may be a webinar or virtual classroom, material downloaded from the internet, presentation handouts).
– A teacher's manual realised in different types of media or combinations of formats, but without the textbook for student use (this might be the case in subjects such as citizenship education, where there is often no textbook for the students, only a manual for teachers).

Defining the profile of the textbook (i.e. all the basic materials forming the textbook set and the media in which they are realised) is the first step from a general theory of text-

10 The teacher's manual has not been included in previous categories as one of the materials of the textbook set because of its specific purpose. Teacher's manuals may vary in terms of content and media formats; most importantly, they are only used by teachers – not students – for the organisation of the teaching process.

books towards concrete solutions for a specific textbook in accordance with subject and level.

Let us consider all the elements presented thus far:
- the definition of the textbook;
- the role of the textbook in the learning process;
- the range of possibilities for textbook construction (the combinations of materials within the textbook set and the organisational and structural components of the textbook) and
- the different media in which textbooks can be realised.

These considerations demonstrate clearly that textbooks can come in very different forms and media, providing ample possibilities for those involved in the production of textbooks:
- to identify and design a specific textbook profile for every school subject which is in accordance with the specific nature of knowledge for that subject and
- to give room to their creativity when generating new textbooks.

2. Quality standards for textbooks

2.1 The quality of education and the quality of textbooks

The quality of education – which determines the efficiency of modern education – is a multi-dimensional matter, encompassing:

- the quality of the environment in which the process of learning takes place (the physical environment in which children experience their schooling, spaces for studying, facilities, time management);
- the quality of the content that is being taught (the curriculum and teaching programme);
- the quality of the teachers (their general and subject-specific level of competence);
- the quality of the process of teaching/learning organised by teachers;
- the quality of the educational tools which are available to the students for learning at school and outside of the classroom;
- the quality of school performance (in the broadest sense of the word).

Some components of the quality of education are difficult to change without also changing the general status of education in society and without clearly and actively identifying education as a national priority. Here we primarily have in mind the quality of the learning environment, the creation of a rich school and classroom space in all schools and the introduction of modern equipment and technology. Examples of items that contribute to

such rich learning spaces are laboratories, equipment for cultural and research activities, sports and recreational facilities and computer rooms. Improvements to the educational environment may, and indeed should, also entail raising teachers' salaries and investing in their continuous training and development. Teachers' professional specialisation and ongoing training are a decisive factor in the quality of teaching. Funding for basic and developmental research in education is also an issue in this context.

Under the severe economic restrictions that education as a whole is likely to face for the foreseeable future, textbook quality is all the more important and merits our full attention, primarily because of the relatively low cost of making investments in it.

The principal factors which may actively work to benefit existing conditions for the improvement of textbook quality and create new conditions are educational policies relating to textbook production. These areas encompass the creation, production and distribution of textbooks, academic research into and scientific evaluation of textbooks, teacher training in the use and direct evaluation of textbooks and a system for the accreditation of publishers and textbooks. If this educational policy is explicitly defined – which might affect legislation, competition between publishers and the pricing of textbooks – then existing conditions for improvement may generate rapid and tangible results. If no such policies are in place, the quality of textbooks will improve very slowly or may even decline, and chaos will ensue in the textbook market.

Improvements in the quality of textbook content can, to a large extent, make up for deficiencies in teaching

programmes, particularly because they allow textbooks to be the main supporting instrument for the student's process of effective and meaningful learning. In this way, the textbook as a component of educational quality has the potential to, within a very short period of time, raise the quality of the education system of which it forms a part. No other change in education is able to influence improvements in the quality of the education system for an entire country in such a short time.

2.2 The critical importance of quality standards for textbooks

There are many significant factors in the process of improving the quality of textbooks: legal regulation (legislation on textbooks and adoption of local regulations); competition between publishers (they must be able to operate on a "level playing field" and meet clearly defined requirements); helping publishers to understand the nature of modern textbooks; the creation and training of teams of authors; the establishment of independent professional institutions for the accreditation and evaluation of textbooks; basic research into issues around textbooks; the systematic training of teachers in the analysis and use of textbooks; award systems for good textbooks (awards by publishers and professional bodies, national awards); testing of students' reception of and attitudes to specific textbooks; tracking and scientific testing of the effectiveness of textbooks; the development of a culture of peer review and publicly conducted critical analysis of published textbooks.

First and foremost, a regulatory body must create a legal framework for the adoption of national quality standards for textbooks. The law on textbooks should provide scope for defining national standards in legislation. This law should also institutionalise the accreditation of textbooks and establish an independent professional body which would, acting in adherence to agreed and adopted standards of quality, take decisions on the accreditation of textbooks.[11]

Thus we can say that creating competition in the marketplace can be a powerful mechanism for improving the quality of textbooks, but it is not an automatic process. Indeed, without clearly defined parameters, such competition could lead to a serious decline in textbook quality. Large profits are at stake in such a vast textbook market and there is no authority or power which could prevent corruption where markets are currently unregulated.

Clear and objective national quality standards for textbooks have a key role in defining the rules of market competition.

> Quality standards for textbooks are requirements (norms and criteria) which textbooks have to fulfil. These textbooks, selected in accordance with official procedures and defined criteria, may then be used in schools.

11 In many countries, such as Germany, the process of textbook accreditation encompasses a number of important stages and measures.

Among professionals around the world who deal with various issues concerning textbooks, there is by and large a consensus on the importance of the following categories of quality standards for textbooks:

– quality standards relating to textbook content;
– quality standards for the didactic design of the textbook;
– quality standards for the language of the textbook and for professional production values in the media it is produced in.

However, when it comes to the concrete development and specification of these categories, there is a great deal of variety and often not enough clarity in the precise definition of quality standards.

Once the categories for quality standards are clearly defined and developed, we can arrive at a more theoretical definition of the textbook as a specific genre, or a particular type of book. Indeed, starting from a definition of the textbook that includes the interpretation of the nature of learning itself and the role of the teacher and the student in the teaching/learning process, we can determine the types of quality standards for textbooks that are required. This is a two-way process: once we have formulated standards for textbooks, we can then infer from them the ideas of school and learning that inhabit these standards.

> This publication gives systematic definitions of a number of quality standards for textbooks, and thus a definition of the core features of the textbook as a specific type of book.

2.3 Quality standards for textbooks and authors' creative freedom

We need to consider whether standardisation in textbook content impinges on authors' creative freedom.

When we discuss a textbook which has been given approved status, we are essentially talking about a very specific *type* of book which is required to fulfil important educational and wider cultural functions. From this it follows that such a book must necessarily have some limitations as regards the freedom exercised by the author in the sense of the term *licentia poetica* (poetic or artistic licence).

This notwithstanding, we are dealing here with the definition of basic quality standards for textbooks, that is, a minimum threshold of textbook quality. The author's creative freedom has unlimited scope for expression in the creation of textbooks which go beyond the basic level.

Furthermore, there is room for creative freedom even when it comes to the realisation of minimum textbook quality requirements. In the process of defining a set of standards, a range of possibilities is given for their fulfilment. Authors have opportunities to create their own original solutions which correspond to basic standard requirements (which might, for example, include adherence to linguistic norms). It follows that configuring quality standards for textbooks does not diminish the author's freedom in creating a textbook. The central purpose of these standards is to prevent the use of textbooks which are not only of low quality, but directly harmful to the development of children and young people.

A parallel example may serve to further illustrate this point. In the same way that regulations on permitted amounts of specific substances in food by no means limit the production of different types and varieties of certain foods – their improvement, the creation of new flavours, their adjustment to the preferences of different consumer groups, packaging design and so on – the introduction of basic quality standards is intended not to block the creativity of the relevant industry, but instead provides for the maintenance and improvement of the quality of the products and protects consumers.

3. Catalogue of quality standards for textbooks

The catalogue of quality standards is the core of this book. Here we will present all the key standards of textbook quality.

3.1 The structure of the standards

In order for these standards to be operational and have practical use, each standard is presented in the same way. The text detailing each standard consists of the following parts:

– the standard's code and its name;
– the definition of the standard and any additional specification or explanation required;
– the educational reasoning behind the standard (why it is necessary).

The standards' code

The quality standards for textbooks are organised into seven groups. The order in which the groups of standards appear does not reflect their importance; we simply begin with the general and progress to the more specific, from the textbook set as a whole to the individual aspects of the textbook as a book for the student. Each standard is marked with a code for ease of use. The standard's code consists of a letter (A to G), which refers to the group of standards in question, and a cardinal number which marks a specific standard within its group.

Individual groups of standards correspond to different parameters which determine what makes a quality textbook. The first three groups relate to different levels of analysis: group A relates to the level of the textbook set as a whole (the main book and all the accompanying materials making up the textbook set); group B corresponds to the level of the textbook as the core book for the student, that is, the textbook in the narrower sense of the term. Finally, the standards in group C are concerned with a more specific level than the book itself, the level of the thematic unit within the textbook.

The three groups of standards that follow these relate to key aspects of the quality of the textbook as a book for the student. Group D defines which criteria need to be fulfilled by the content of a given textbook. Standards in group E define how the content must be didactically designed in order to fulfil its function. Standards in group F correspond to the necessary requirements for the language of the textbook.

The last group of standards, group G, relates to the quality of electronic components of textbooks and electronic textbooks.

It is important to note that the order of each standard within a group, that is, the standard's ordinal number, does not signify its importance or the order in which the criteria should be assessed.

Definitions of standards and additional specifications/explanations

Each standard's definition consists of a short phrase. We have endeavoured to make all definitions of standards

concise and unambiguous. For this reason we also offer further clarification alongside the definition of the standard in order to provide additional detail.

Reasoning behind the standards

The reasoning behind each standard offers answers to the following questions: Why has the standard been introduced? Why is it necessary? What is its specific function? This professional rationale is based on contemporary research in educational psychology and the theories presented in the first chapter of this book (sections 1.2 to 1.7).

3.2 A review of quality standards for textbooks

Group A: Quality standards for textbook sets (Ivan Ivić)

A1. The textbook as a structural and functional whole

> The textbook set or the textbook[12] must cover all the main curricular content, objectives and outcomes of a given subject on a particular level. The textbook set as a whole must do

12 We are thinking of the situation in which there is simply a book for student use without any additional materials. In this case, the textbook takes on the functions of the whole set (see sections 1.5 – 1.7 and 3.2 Group B).

justice to the specific features of this subject (the nature of the knowledge and skills required, appropriate methods, the forms of intellectual activity, competence and models of thinking specific to the given field).

The specific nature of each subject is reflected in the choice of structural components to be included in the textbook set, as well as in the organisation of these components and their function. The specific aims of a thematic unit are expressed through the choice and combination of these components.

The textbook or the textbook set must be designed in such a way as to enable students to acquire all basic content and to contribute to the achievement of fundamental objectives and outcomes in the given subject at a specified level of education. It must also enable the realisation of other functions common to every textbook.

By its very nature, the standard relating to the quality of the textbook set comes first on the list of standards as it is the most general standard of all. In practice, however, evaluation of whether a textbook fulfils this standard will be easier to complete at the end of the evaluation process, after all other standards have been assessed, since the results of the assessment of each single standard can be useful for the evaluation of this general standard.

The accreditation of textbooks must encompass the textbook set as a whole.

Additional explanation

This standard requires the textbook to be viewed as a *whole*, which means evaluating the textbook on a macro-scale without going into details. There first needs to be an inventory of the materials comprising the textbook set. The first rating in connection with this standard describes whether the list of textbook materials contains all that is necessary to cover the content of the subject and to achieve the objectives associated with teaching that subject at the level concerned, or whether something fundamentally important can be identified as missing.

The second part of the assessment of the quality of the textbook as a whole relates to the *functions* which the textbook is expected to fulfil. We have outlined the list of possible functions, and an expert on the subject in question may add further important functions. The evaluation of the functions is, of course, very closely linked with the list of structural components of textbooks, for the simple reason that every part of the textbook set has specific possibilities and specific constraints. For example, the main text by the author is an eminently suitable vehicle for the communication of basic knowledge on a subject (the group D series of standards provides for further evaluation of the quality of that content). We thus evaluate whether the textbook contains the component which we call the "basic text" or the "author's text" and whether the basic text contains all the fundamental knowledge outlined by the curriculum for that subject. However, this component, even where it has already fulfilled all the standards for the quality of the content and its didactic design, cannot necessarily fulfil the function of providing exercises and practice in certain practical or problem-solving skills, neither can it necessarily be

expected to support the development of critical thinking. For the realisation of these functions it is often necessary for the textbook to contain other structural components, such as books of exercises, workbooks containing tasks and problems for the exercise of problem-solving techniques or the practice of knowledge application, collections of documents for practising skills such as reaching conclusions or critical analysis, or other similar supplementary components.

The rating of the quality of the textbook – or the textbook set as a whole – on this macro-scale, with the help of the analysis of materials and textbook functions, is based to a large extent on the results of evaluations on specific standards (see standard groups C, D and E). In this respect, this standard is a way of *summarising and condensing* the results of the evaluation of the quality of the textbook conducted on the basis of these specific standards.

Reasoning behind the standard

Many of our schools are not adequately equipped with educational resources or with appropriate literature. In such a situation, the textbook is a key educational tool and one way of guaranteeing two important aspects of the quality of education – the quality of the content being taught and the quality of its didactic design. This quality is realised through the composition of the textbook set.

Group B: Quality standards for textbooks as books for student use (Jelena Pešić and Ivan Ivić)

The following three standards for textbook quality relate to the textbook as one of the materials making up the textbook set. It is very important to differentiate between a textbook as one of the materials of the textbook set and a textbook which by itself fulfils the function of the textbook set, i.e. contains within one book all the significant materials of the textbook set and covers all functions which are important for the subject being taught. The textbook as one of the materials of the textbook set contains the basic text by the author, which presents the content on a given subject for a specific educational level and the standard didactic apparatus, such as the questions and tasks typical of textbooks. Such a textbook is usually accompanied by other materials belonging to the set (workbooks, collections of problems and tasks, manuals for practical work, atlases, collections of source texts or documents and so on).

The three standards for textbook quality which are described in group B define the conditions which apply exclusively to the textbook as one of the parts of the textbook set (we use the term "textbook" or "book" in the text to refer to this).

These standards also refer to the whole textbook and represent an assessment on a macro-scale. The similarity between standard groups A and B lies in the fact that both groups represent a way of summarising and condensing the results generated by the analysis of specific standards (especially those from groups C, D and E), which we will discuss further on in the text.

A textbook must have a table of contents – a specific component which details its complete content organised in accordance with a clear principle (e.g. hierarchically, chronologically, logically or problem-specific).

B1. The table of contents and its purpose

The table of contents of a textbook is simultaneously a structural and organisational component of the book (see section 1.6). When we are looking for a given topic, we first refer to the table of contents to find the correct page. This is why the table of contents is an organisational component. A table of contents should be able to clearly display the manner in which the content of the textbook has been organised and divided into smaller, logically arranged and interconnected units. For this reason, it is not only an organisational but also a structural component and has a role in supporting learning. This is why the table of contents must not be reduced to a mere list of topics, but must illustrate larger thematic units (topic- and problem-specific "blocks" of content) and, to take a hierarchical structure as an example, individual topics or thematic units which in turn are located within the larger units.

The structure of the book's content is graphically expressed by the use of lettering sizes and fonts. This can be assisted by the use of small icons and symbols which consistently signify related content throughout the book.

Reasoning behind the standard

A textbook's table of contents (chapters, subsections, headings) acts as a summary or résumé of the whole of the textbook. Because it offers an at-a-glance initial view of the topics covered by the textbook, shown by the inclusion of chapter and subheading titles, it clearly presents the structure (organisation) of the knowledge it intends to transmit, with titles in larger print representing more general and important concepts and those in smaller print more specific concepts and knowledge. The table of contents also indicates the level of importance of individual sections of the content, or the importance given to that section by the curriculum or by the author; this can be clearly seen from the number of pages dedicated to each topic or sub-topic. In this way, the table of contents serves as a very important instrument for the organisation of the knowledge to be acquired with the help of the textbook.

The basis of every textbook is its structure, that is, the organisation of meaningful units according to a particular principle, be it logical, chronological, problem-centred, or any other clearly defined principle. Meaningful learning cannot take place without adequately structured material. The table of contents is an extremely important component of the textbook, because it presents the actual structure of the material in the book (and often also the structure of knowledge within a given field) and shows how the knowledge presented in the book is structured (division into smaller units and the relationships between them; see standard B3).

In this way, a textbook's table of contents facilitates meaningful learning because it offers an insight into the structure of the material and guides the student through

it. In a table of contents thus arranged, the student can easily find every single topic and every individual piece of information contained in the textbook, logically organised, as this information is displayed in a type of network which may lead to a student's beginning to construct his or her own system of concepts in a given field.

B2. Supporting the process of building student skills in using books through their experience with textbooks

> The textbook should contain organisational components whose main function is to facilitate the student's independent use of the book and his/her ability to find the information required.

A textbook's organisational components enable students to navigate the book more easily. We refer here to the following components: different types of indexes, e.g. indexes of terms and/or authors; lists of illustrations; bibliographies; different kinds of supplementary/auxiliary tables (for logarithms, chemistry, climatic features, statistics, tables for random numbers, etc.). Other examples of organisational components are: explanations of the meaning of icons, symbols and colours in the textbook; notes on the authors; the table of contents. The choice and means of the realisation of these components depend on the educational level of the students expected to use the book (in terms of complexity, amount of in-

formation and images used), the specific nature of the subject for which the given textbook is designed and the author's intentions.

Reasoning behind the standard

The components listed above are important in that they make it easier for students to navigate the textbook and thus facilitate effective searches for relevant information. This is especially true for today's textbooks, which offer a broader scope and level of information than books produced in earlier times, contain a large number of new terms, concepts and symbols and often feature a more complex formal structure. Enabling students to easily and quickly find their way in a textbook is in itself a means of supporting learning which fosters, in particular, the acquisition of general skills necessary for academic work. Furthermore, these components promote the development of habits and abilities required for independent reading. This, in turn, helps develop students' book-using skills and encourages them to enter into an interactive relationship with texts.

B3. The design of the illustrations and graphic elements of the textbook

The structure of the textbook should be typographically marked in a clear and legible manner and these markers should be consistently used throughout the entire book.

It is necessary to clearly demarcate the thematic units or chapters in the book, using layout and graphic elements. This also applies to individual sections within these units, such as sub-sections, sub-headings and all other parts which represent specific structural and organisational components (e.g. the table of contents, glossary and summaries). Devices for signifying structure should be used consistently throughout the whole textbook for the labelling of identical functional components; this will create the desired level of uniformity and predictability in the book's design, enabling students to navigate the book with greater ease as well as helping them to form connections between its different parts.

Reasoning behind the standard

The structure of a textbook, when it is clearly and consistently organised by means of the text's structure and layout, text and illustration boxes, font types and sizes and the use of colour, icons and symbols, contributes to the book's legibility and clarity, resulting in more effective learning and promoting students' ability to make connections between units. This is particularly true of modern textbooks featuring characteristically densely packed information, complex structures and a plethora of organisational and structural components.

The hierarchical structure of the textbook's content and its various functional components need to be clearly typographically marked in order to successfully promote learning and the development of students' ability to navigate the book independently. For this reason, it is necessary to use the same system of symbols to demarcate specific components consistently throughout the whole

book. The constant introduction of new systems of content marking and signification would make the book more difficult to use and act as an obstacle to its educational purpose.

The clarity of the book and the overall quality of its typographic design will determine to a large extent the user's first impression and its motivational value to students. In addition to this, the typography used can also break up the potential monotony of the text and act as a mnemonic device.

Group C: Quality standards for thematic units (Ivan Ivić and Jelena Pešić)

Beginning our catalogue of standards at the most general level – the level of the textbook set –, we then proceeded to discuss standards for the textbook as a book for student use, in those cases where it appears as a part of the textbook set. We now turn to the thematic units within the textbook.

The standards for textbook quality shown in section C refer to requirements to be fulfilled by the textbook on the unit level, in the form of chapters, headings and thematic units. Thematic units, or exercise units, as seen from a content point of view, are smaller logical units within the textbook. As a rule they are clearly marked (see standard B3) as discrete coherent units, all of which go to make up the whole textbook.

The content and structural components of each thematic unit must contribute to the realisation of the general learning objectives (learning outcomes and results) pursued by the textbook.

C1. The thematic unit as a functional whole

Every textbook contains distinct units, usually in the form of chapters, or sections divided by headings. This standard details the requirement that each section or unit of the book must have a clearly defined function, in the same way as teachers should know what they want their students to have achieved by the end of the thematic unit. Therefore, each discrete section of the textbook must have a purpose, clearly marking the most important parts of the thematic unit as well as the outcomes they are expected to bring about for students (for example, learning the meaning of particular words that are necessary for that field of knowledge, acquiring information on important events, mastering a problem-solving technique for a given category of tasks, developing their intellectual abilities, etc.). In order to achieve this, the unit (or chapter) must contain some integral parts (structural components) which enable the realisation of the desired outcomes of the learning process.

Each individual structural component must have a clearly defined specific function. If the function of a component is not clear, then it should not feature in the textbook at all. The functions of individual components

within a given textbook set should complement one another. All structural components, taken as a whole, must contribute to the achievement of learning objectives and outcomes; ways in which they might do this include:

– transmitting basic knowledge;
– adequate representation of the knowledge which forms the content of the thematic unit;
– modes of explaining and designing material (diagrams connecting knowledge and concepts and showing processes and functional links between concepts, timelines, graphic representation of relations, maps and so on);
– encouraging students to consolidate the knowledge gained by means of doing activities;
– enabling students to practise skills, methods, techniques and procedures relevant to a particular segment of material;
– enabling students to experience models of thinking specific to a subject;
– encouraging and maintaining motivation for learning;
– assessment or self-assessment.

Ideally, the objectives to be accomplished through mastering a given thematic unit should run like a thread linking all elements of the material contained in that thematic unit and allow the student to perceive the thematic unit as an integral whole rather than a series of separate events or tasks. Even if every unit does appear graphically separate, it must connect (in terms of content, logical links, conception, chronology, function, etc.) to previous and later parts of the book. In this way, every thematic unit contributes to the definition of the general learning objectives and outcomes pursued by the textbook and

helps students to integrate, or forge connections between, areas of knowledge in that field.

Textbook analysis comprises the analysis of each thematic unit (with a view to learning objectives and outcomes). The summation of the analyses of all thematic units then provides us with the "big picture", as we likewise see, as previously discussed, in the more general standard A1.

Reasoning behind the standard

The aim of all structural components of a thematic unit is to support learning and enable students to achieve set objectives. The complementary nature of the components making up each thematic unit within a textbook and their alignment with the defined objectives for that particular part of the textbook and for the subject matter as a whole contributes to better organisation of the textbook's curricular content, better integration of the knowledge presented and thus to its better understanding and memorisation by the student.

C2. Coherence in the presentation of thematic unit content (sound logical organisation of ideas)

The presentation of content must have a clear and coherent structure, which should be emphasised using appropriate linguistic and graphical means.

When we speak of "coherence" in the presentation of content, we imply three interconnected aspects: a single unifying structure of themes and issues, based on interconnection between concepts and ideas (that is, the existence of a clear logical sequence structured around a limited number of basic ideas); a clear and logical flow and development of the topic and presentation and highlighting of the thematic structure and flow using appropriate linguistic and graphical means (see standards D6 and E4). In other words, throughout the whole thematic unit, as well as in the main text and additional components, we must be able to clearly perceive a thread connecting all parts of the thematic unit into a logically organised whole suitable for promoting the realisation of learning objectives and outcomes for that particular thematic unit.

Additional explanation

The requirement expressed by this standard refers primarily to the main text of the thematic unit (chapter) and also to the positioning and function of each additional component of the thematic unit (text boxes, illustrations, questions and tasks, etc.). This standard or requirement can be realised in many ways:

- By means of the explicit citation and highlighting of the main topic and sub-topic (issue or problem) considered in the thematic unit;
- by graphically separating and highlighting the main concepts and ideas;
- by detailing all relevant connections between topics, ideas and concepts included in the structure of the text in terms of relationship to the issue at hand, simi-

larities to and differences from one another and different types of logical relation. For instance, a textbook might present an event or phenomenon complemented with an example, explanation, details of causes and consequences, an interpretation and its implications, a thesis and antithesis, the problem and its solution(s) and so on;
- by avoiding thematic gaps and isolated passages of text which do not have a clear purpose or clear relationship to other segments of the text, as this impedes comprehension and disrupts the readers' learning experience (as it requires them to return to previous parts, search the text and make assumptions);
- by developing the main thematic thread and maintaining continuity of presentation, making every part of the text relevant to the development of the topic and clearly positioned in relation to the previous and the following text;
- by separating paragraphs as logical and graphical units. It is desirable that each paragraph contain one or at most a few key ideas. A new paragraph should begin every time a new comparison or idea is introduced, e.g. when moving on from a description of an event to its causes, for purposes of separation and enumeration;
- by avoiding unnecessary digressions and/or clearly indicating digressions as such, as well as clearly signalling the subsequent return to the main theme;
- by adequately marking the thematic structure and flow, using appropriate linguistic and graphical devices, such as:
  - titles and subtitles, which clearly indicate the main theme and sub-theme;

– typographic features to mark the main ideas and less important parts of the text by means of font size, colour, spacing, text boxes and position on the page;
– linguistic devices to explicitly foreground a particular connection;
– separate headers on the side margin of the page which give the main concept, idea or question of the paragraph.

Reasoning behind the standard

The ideas within the text need to be logically arranged and their presentation coherent in order for a series of sentences to be considered truly communicative, that is, for them to be understood as a text. Coherence in the presentation of material enables meaningful and effective learning; it is much more difficult to follow and understand a text consisting of a presentation of isolated events and ideas. This is a particularly vital issue in relation to younger learners, who may need supplementary signals in the textbook for guidance.

Further, good logical organisation of thematic units in textbooks contributes to students' development of a general strategy for the understanding and comprehension of every text and increases the motivational value of the textbook and its acceptance by students as the principal learning device. Texts without a clear structure may create an aversion to the textbook and potentially to learning in general.

C3. Clarity and uniformity of graphic design in the thematic unit

> The structure of the thematic unit must be visually marked in a clear manner that is consistently implemented throughout the entire book.

All the thematic unit's structural components (the main text, additional text, illustrations, summaries, questions and assignments) must be presented separately on the page and marked typographically to ensure that the thematic unit features a clear structure and direction.

The textbook should consistently use the same means of labelling for every component throughout the entire book because it creates a desirable level of uniformity and predictability of design. This increases the readability of the text and facilitates its comprehension as an integral part of a whole, benefiting students' ability to follow the thread of the material's presentation.

Additional explanation

This standard will be realised to a considerable extent if the following criteria are met:

– If all structural components of the thematic unit are clearly demarcated on the page and typographically marked using different font types, sizes or colours, text boxes or symbols/icons.
– If there are functional typographical symbols ordering the layout of the page and providing clarity to the

structure of the thematic unit by giving a clear direction to the material presented. Whatever type of structural device is used, it should not impact negatively on the readability and usability of the thematic unit by "overpowering" the main text.
– If the page is not over-filled and sufficient spaces have been left in the layout.
– If there is a clear way of distinguishing the principal points the text makes (the parts of the text carrying the most relevant information) and the background (parts with additional, less relevant information).
– If there are no parts (whether text or illustrations) that deviate from the presented material and unduly interrupt the main flow of information.
– If all components of the thematic unit – the main text, illustrations, exercises, text boxes, etc. – make up a coherent whole (see standard C1).
– If all organisational features of the thematic unit recur consistently throughout the textbook.

To meet the standard, authors should be aware of the following pitfalls and act accordingly:
– They should not overuse devices used to emphasise particular sections, as this makes the text unclear and difficult to read.
– They should try to avoid visual monotony and a poor structure by using a suitable typographic design (common errors in this regard include uninterrupted blocks of text or a lack of illustrations).

Reasoning behind the standard

When the structure of the thematic unit is adequately and consistently marked, the readability and usability of

the text is enhanced, making it easier for students to follow and understand it. This is particularly important in modern textbooks with their high density of information. If there is no such clear structure for the thematic unit as a whole, then the multitude of structural components may give a chaotic and distracting impression which makes it difficult to follow the main thread of the presentation. In other words, readability and usability is impeded if there are too many or too few typographical features (see standard E2).

The very appearance of the pages (the structural richness, clarity and quality of their typographical design) has a significant effect on students' motivation for reading and learning. If the thematic unit is not a well-organised whole, it can "turn off" and demotivate the student. Conversely, a rich structure and good organisation can make the textbook more accessible for learning by breaking up the visual monotony of the text and highlighting the same ideas from different angles (the general ideas communicated in the main text, illustrations, examples, skilfully worded questions and so on).

Group D: Quality standards for textbook content (Ratko Jankov, Dragica Trivić, Aleksandar Bogojević, Snežana Marinković, Ivan Ivić and Ana Pešikan)

The standards categorised in groups D, E and F relate to three key aspects of textbook quality: the quality of the content (D), the quality of the content's didactic design (E) and the quality of the language used in the textbook (F).

The first group of standards, group D, relates to the quality of textbook content. As discussed previously,

students assimilate different types of knowledge, skills and values through their use of different types of textbooks. The number of standards in this group reflects the importance of high-quality specialist content in textbooks.

D1. Alignment with educational objectives

> The content of the textbook must be aligned with the set educational objectives of a particular topic within a given subject at a specific educational level.

The textbook must also offer content stipulated in official regulations on core or specialist school curricula, corresponding to the educational objectives set for a particular subject at a given educational level. The choice of material and its presentation in the textbook should provide a solid foundation for the realisation of specified outcomes and objectives. The textbook may offer content and activities over and above those provided for in the set objectives for the subject (see standard D5 on appropriate and effective selection of content), but should not offer less than the content defined by the objectives relating to a given topic or topics within a subject. It is thus very important to ensure that content and objectives are in alignment. All objectives should be covered by means of appropriate content, and every piece of content should be directed towards the realisation of a particular educational objective.

Reasoning behind the standard

The primary role of the textbook is to be a source of knowledge and a key stimulus for the formation and development of skills through a number of procedural explanations and instructions. This role is fulfilled by pre-defined educational objectives and outcomes. The content offered by the textbook and its presentation must be aligned with the intentions and expected results outlined by these educational objectives in order to achieve them.

D2. Provision of basic subject literacy

> The content of the textbook should include the knowledge and skills that constitute basic literacy in a particular subject at a specified level of education.

We understand basic subject literacy in a given field to mean the curriculum content (knowledge and skills), competencies and modes of thinking which experts within the field consider it necessary for students to acquire. It is the content most frequently included across different educational systems and most often covered in national and international testing of student achievement.

The purpose of this standard is to ensure that the textbook is not missing any essential content necessary for learning in any given subject at any specified level. Put simply, basic subject literacy represents the fundamental knowledge, skills and competencies (standards of

achievement) which the student should acquire in the subject learned at school; this will become part of the student's general knowledge if he or she decides not to go on to further studies in that subject.

While basic subject literacy is clearly a highly significant concept, the term is yet to be clearly defined in official policy on education, so we must ascertain and evaluate this factor indirectly.

A concrete means of assessing this standard is the creation of a subject index for the textbook (see standard B2), followed by comparison of that index with the curriculum for that subject and level. This then enables an expert on the subject to determine whether or not the knowledge deemed essential is included in the textbook and check for gaps or substantial reductions in the content (standard D6 examines the way in which the basic concepts comprising the textbook's content are interrelated).

Reasoning behind the standard

The content of a textbook should provide basic skills and competencies in a specified subject. Thus basic subject literacy represents the basic corpus of the knowledge and skills in a particular subject discipline defined as necessary for compulsory education: facts, concepts, terminology, rules, basic methodology, theory, conventions. These together form the precondition for further study in the subject at the next level of education, as well as being knowledge relevant to everyday life and knowledge that is part of general culture for every citizen.

Such a definition of basic subject literacy is simultaneously a way of protecting students from an over-

extensive curriculum in any particular subject and from becoming overwhelmed with unnecessary and irrelevant material. It ensures that learning will generate genuine comprehension and lead to long-term retention of a good selection of curricular content.

D3. Accuracy and current state of knowledge in the textbook

> The textbook must contain only accurate and up-to-date knowledge in the discipline with which it is concerned.

The textbook must not contain any factual errors. Depending on the educational level it is designed for, the textbook may contain incomplete or elementary information. Nevertheless, the process of tailoring the content to an age group or educational level must not produce any over-simplification which could distort the nature of that information. The design and simplification of content with educational concerns in mind must not lead to its distortion.

The textbook should follow current developments in its discipline and contain up-to-date knowledge in that field, taking account of its most recent and relevant findings and achievements.

Reasoning behind the standard

The accurate and up-to-date nature of the knowledge contained within a textbook is an important indicator of the quality of its content. Each and every textbook must contribute to the acquisition of such knowledge. This ensures that younger generations are given useful and meaningful knowledge which they will be able to apply in their everyday lives.

D4. Representativeness of knowledge in the textbook

> The content given in the textbook must adequately represent the nature of the knowledge, methodology and modes of thinking specific to its particular discipline.

The content selected by the author or authors for the textbook is only a small sample of knowledge from the field with which the textbook is concerned and thus its selection must accurately reflect the unique identity of the discipline (that which differentiates it from other disciplines).

The identity of the discipline is reflected in the specific terminology used, the nature of the factual knowledge it encompasses, its methodology and the explicative and theoretical models it uses (see standard D2).

The content of the textbook and its presentation need to show the specific contribution of the discipline to the overall education of young people; thus a mathematics textbook should contribute to the overall development

of mathematical thinking, a chemistry textbook should develop students' experimental skills, textbooks in arts disciplines should promote aesthetic sensibilities and those dealing with literature and history should expand students' understanding of national and cultural values. Textbooks in each subject should demonstrate specific models of working in the relevant discipline.

Reasoning behind the standard

Each of the disciplines introduced to the school curriculum is selected for its specific contribution to the overall education and development of young people. The representative sample of knowledge for a given field which is contained within a textbook is a way of realising a number of educational objectives, such as the construction of knowledge and stimulation of intellectual development, the acquisition of practical and expressive skills, the development of cultural identity and aesthetic sensibility, the formation of certain models of behaviour and so on.

D5. Appropriate and effective selection of content for the textbook

Curricular content defined in official educational policy should be selected and presented in an appropriate and effective manner in the textbook.

One of the matters with which this standard is concerned is that the volume of the textbook should not be overly large. The textbook should be concise, but not to the detriment of clarity. A textbook thus designed will have an optimum educational effect in the conditions in which it is used (the time spent on work with it and the effort invested by the student).

This standard could be regarded as analogous to the economic concept of "cost-benefit", "benefit" being the optimum educational effect and "cost" being the time and effort invested in learning the given material.

Reasoning behind the standard

For knowledge to be assimilated and applicable, it must be appropriate to the developmental level of the students, to their intellectual ability, age group, attention span and typical level of concentration and must be adapted to their previously acquired knowledge and skills. This enables better, easier and more productive learning within the period of time available.

Furthermore, such a design will also boost the student's motivation to learn from the textbook; material with the right level of difficulty will be amenable to processing and comprehension without being excessively challenging.

D6. The system of concepts and knowledge presented in the textbook

> The textbook should represent the basic system of knowledge and concepts in the subject with which it is concerned.

It is clear that every individual textbook for a specific age group is only able to represent parts of the entire system of knowledge for that subject. This notwithstanding, every textbook must be a step towards the construction of an integrated system of knowledge (see standards D7, D8). The textbook should show a logical progression in the presentation and development of knowledge and concepts in the discipline with which it is concerned and must outline the principal conceptual links in the discipline and their logical order.

The students' age group and developmental level must be taken into account when selecting the parts of the system of knowledge within a discipline to be included in a textbook.

The "cumulative" principle, i.e. the addition of new facts, terms and knowledge, should not be the only method of progressing within a textbook. A textbook should also add complexity to the structure of the relevant discipline when progressing from level to level, so that the knowledge presented becomes more closely interconnected within the main system of knowledge and concepts in the field (see standards D7 and D8).

This requirement will be best fulfilled if the introduction of every fundamental concept, principle or law in

the textbook evinces a link with other important concepts or knowledge that are dealt with in other chapters of the textbook, explicitly referring to concepts in other sections of the textbook, whether they precede or follow the concepts in that chapter. The subject index, if it highlights pages to show where particular concepts appear and indicates their connection to other concepts (see B2), can be a very effective method of drawing the student into the process of linking knowledge.

One of the most effective ways of establishing connections between concepts and concrete knowledge is to represent these connections and relationships in diagrams illustrating logical connections, a hierarchical and logical order between concepts, cause and effect, chronological or functional connections, chains of events, genealogical trees, similarities and differences, or comparisons on spreadsheets.

Reasoning behind the standard

The principal features of knowledge in any discipline are, first, that it is organised into coherent structures or systems, and, second, that it is clearly constructed and developed. Unless knowledge is presented in this manner, its defining features will be diminished or even lost. Individual facts or pieces of knowledge acquire meaning only within an integrated structure or as part of a network of relationships. Otherwise, this knowledge may become isolated and fragmented and have limited functional use, making learners unable to derive any further knowledge or new skills from it.

According to the previously discussed standard C3, every thematic unit in the textbook must provide a con-

sistent main thread of logical development running throughout the presentation. Standard D6 extends the application of this standard to the whole textbook, because it is necessary to be able to see the main thread connecting individual parts of a textbook into a coherent whole.

Interaction with organisational systems of knowledge is a key factor in the cognitive development of school-age children. In the process of assimilating organised systems of knowledge, students gradually acquire thought patterns which are considered to be the foundation of all conceptual, scientific and expert thinking.

These structures of organised knowledge are the basis for the design of didactic standards (see standards E1, E4, E5, E6) which promote students' construction of permanent and usable knowledge, which is infinitely preferable to isolated facts or segments of knowledge due to these being easy to forget and difficult to apply in new situations.

D7. Horizontal correlation: connecting related content from similar subjects

> The content of a textbook must be connected to and aligned with related content from similar subjects which are taught at that particular educational level.

This standard prescribes the following:

- connections and consistency between facts in textbooks from related subjects;
- consistent use of terminology in textbooks from related subjects;
- consistency between explanations and interpretations in textbooks from related subjects;
- consistency in techniques, procedures and skills;
- references to content in a textbook from another subject which may serve as a basis for the comprehension of a particular section of the textbook in question.

It is important that these connections and references to content in other textbooks should be given only where logical and natural connections exist and not merely for their own sake.

Reasoning behind the standard

This standard gives guidance as to when textbook authors and compilers may or should refer to concepts and explanations in other subjects with the aim of establishing the necessary links between related subjects, topics or areas of knowledge and of building networks of concepts as a basis for a more comprehensive understanding of the content. The standard also advises on the need for the information thus linked to be consistent. In this way, it helps to promote the integration of knowledge from different disciplines and avoid "subject-isolated knowledge", that is, the compartmentalisation of knowledge into individual "boxes" which are completely separate and cannot be linked when the student needs to make such connections.

The best way of ensuring that these connections are made is to identify all the terms, concepts, laws, interpretations and skills that make up the content of different (related) subjects and, from the point of view of a specialist, are interrelated. In this process it is very important to simultaneously emphasise both the similarities and the differences between various disciplines when addressing related areas of knowledge.

Connection and alignment between knowledge from individual subjects is especially necessary in those cases where knowledge in one subject depends and is based on knowledge from another subject.

Mutual alignment of content from different subjects prevents confusion, doubt, uncertainty and difficulty in understanding by the student, which otherwise might arise were those interconnected facts, terms, interpretations and procedures to be presented separately in different subjects.

The principal content in a textbook must be organised in such a way that it constitutes a logical and meaningful whole for the students to approach at their educational level, demonstrating clear and accurate links with the content of other textbooks (in other subjects) for the same age group or level. In connecting the content of related subjects, the textbook represents a place of coordination and integration of knowledge. Thus the textbook offers a model for cross-curricular knowledge, which in itself is a central objective of education.

D8. Vertical correlation: connecting related content from the same subject across grades, learning stages, or levels

> The content of a textbook for a specified educational level must gradually and logically continue developing the content of textbooks from the same subject pitched at previous levels, and it must also provide a foundation for further study of the same subject at higher levels.

This standard assesses the following:

- gradual construction of concepts and knowledge as students pass through different educational levels, by means of increasing and developing the scope and complexity of the concept, introducing new examples and adding to its connections with other concepts;
- logical continuation and progression of content from previous levels;
- introduction, elaboration and explanation of new terms and knowledge on the basis of concepts introduced in textbooks aimed at previous levels and alignment with this knowledge; references to previously learned material;
- the use of previously learned concepts and examples when giving explanations;
- references to material that will be taught at further levels, foregrounding the fact that the part of the content on which the textbook focuses constitutes a foundation for its understanding;

– periodic reviews and summaries of sections within the textbook.

The textbook should also contribute to the progressive construction of knowledge rather than simply adding content from one level to the next.

Reasoning behind the standard

Each new piece of knowledge a student acquires is constructed on the basis of previously acquired knowledge and previously learned skills and competencies. In order to be able to provide meaningful learning, new knowledge must be supported by, linked with and interconnected to what has previously been learned. Linking and networking established and new knowledge is one of the most powerful ways of constructing a system of knowledge. This process is a fundamental basis for understanding and ensures sustainable knowledge which can be re-applied in new learning situations.

D9. Textbooks for different sociocultural settings

> Content, examples, tasks and models of explanation for textbooks should be taken from a range of sociocultural settings; when selecting such content, the different sociocultural settings in which the textbook will be used should be taken into account.

This principle is most frequently applied to content which is not value-neutral (see standards D15, E6); here, its significance is extended to content that is value-neutral.

The presentation of content should take into account the diversity of learning environments in which the textbook will be used, such as urban and rural settings, different geographical regions and climates, inland or coastal regions, lowland or mountainous areas, different countries and states in which live various nationalities and ethnic groups, etc. Another diversity issue in relation to textbooks concerns the conditions in which the textbook is used: the level of educational resources available in the school, the availability of natural resources and technology, access to different kinds of facilities and so on.

This requirement for textbooks to provide balanced and varied content from different backgrounds relates to text in all structural components of the textbook set: the textbook itself, workbooks and additional components, as well as illustrations, glossaries, the choice of names for characters in the book and so on.

Adherence to this standard prevents the textbook from showing cultural discrimination or bias, such as over-ruralisation or -urbanisation of content, Eurocentricity or evidence of a strong bias towards one particular social group or status.

Reasoning behind the standard

This standard increases the probability that the textbook will be relevant and recognisable to children from all walks of life, and therefore easier for them to access and

understand, as well as offering them experiences, models or patterns that are not typical of their own environment. This is cognitively significant because it contributes to the process of generalisation of knowledge, its wider use and better transference to other contexts. It is also important because it encourages the development of democratic values and respect for diversity.

D10. Pertinence of the content to students

> The selection and presentation of content for the textbook should, where appropriate, address students as representatives of a contemporary generation with its own specific characteristics (sensibilities, preferences and motivation).

The textbook should not restrict itself to a purely neutral presentation of academic knowledge. It should, wherever possible, find or create a bridge between its content and the young generation it is addressing (taking into account that generation's sensibilities, interests, needs, values, orientations, attitudes, experiences, aims and overall outlook on life).

There are many possible ways to achieve this:

– demonstrating practical applications of relevant knowledge in everyday life situations;
– providing knowledge and skills in the relevant subject which can enable young people to gain respect in different social groups;

– presenting examples and information on how particular knowledge and skills can be of personal use, in relation, for instance, to general and reproductive health;
– demonstrating the impact of historical events, even ones that took place in very distant epochs, in a way young people can understand;
– enabling effective communication with others through teaching different techniques of linguistic expression, knowledge of genres of communication, the ability to use new technologies;
– providing support in resolving issues of identity (gender, national, cultural, religious, regional);
– enabling multi-ethnic, multicultural communication in an age of globalisation; connecting curricular content to experiences specific to younger generations;
– initiating dialogue between those (cultural, religious, aesthetic, etc.) value systems presented in the textbook and values predominant among students' peer groups.

It is important to ensure that tailoring the content to students does not lead to oversimplification and trivialisation.

Reasoning behind the standard

This mode of selecting and presenting material connects academic knowledge with what is relevant to students in their everyday lives.

Selecting relevant content increases the textbook's motivational value by enabling students to apply the skills they acquire to their everyday lives. Thus it increases the likelihood that at least some material from the

textbook will become an integral part of their lives and shape their personalities, securing in this way the long-term retention and sustained usability of the knowledge.

D11. The social relevance of the textbook's content

> The content of the textbook and its interpretation should, wherever appropriate, be able to demonstrate its relevance to the community to which it refers (social relevance).

Textbook material is often presented as neutral and separate from "real life". In fact, textbooks should, wherever appropriate and professionally justifiable, showcase the concrete value of their content to the wider community and how the knowledge emerging from this content is relevant to people in their everyday life situations. One aim of such social relevance might be support for sustainable development[13].

Socially relevant content might also raise awareness of the concrete possibility of misuse of some knowledge and indicate the ethical issues related to particular pieces of scientific knowledge.

13 The term *sustainable development* describes a type of economic development that is explicitly socially and ecologically oriented and accountable rather than harmful to the environment or people. This standard should be interpreted as a requirement for the content of textbooks to promote sustainable development.

There are many examples of textbook content that demonstrate the social relevance of particular knowledge, depending on the nature of the subject. Some examples:

– providing concrete examples of how certain types of knowledge can be applied to different local circumstances;
– discussing the environmental issues around particular content and actively engaging the students in finding solutions for the protection and improvement of their local environment;
– demonstrating how academic knowledge and skills acquired at school can be used to stimulate the development of the country and the local area;
– creating dialogue on the ethical problems involved in certain scientific procedures, such as experiments conducted on humans, cloning, the production of genetically modified organisms;
– introducing controversial subjects associated with specific types of scientific or academic knowledge, such as the development and conservation of nature, the problematic relationship between globalisation and the independence of nation states, the balance between a country's openness to outside influences and the preservation of its cultural identity.

Socially relevant content might also enable or empower students to:

– use this knowledge in order to understand the process of globalisation and all its aspects;
– apply knowledge and skill sets to protect their health and promote healthy eating and a healthy lifestyle;
– use knowledge and skill sets from the arts to enrich their community (thus the content might promote

cultural and artistic activities at school and in the local area);
- use knowledge learned at school to improve local media for the service of citizens (thus the content promotes active participation of students in local media);
- apply knowledge acquired at school to avoid being manipulated by the media;
- use accumulated knowledge about their history and cultural traditions in order to comprehend their country's current situation in the world and its relations with other nations and cultures;
- apply knowledge and skill sets to understand hazards in their own environment, such as dirty technology, danger from certain energy sources, chemical substances, the depletion of natural resources, the reduction of biodiversity (applying different methods to determine the degree of threat to the environment).

Reasoning behind the standard

The social relevance of the knowledge included in the textbook is one of the parameters for the quality of textbook content. When this socially relevant knowledge is concretely demonstrated in the textbook, it increases students' identification with this knowledge and improves the design of learning material. This promotes learning with real understanding and increases students' motivation for learning. The result is long-term assimilation of school knowledge and increased awareness of its practical value.

This approach also alters students' attitudes towards the process of acquiring knowledge. Knowledge stops

being something abstract on paper and becomes something that is useful for students' everyday lives and later professional lives, which helps them cope with and function within the world around them.

If the textbook is able to show the social value of knowledge in a given subject, then it contributes to a rise in the social status of the teacher, who is the expert and professional on that subject.

D12. Alignment of values with the nature of the subject (as understood in a school context)

> All value-communicating content, whether these values are explicitly or implicitly stated, should be consistent with the nature and objectives of the relevant subject for a particular educational level. The meaningful messages of that content should be coherent and should enable the construction of a system of values.

The content of many subjects or their sub-disciplines involves the imparting of values and systems of values, be they cultural, religious, moral, aesthetic or political. Some subjects are particularly rich in content that directly conveys value judgements; among them are music, art, literature, history, religious and civic education.

This standard requires all messages carrying value judgements and transmitted through text, examples and illustrations, be they transmitted explicitly or implicitly, to be consistent with the nature of the subject and its

objectives as defined in the official school curriculum and/or by the author(s) of the textbook. Thus, for example, if one of the teaching objectives in a particular instance is the development of respect for members of another nationality or race, then the textbook must not promote the opposite, in this case an intolerant and vindictive attitude towards other nations (see standard D14). Instead, the textbook should use every opportunity, in the main text, illustrations or headings, to promote the desired value (in this case respect for other nationalities or ethnic groups).

Individual value judgements should be mutually compatible in order to encourage the emergence of coherent value systems. The textbook should not contain significant inconsistencies in such judgements, with, for instance, the text stating one thing and the illustration the opposite (see standard E6). The textbook also must not omit or disrespect basic, universal human values such as:

- principles of non-discrimination, equality, freedom, solidarity, protection of the environment, etc., which are defined by basic international agreements;
- universal human rights and specifically children's rights (*The Universal Declaration of Human Rights; UN Convention on the Rights of the Child*);
- systems of cultural values that are of key importance for the preservation and development of the national and cultural identity of the specific nation in question and of ethnic minorities living in the country (see standard D13);
- democratic values, principles, institutions, behaviour;
- cultural, religious and aesthetic values relevant to a given subject.

In addition to their educational function in the strict sense of the term, textbooks have an additional pedagogical and socialising dimension; in other words, one of their purposes is to stimulate the development of students' characters, attitudes, values and beliefs.

The values expressed in a textbook contribute significantly to this function. For this reason, it is important for every textbook to have embedded within it the basic value systems which are defined in the curriculum for each subject; it is also important that the content of the textbook covers all the principal objectives of the given subject.

Thus, in certain conditions (see standards, D12, D13 and D15) the textbook may be a powerful tool for the realisation of both educational and social functions of our system of education.

D13. The nature of the subject and its contribution to the preservation of national and cultural identity

> Subjects that are, by their nature, central to the preservation and development of national and cultural identity, and which stipulate such objectives in their curriculum, require that their textbooks offer types of content that will contribute to the realisation of these aims.

Textbooks for subjects that are relevant to the preservation and development of national and cultural identity

must, in accordance with the curriculum for the subject in question, include content contributing to the preservation and development of the national and cultural identity of the national majority and/or a particular ethnic group or minority (see standard D15).

The textbook should strike a balance between the volume and the quality of content that contributes to the preservation of national and cultural identity and the general principle of non-discrimination. There should be a balance between content promoting the national and cultural values of the national majority and those of ethnic minorities.

Reasoning behind the standard

The education system in Serbia, for example, like the education systems of other countries, defines the "preservation and development of national and cultural identity" as one of the aims of education. Factors that contribute to the achievement of this aim are the teaching of students' native language and overall instruction in other subjects in that language and the teaching of national history and culture, religious, ethical and aesthetic values, thus enabling students to assimilate the cultural and historical heritage of the national majority and the country in which the children are being taught. At the same time, this aim recognises the rights of ethnic minorities to preserve and develop their national and cultural identity.

The acquisition of national and cultural identity is a very important factor in the process of social integration and character development. Textbooks for certain sub-

jects are vital cultural means for the transmission of cultural values and traditions.

D14. Non-discrimination against minorities

> Textbooks should not discriminate against different groups of people and communities on the basis of their race, nationality, ethnicity, language, culture, religion, social status, gender, age, or special status such as a physical or mental disability, illness, homelessness, refugee status etc.

Textbooks must not convey explicit or implicit manifestations of racism, nationalism, chauvinism, sexism, ethnic or religious hatred, or any form of exclusion or ostracism of individuals or groups on religious or other grounds. Textbooks must not include names or labels that may come across as offensive to members of any social or ethnic group.

Wherever appropriate, without violating general values and ethical principles accepted in society, textbooks should affirm respect for diversity.

The presence of discrimination is identified by:

– the use of derogatory names and adjectives for a particular social group or community, any form of denigration or contempt, negative attitudes, negative views not based on fact, overt or covert stereotypes and prejudice, incitement of hatred and intolerance towards any group or community; manifestations of

racism, nationalism, chauvinism, sexism, religious, ideological or any other form of ostracism or exclusion;
– ignoring and excluding certain social groups where they should in fact be mentioned in the appropriate context;
– the compromising of human rights of particular groups.

Reasoning behind the standard

The principle of non-discrimination is rooted in the *UN Convention on the Rights of the Child* and the *Universal Declaration of Human Rights*.

Textbook content representing a particular community, by its role in these representations and the value judgements pertaining to them send overt (explicit) or hidden (implicit) messages with the potential for significant influence on the upbringing and education of students. Overt or hidden messages found in textbooks contribute to the development of students' characters and values and can influence the presence or absence of prejudice towards others. Diversity in itself is neither positive nor negative, but particular interpretations of difference can lead to discrimination.

If the textbook meets this standard of non-discrimination, it can contribute to the development of respect for members of different social groups and minorities. This is a way of promoting social integration, which helps prepare young people for life in a democratic society.

D15. Non-discrimination against different value systems

> Textbooks should not discriminate against different cultures, religions or values.

Many subjects deal with content pertaining to the transmission of cultural and religious values. Some subjects, by their very definition, predominantly deal with cultural and religious content and thus naturally touch upon the values originating from it. Such subjects include history, civic education or citizenship studies, religious studies, literature and art.

This standard emphasises that cultural and religious diversity must be respected and there must not be any type of discrimination such as:

- the denigration of any cultural and religious system;
- the promotion of stereotypes and prejudices against different cultural or religious systems;
- hierarchical positioning and rating of cultural and religious systems;
- exclusion and silencing of particular cultural and religious communities in cases where the content and context demand their acknowledgement.

Furthermore, it is important to consider the following:

- Are any of the "other" systems presented in their full context? For example, are they shown in the situation from which they originated, or are they only partially represented, so that the student is only capable of perceiving their difference without understanding them fully?

– Does the textbook draw any parallels or comparisons, or demonstrate dialogue between different cultural and religious values, or are they presented separately from one another?
– Does the textbook only emphasise points of difference between cultures and religions, or does it also portray similarities, universal features and universal human themes and needs?
– Does the textbook explicitly state all interpretations and relationships between value systems? Or are the students gradually offered questions, tasks and activities for them to make their own comparisons and come up with their own conclusions regarding cultural and religious values?

If the curriculum does not cover the appropriate content and examples, textbooks should not and must not try to represent different cultural and religious systems at all costs, contrary to the nature of the content (see D12).

Reasoning behind the standard

Messages in textbooks regarding cultural and religious pluralism represent a significant factor in the building of students' character and social integrity and contribute to the realisation of important educational aims. Such messages, especially if appropriately presented in the textbook (see standard E6), contribute to the development of a democratic spirit, respect for differences, the ability to make one's own decisions based on one's knowledge of cultural and religious diversity and the development of critical thinking (see standard E13). These are all important requirements for the development of students' democratic and civic consciousness.

D16. Presentation of artistic or aesthetic values

A textbook for a subject primarily concerned with works of art should offer a model of aesthetic diversity and/or creativity.

The contents of particular subjects or their individual parts, such as literature, art, music, art history, etc., present young people with aesthetic values. Such textbooks must offer a model of aesthetic diversity. In other words, they must resist one particular "mould" or narrow definition of what can be considered art, or one desirable aesthetic, but instead should present an array of possibilities within which a particular aesthetic is just one of many possible means of expression, without any one form being considered universally valid or "superior". Textbooks should not overtly state aesthetic values, but rather should place emphasis on the advantages of diversity, giving students access to various possibilities and criteria for decisions on what is a work of art and what is not, as well as guiding them to recognise such forms of aesthetic expression as kitsch or pastiche.

The textbook should feature:

– representative works of art from different movements;
– questions and assignments that enable students to gradually develop the criteria necessary for artistic evaluation (rather than simply telling them what is valuable and what is not);
– connections between different artistic values and analysis and comparisons between different styles.

– Likewise, the textbook should ensure that particular works of art, artists or movements are not ignored and excluded from contexts in which they merit a mention.

Reasoning behind the standard

The presentation of works of art is an integral part of arts education, whose purpose is to offer students the opportunity of learning about different artistic movements and trends and the styles and values that characterise them. When textbooks present a range of artistic examples and different ways of fulfilling the same cultural needs, students are taught creative diversity and elements of the specific nature of this discipline.

Through the presentation of different works of art and accompanying definitions elaborating why they are considered art, students slowly begin to form their aesthetic taste and gradually learn to recognise and evaluate individual works of art. This also partly involves the development of critical thinking (see standard E13), because it is important for the young person to understand a given work of art and its message. More advanced students should be able to recognise different critical standpoints and to understand and appreciate the specific context (temporal or spatial) of individual works of art.

Group E: Quality standards for the didactic design of textbooks (Ana Pešikan, Slobodanka Antić, Ivan Ivić (E1–E12) and Jelena Pešić (E13))

This second largest group of standards is concerned with the key aspect of the textbook as a genre, i.e. the specific requirements that must be fulfilled in order for its content to be organised and tailored to students and their needs, knowledge, age and intellectual ability. A textbook's didactic design is composed of the presentation of its main text and the presence of additional didactic apparatus.

E1. Explanation of technical or specialist terms

> The definition of every new technical or specialist term used for the first time in the text must be explained on the same page as the one on which it first appears as well as in the glossary at the end of the textbook. The author must consistently use the same definition of the term throughout the entire textbook.

Explanations of technical or specialist terms may be given in different places within the textbook: in the margin, in a separate text box, at the bottom of the page where the term first appears. At the end of the thematic unit or chapter, new terms and words from that particular chapter may be repeated in a mini-glossary (see stand-

ard F2). The main glossary, including all technical terms and words likely to be previously unknown to the student, should be located at the end of the book. This position allows the student to easily find the new word when engaging in further reading.

This standard stipulates that textbooks must provide explanations of technical or specialist terms used, i.e. their basic lexical definition. Such explanations, in terms of their length, form and content, must be appropriately tailored to students, taking into account their age, interests and cognitive abilities. There is no use in teaching an unknown term or phenomenon using yet more unfamiliar words, or explaining it in any way that might deter the average student from attempting to understand it.

If similar or related terms are used (different terms with identical or similar meanings), or if certain terms have homonyms (words with identical or similar spellings but different meanings), it is necessary to emphasise and explain the similarities and differences between the given terms. In cases where a word is polysemic (i.e. has several meanings) and the word has appeared in a new context, the author must explain the new meaning of the previously known term. For example, the term "root" has completely different meanings in mathematics, biology and stomatology.

Special attention is needed when introducing terms which have an everyday meaning as well as a technical, abstract use. An example is the term "church", which in a history thematic unit might refer to an institution rather than a building or a local organisation.

It should be a given that whenever a technical term is first introduced, the explanation that follows, along with the term's accurate definition, should be at a level tai-

lored to the student's ability. In other words, there may be no need to immediately provide a very detailed explanation of the term; it may be given on a more general level, or it may be reduced to its most basic, essential meaning.

When a new term appears in the textbook for the first time, the initial meaning of the term should be slowly and gradually developed in the further course of the text. The further refinement, expansion and specification of the meaning of terms can contribute to the development of the concept associated with this term, i.e. the degree to which the student has acquired the concept. Thus textbooks also contribute to students' acquisition of new terms, which is the foundation for the acquisition and development of the terminology of individual disciplines and particular fields of knowledge.

Reasoning behind the standard

The fulfilment of this standard is an essential measure for supporting learning with understanding, especially with regard to terms that form the backbone of content for a particular thematic unit in the textbook. Explanations of technical or specialist terms should provide the student with the basic meaning of the term in question; this must not be confused with the student's acquisition of the concept signified by this term: in the best-case scenario, it is just the beginning of that concept's development for the student. Establishing the meaning of concepts is a long and complex process demanding a synthesis of all elements of the practice of teaching (the textbook, the teacher and teaching methods). This process enables the student to acquire the meaning of the

concept as an abstract category and to establish all its possible connections with related and unrelated concepts (see standard D6).

E2. The functional use of illustrations, images and icons

> Illustrations, images or icons must have a clear purpose; they fulfil a specific function in textbooks and should be provided wherever they might convey a message more effectively than verbal or numerical means.

Iconic and graphic devices (pictures and illustrations) are specific visual means of communication in published works (see standards B3 and C3). They include:

- photographs;
- artwork reproductions;
- drawings;
- images of various degrees of abstraction;
- diagrams, graphs, charts, histograms;
- maps;
- cartoons;
- typographic emphasis.

Textbooks in an electronic format can provide iconic functions that are not possible in printed media, such as animation and simulation.

Images and illustrations are particular forms of communication, with specific structures and functional features that distinguish them from verbal language. There are a number of specific functions in learning which can

be realised through these media, independently or as an additional visual support for words or another symbolic system.

First, images and icons as visual means of representation can increase the level of clarity, precision and decipherability of information presented in the textbook by means of transmitting content which is impossible, or at least difficult, to transmit through other media. One example might be works of fine art: describing Michelangelo's *David* would take up a lot of space, while a single image is sufficient to show it.

Other purposes of images, illustrations, symbols and icons in textbooks might be:

- to show the spatial properties of an object, or the relationship of a part to a whole, by means of symbolic representation of spaces on maps and so on;
- to present individual objects and their visual characteristics (human faces, buildings, individual specimens of plants or animals, machines or technical devices);
- to show microscopic phenomena inaccessible to the naked eye, such as the structure of a cell or an atom;
- to represent macroscopic phenomena that are too large to be seen as a whole, such as large spaces and celestial bodies;
- to demonstrate functional relationships between objects or units, such as parts of machines, atoms, related body parts or organs, etc;
- to provide a visual demonstration of the functions of certain processes, such as the circulation of matter in nature;
- to offer graphical presentations of numerical data and their relationships (such as increases or decreases shown on graphs);

– to emphasise content through typographical formatting or hierarchical concept structures.

Second, illustrations and images may contribute to the motivational and emotional function of the textbook. Photographs, fine art reproductions or caricatures, as a rule, provoke emotions from those who look at them, be those emotions positive or negative: compassion, empathy, anger, fear, vulnerability and so on. Such evocative effects are particularly important in the presentation of content communicating values (see standards D12–D16 and E6), as it may be a great deal easier to promote certain values in textbooks if the text is supported by content with more immediate access to the emotions. For example, if the textbook promotes a certain attitude towards individual social groups (nations, social classes, women or any other segment of society), the message will be much stronger if it is accompanied by a picture or photograph or caricature depicting that particular social group as a victim or aggressor. This is an especially pertinent point with regard to history, geography, literature, religion or ethics textbooks because these subjects often aim to promote values.

Third, iconography used in textbooks also has an aesthetic and decorative function; it increases the aesthetic value of the textbook as a whole and thus indirectly contributes to the development of the student's aesthetic sensibilities. For example, a good selection of illustrations, accompanied by an explanation of the criteria on whose basis the selection was made, may, in time, promote the development of aesthetic standards among students.

In addition to its independent functions, illustrations and images may also complement other educational de-

vices in facilitating students' understanding of the text. This highlights the need to carefully plan, and combine the benefits of, the different means of communication that may be used in the textbook.

In order for icons and other graphical means to achieve their function, the textbook should meet certain technical standards (containing clear photographs or illustrations, legible diagrams and so on).

This standard cannot be fulfilled if illustrations, images etc. are not assigned clear functions. When evaluating these functions, we need to take into account the context in which the image or icon is used and its connection with the text and other structural components of the textbook (see standards C1 and C3).

The effective use of images in the textbook is primarily based on their compatibility with other components of the thematic unit, i.e. the icon must not counteract the text; this is the first and most basic requirement for the successful use of images in textbooks. Further, all illustrations must complement other components of the textbook (see standard C1). For example, questions should help the student interpret pictures, while the main text should explain how to read graphs, etc. There must be continuous interplay between the components with the aim of intellectually engaging the student. Finally, every visual image, illustration or icon should be used in a way that maximises the individual benefits stemming from its use.

Inappropriate use of images and visual means of expression, such as excessive use of colour, too many illustrations, insufficient cohesion between the text and illustrations and inconsistencies between the style and meaning of the text and the illustrations can be distracting and

thus may obstruct students' process of understanding the messages of the textbook.

Reasoning behind the standard

A well-known saying has it that "a picture is worth a thousand words". When pictures and illustrations are used well, they can become a powerful means of promoting the process of learning with understanding. An image will be most effective if all the characteristic benefits derived from its use are utilised. Thus illustrations increase the clarity, precision and decipherability of the ideas presented in the textbook. Furthermore, images can boost the student's motivation for learning and for intellectual endeavours as well as a general love of books.

E3. The didactic value of examples

> The examples that are used to explain and illustrate the general phenomena, concepts and ideas presented in the textbook should be diverse.

Examples should vary according to:

- their origin or source, in terms of geography, population, social background, class, or similar (see standard D9);
- the means by which or media in which they are provided: verbal media, e.g. descriptions of examples; illustrations or graphical examples; numerical exam-

ples; the listing of concrete objects or characters; concrete examples of behaviour patterns (see standard E2);
– categories – the ability to cover an event from many different angles, making sure that the most typical or frequently used examples are not the only examples provided. The text must also contain counter-examples, borderline cases, atypical or problematic examples which do not belong to the given category, but appear very similar.

First and foremost, the examples must be accurate and appropriate to the ideas, concepts and events they are intended to illustrate. Second, they must be sufficiently diversified. As a rule, textbooks tend to offer only the most characteristic, typical examples of a given event or idea, as indicated by the term "textbook example" meaning an absolutely typical example of a particular phenomenon. This tendency can hinder or distort student understanding of the concepts and ideas because it may mean that the examples fail to cover the whole scope of the event or the general idea. It is essential for textbooks to include both typical and atypical, controversial and problematic examples. Examples used in thematic units will be more effective if analysis of atypical examples is put in the context of questions and tasks given to the student to solve independently.

Reasoning behind the standard

When used to explain and illustrate general events, ideas and concepts, examples greatly aid the comprehension of a text in a textbook. Examples can make abstract concepts more concrete and thus bring them closer to the

student, as well as increasing the likelihood of students being able to connect previously acquired knowledge and experiences with new knowledge in the textbook.

When selected well, in terms of their source, the medium in which they are given and particularly diversity of categories (counter-examples, borderline cases, atypical examples and so on), examples serve the student as a tool for constructing general ideas and concepts. They also facilitate the process of making connections between concepts (see standard E4).

E4. Meaningful connections between concepts and knowledge

> The presentation of basic knowledge and concepts in each individual thematic unit must provide meaningful connections with other relevant concepts and knowledge.

The development of any kind of lasting and applicable knowledge requires the student to memorise individual facts, information or data and establish many different types of links between them. These connections create different relationships between each individual piece of knowledge, including such types of connections as generality, similarity and difference, exclusivity and conformity, so that the information learned does not remain isolated, but instead becomes a part of a system, a specific network of knowledge (see D6). The structure of textbooks must support and facilitate these interconnections

with the aim of enabling students to gradually construct systems of knowledge, concepts, values or mathematical, logical and intellectual operations.

Connections between items of material in the textbook may be on different levels in relation to the textbook. These may be:

– Within the thematic unit: links between the main concepts and individual pieces of knowledge, as well as mutual connections between individual pieces of information. This is an issue relating to the inner coherence of the thematic unit (see standard C1).
– Between thematic units: connections between the main concepts of a particular thematic unit and basic knowledge from other thematic units in the textbook. These connections enable students to construct a system of knowledge from the textbook as a whole (see standard D6).

Links and interconnections in the textbook may also vary in terms of their presentation:

– The author of the textbook may choose to explicitly point out and emphasise these connections, so they are already given and the student is only required to understand and memorise them.
– The student may establish these connections independently by working on specially designed problems and tasks (see standard E10). Such a method enables students to discover the connections between individual pieces of content by relying on their own thought processes and deliberation.

A textbook should gradually and carefully use all means possible to establish meaningful connections between the individual parts of its content. The student should not be overwhelmed by too many different connections

given all at once. Only those basic links which contribute most to the understanding of the key concepts of the thematic unit should be introduced initially. For example, it is not effective to introduce all the taxonomic classifications for living beings at once. The textbook should instead construct the system gradually by presenting the most general taxonomic classifications first, and only later attempt to expand and differentiate (see standard D6).

The connections between the different parts of the textbook should not merely be stated without further explanation and elaboration, but must be given as much attention as the actual facts.

There are many different techniques and strategies that can be applied while compiling a textbook in order to establish coherence between the individual parts of the content, such as:

– Connecting the main concepts and ideas in each thematic unit with specific facts, occurrences and events presented in the same thematic unit so that they become meaningful through this process of association.
– Determining interrelationships between individual facts, occurrences and events presented in a thematic unit.
– Putting information in a narrower or wider context. This means making sure that individual facts, occurrences and events are located in space and time in order for them to make sense. This is especially important for history textbooks, where the context includes a social, economic and political background. A genuine understanding of facts is only possible on the basis of an understanding of their overall context.

- Linking individual facts, values, skills and concepts on a lower, more detailed level with those on a higher level, i.e. more general occurrences, ideas and concepts, such as basic rules, principles, laws, algorithms, theories and value systems. It is important to first establish a connection with information on a level directly hierarchically "above" or "below", because this leads to the formation of parts of a more complex system of knowledge.
- Linking the content of the thematic unit with previously acquired relevant knowledge and introducing new related knowledge further on in the textbook.
- Textbooks may use different graphical or typographical techniques to facilitate the visual presentation of relationships and connections between individual parts of the content (see standard D6):
  - conceptual maps and different types of diagrams (schematic presentation of mutual relationships between different concepts within a system or a part of such a system);
  - a system of taxonomic classifications;
  - tables demonstrating the interconnectedness of ideas and concepts;
  - illustrations of structural and functional patterns;
  - genealogical trees;
  - timelines and periodisation;
  - causal and functional linking;
  - algorithms (the necessary steps and operations).
- From an educational point of view, it is most effective when questions and assignments ask students to reconstruct such interconnections independently. It is therefore essential for the questions and assignments to be well constructed (see standards E7 to E11).

Questions and assignments in the textbook may ask students to do one or more of the following:

- identify similarities and differences between events, facts and concepts;
- identify information on different hierarchical levels within a given concept;
- find examples and illustrations that represent the concept;
- undertake comparative identification of semantic markers of two terms or concepts;
- classify particular occurrences/phenomena;
- summarise individual findings and conclusions;
- independently evaluate information, e.g. differentiate pieces of information of greater or lesser relevance or accuracy;
- sequence information in a logical or chronological manner or any other type of order;
- conduct independent searches for synonyms, antonyms and related words for terms given to identify different concepts in a thematic unit;
- locate particular phenomena in space and time;
- attempt to determine the possible practical applications of the knowledge acquired;
- draw connections between knowledge from the textbook and concrete everyday knowledge and experiences;
- establish spatial, temporal and causal connections between phenomena, events and facts.

This is a key measure for promoting learning with understanding in students. The meaning of new material is created primarily by establishing a range of connections between the new information (individual concepts, findings, facts, terms, values, principles, operations) and other knowledge. Most importantly, learning with understanding takes place when new information is linked to those materials that fulfil the role of key, foundational knowledge in a specific discipline and which can be utilised as a framework for the structuring of facts and knowledge. The essential difference between scientific/academic knowledge and simple information is that the former consists of interconnected systems of knowledge whose meaning is derived precisely from their nature as systems of relationships and connections. One might visualise the difference between knowledge that is integrated into a system and isolated pieces of information as analogous to the difference between a house and a pile of bricks. Knowing how to distinguish between the two can help us prevent the students' textbook learning being reduced to the mere memorisation of isolated facts which are easily forgotten. The acquisition of isolated pieces of knowledge (without making connections to any systems of knowledge) facilitates mechanical or rote learning.

In addition to being crucial to the design and development of the curriculum, such interconnected knowledge ensures the long-term retention of learned material and increases the likelihood that it will be applied outside the context in which it was acquired.

Textbooks should contain specific sequences for the integration of knowledge.

The function of such sequences is analogous to that of the systematisation of previously learned content in a series of units. These units of sequential integration are separate units in the textbook used to summarise the previous chapter and prepare the ground for the following, by presenting the connections to previous data in a graphically memorable way or by linking this information with the students' extra-curricular activities, for example.

The selection of types of sequences for content integration, their number, their location in the textbook and their form are determined by the author(s), who must take into account the nature of the subject and the aims behind sequencing content.

The purpose of such integrating sequences is to prevent the textbook from becoming simply an unconnected collection of mutually isolated parts and improve the interconnectedness of the knowledge presented in it. Sequencing also connects knowledge vertically across further levels (see standard D8) and acts as a thread connecting individual thematic units in the textbook.

There are different methods of creating sequences of content integration. Possible forms of sequential integration include:

– The systematisation of elementary knowledge, skills and concepts that are elaborated in a given thematic unit of the textbook.

- This type of sequencing connects important knowledge presented and processed in the thematically linked preceding thematic units. The basis of these sequences is the mutual relationship between the basic types of knowledge and concepts presented in previous units; this relationship makes it possible to construct a partial system of knowledge that is a part of a greater, more general system. Such integration of knowledge may be accomplished by the authors, using a particular method of presenting material (the text itself and diagrams showing connections), or by problems and activities designed to enable and encourage the student to integrate knowledge independently.
- A task with a complex problem structure given in a concrete, real context, similar to a case study, can serve as an integrating sequence. These problem structures are built with the help of the following components and strategies:
  - inclusion of real-life problems such as real hardships, dilemmas, cognitive or socio-cognitive conflicts, paradoxes, alternatives, conflicting interests of different groups, exceptions to particular rules, principles or values, conflicting theories, values and life experiences of students;
  - ensuring that the solution to the problem is dependent on the practical application of knowledge and skills acquired in previous thematic units;
  - putting the problem in a clearly defined context such as a real-life situation or a scientific, experimental context, which must be taken into account in the process of problem solving. This is the best way of teaching the practical application of ac-

quired school knowledge, which then ceases to be only academic, but becomes practical knowledge relevant to everyday life. Here are some examples of such problem situations:

- solving complex everyday-life problems which call for mathematical models and the use of different mathematical skills and operations (e.g. making a substance of a certain concentration, analysing the results of a survey, working out the number of seeds required to be planted in certain conditions and so on);
- making compilations of comprehensive texts for certain genres (art, documentation, journalism, etc.), which helps develop complex linguistic skills;
- devising and conducting scientific experiments;
- tackling specific local issues: working on an ecological problem, launching a media campaign, research into a particular local community, study of local landmarks, etc., i.e. doing activities which facilitate the development of the relevant skills.

– Practical application of knowledge from a series of thematic units for the solution or simulation of a practical problem (e.g. measuring the school playground).

– Connections between segments of the curriculum can also be forged through the planning and implementation of small individual or group projects. Such projects should be clearly designed and achievable, in the sense of being adapted to the student's age group and local circumstances. Such projects may take many different forms; some examples might be:

  - small research assignments related to certain segments of the curriculum in a natural or social environment (e.g. measuring pollution levels in a local river);
  - research based on written scholarship or source documents used as a basis for writing a report;
  - implementing a small local initiative connected to a part of the curriculum (e.g. suggesting ways for cleaning a river);
  - conducting an internet search on a given topic and writing a report about it;
  - recording the process of devising and implementing experiments;
  - observation of certain occurrences in the local environment according to specific instructions, taking notes, analysis and report writing;
  - preparation for an appearance in the local media in connection with a certain part of the curriculum.
- Textbooks may contain recurring questions and assignments which require a summative evaluation of knowledge, skills and competencies which derive from a certain topical segment of material. The purpose of such questions is to elicit not the reproduction of individual facts from previous thematic units, but an awareness of their interconnectedness. In order to achieve this aim it is necessary for the questions and assignments not to refer only to individual thematic units but also to make connections between them. This means that students may freely use the thematic unit materials during a test, because these materials do not contain ready-made answers. In other words, students are not required to reproduce

knowledge, but instead to compare, connect, analyse and apply it.

– Textbooks may encourage evaluative behaviour or self-assessment in particular areas of knowledge. Academic knowledge is usually presented in an impersonal or neutral way, which can make the process of deep understanding more difficult. Through activities and tasks, some textbooks may demand that students assume a more personal stance, with the strict requirement that this point of view be supported by arguments from the corresponding part of the curriculum. When completing tasks that require evaluative behaviour, the student may be encouraged to freely adopt a personal point of view, or an emotional attitude towards a subject, or to deliberately, regardless of personal beliefs, dispute the validity of a certain piece of information or knowledge or to argue in its favour, much in the manner of a debate.

Students may evaluate works of art, assess past events in the light of modern interpretations or of their significance to the student and society as a whole, evaluate possible applications of specific knowledge (e.g. the use of genetically modified organisms), assess certain general values or the social relevance of specified knowledge and so on. In other words, almost all textbook knowledge may be suitable for such assignments.

Reasoning behind the standard

Linking major thematic units of textbooks using sequences of curriculum integration is another important measure for the construction of a structure or network of meaning within which individual pieces of knowledge

(facts, parts of structures of knowledge, individual skills, values, individual operations, rules and specific and general principles) are connected to more general systems of meaning and knowledge (see standards D6, E4).

Such integration is another measure that contributes to long-term learning, the construction of knowledge on secure foundations which is retained in the long term and the formation of useful knowledge which can be applied outside the school context.

Integration of knowledge is particularly important because it connects the functional units of knowledge and skills which are often distributed in discrete places in the textbook; in this way, it links knowledge and skills from different areas and thus prevents any knowledge from becoming static or inert (i.e. knowledge that can only be used in the context in which it is taught). In this sense, this type of interconnectedness of knowledge in the textbook represents the application of knowledge, or a good simulation of the practical use of knowledge and skills.

E6. Effective ways of presenting values in the textbook

> Textbooks should take advantage of all the opportunities provided by print media to increase the likelihood of the student accepting certain values.

This standard refers to both the explicit and implicit values given in the textbook. It is complementary to

standards D12–D16, which are concerned with values on the level of content. This standard, which is included in group E, discusses ways of presenting values in textbooks. The standards in group D tell us "what", while the standards in group E show us "how".

Textbooks as print media have very limited opportunities to influence students' real acceptance of values, which would mean their behaviour developing in line with the values presented. For this reason, it is important to use all the resources available to textbooks in order to influence the formation of values. It is essential that this is done through the acquisition of knowledge about values, which implies a good understanding of individual values and how they interconnect to form systems of values. This process builds and strengthens a positive attitude towards the desired values.

In terms of the textbook, this means that:

- There should be internal coherence of values in the textbook, which implies:
  - No ambiguity or mixed messages – individual values must be in mutual agreement or harmony, creating an unequivocal system of values (see standard D12).
  - Messages communicating values should not be scattered throughout the textbook in the form of isolated fragments; instead, students should be consistently directed from parts of the textbook presenting particular kinds of values to other textbook units containing different types of values, so that this content is always interconnected into an unambiguous (unequivocal) system of values.

  - Any values that are given implicitly in the textbook must be in agreement with values that are given explicitly.
- Values should not simply be stated in a declarative manner, but instead must be elaborated and presented in a variety of ways, on different levels of specificity, by such means as statements of general principles, examples, illustrations, excerpts and details from works of art, etc.
- Examples used to present particular values must be rich and diverse (from everyday life, science and art). Some fundamental values should manifest themselves in the examples provided, and the textbook should indicate the link between the given examples and the universal values to which they relate.
- The values presented should be connected with students' real-life experiences of these values. The presentation of desired behaviour patterns must be familiar and acceptable to students and these behaviour patterns should be shown as being successful in their environment.
- This in turn means that the textbook might raise dilemmas relating to values, appropriate to the age group of the student, by questioning the given values, offering possible alternative views on certain values and so on.
- Values have their own emotional component. It is therefore important that they are not presented in a dull, emotionally neutral way, but that there are examples in which personal and emotional views are strongly expressed. Strong emotional emphasis on the values to be promoted and negative emotional emphasis on undesirable values is most effectively con-

veyed through the use of artistic forms of expression and imagery (see E2).
– Textbooks may offer well-thought-out exercises and activities for students to practise social skills that are relevant for the acceptance of certain desirable values, such as communication exercises, dialogues, debates in a spirit of mutual respect, etc.

Reasoning behind the standard

The successful presentation of values is one way of realising functions of value education and socialisation in textbooks.

The formation of a system of values is primarily affected by the general context in which students grow up (the wider social background, media, family, school life as time spent in a social institution). The mechanisms for the formation of values in young people are based on learning by example, support on the part of socially significant groups and individuals for behaviour that is heavily motivated by values, frequent encounters with the desired patterns of conduct within the young person's social group and so on.

Despite its limitations as a print medium, a textbook still has a number of resources for the promotion of knowledge about values and the encouragement of acceptance of the corresponding desired behaviour patterns.

E7. Presence of questions and assignments in the textbook

> Every textbook must continuously present questions and assignments for students throughout the whole book.

A textbook is defined as such both by its content and by the presence of questions and assignments for students. Its primary function is to enable and facilitate learning, but also to give feedback on learning progress made by students.

The textbook defined in the narrower sense as a book for the student cannot completely delegate questions and assignments to workbooks, tests or other components of the textbook set; there must be some questions and assignments incorporated into the textbook itself. Likewise, components that predominantly consist of questions and assignments, such as workbooks, tests and manuals, must be meaningfully connected to the main text in the textbook.

Questions and assignments may be found in different places in the textbook: a) at the beginning of the thematic unit, as an introduction or a means of linking new knowledge with previously learned material; b) in the course of the thematic unit, when, for example, content is presented in problem form – which might imitate the required thought process, asking questions in order to create a link to the statements that follow; c) at the end of the thematic unit. Sometimes questions and assignments are given following a thematic unit with the spe-

cific purpose of developing higher-level cognitive skills (such assignments might be problem solving exercises, experiments, critical thinking assignments or creative tasks). The textbook must include questions and assignments because the main function of a textbook is to create a learning situation, but this does not mean that questions and assignments have to be provided in all these places in one textbook.

Reasoning behind the standard

The process of learning is not a process of merely accumulating knowledge; it is the act of constructing knowledge, which must be done independently by the one who is learning, with outside support. Therefore, learning is not possible without the active participation of the learner. Thus textbooks must create situations that will challenge students to get actively involved and provide them with opportunities for the construction of knowledge and skills through independent activities.

Questions and assignments are the main textbook tools for creating learning situations. They must be carefully planned and designed to challenge students and encourage them to enter into subject-specific and relevant activities which lead to the construction of knowledge.

Since the main purpose of questions and assignments is to enable and facilitate students' learning and offer feedback on their learning progress (see standard E10), it is necessary to use them continuously throughout the textbook. All these diverse functions cannot be realised in one place, but must happen on the level of the book as a whole.

E8. Pertinence of questions and assignments

> Textbooks should not feature meaningless, unrealistic or vague questions and assignments.

Since the primary method of mentally engaging students when working with textbooks is through their work on questions and assignments, textbooks should not contain any questions and assignments that do not fulfil their function because they are either meaningless, unrealistic, or vague. Poor questions and assignments (QA) not only fail to facilitate learning, they also do harm by creating confusion, making learning more difficult and demotivating students from doing further work.

Meaningless tasks are those that, for whatever reason, do not fulfil their function in the textbook (they may contain incorrect language and thus be unclear, be pseudo-activating and only encourage mechanical learning, or offer ready-made answers to previously asked questions). Unrealistic questions and assignments are those which do not provide, or fail to take into account, the specific conditions (time, resources, opportunities, previous knowledge, abilities, etc.) that need to be met in order for the learner to be able to give an answer. Vague questions and assignments are those that do not provide enough information for students to solve them successfully. Vague tasks tend to be imprecisely defined, making it impossible to clearly determine what is required.

All questions and assignments must be studied in the context of the content presented in the textbook, that is

the context of the thematic unit and the whole textbook set. Additionally, they must be evaluated in relation to the students' age group (their intellectual, physical, emotional and social abilities). There are several categories of non-functional questions and assignments. Here are some explanations and examples for each of the undesirable categories of questions and assignments:

– *Questions and assignments lacking the correct linguistic formulation*

  These might be linguistically imprecise, ambiguous, unclear, clumsily worded, incomprehensible or grammatically incorrect. It is precisely the incoherent language that makes the tasks confusing and difficult for the student to complete as it is not clear what is required of him or her.

– *Pseudo-activating questions and assignments*

  These are questions and assignments that motivate students to engage in them, yet the required activities may be too easy for the students, below their level. The results of such activities tend to be minimal, trivial and irrelevant to what is being taught, often disproportionate to the students' efforts. Pseudo-activating questions and assignments, such as rhetorical questions, do not in any way improve understanding and mastery of the curriculum content.

– *Questions and assignments requiring rote learning (learning without understanding)*

  These are tasks formulated in a way that demands literal repetition of a segment of the main text, or tasks which require data to be given in exactly the same order as presented in the textbook. Such questions and assignments are designed in a way which prevents students giving an answer independent of the text, the

only acceptable answer being a verbatim repetition of textbook text.

– *Pointless questions and assignments (due to their order and mutual relationships)*
  In this case, questions and assignments are assessed by looking at all the questions and assignments that refer to a thematic unit (for example by analysing all the questions and assignments at the end of a thematic unit). A typical example of pointlessness might be when an answer is required for a specific question, but the answer is already given in the wording of another question within the same group of questions and assignments. Another case of pointless questions and assignments would be the presentation of a complex question whose answer already contains the answers to much easier following questions. Sometimes a question may be pointless due to the accompanying illustration, which either suggests the answer or invalidates the question in another way.
– *Unrealistic questions and assignments*
  These are questions and assignments that cannot be completed with a reasonable amount of effort because they either require too much time, or conditions necessary for their realisation are not in place. One example might be an assignment that requires young children to gather, organise and encourage other children from their neighbourhood to join a campaign or get involved in some joint action for which they are not mature enough or an assignment that demands the use of resources that are not available in their local community.

– *Cognitive imprecision in the definition of questions and assignments*

  This category includes those assignments to which the first natural reaction of the student is: "I do not understand."/ "I do not know what this means."/ "I do not understand what is being asked of me." In other words, it is not clear what needs to be done and how. In such questions and assignments, terms and metaphors are often used in an imprecise manner and thus create confusion (examples for vague wording are "Tell me *something* about…", "Determine…" (without stating how or with what), "Find out…", etc.).
– *Questions and answers without availability of the relevant textbook information*

  Here we refer to questions and assignments for which the textbook does not provide the appropriate foundations or steps; examples might be demanding that students compare two different events or phenomena without at the same time giving the characteristics on the basis of which such comparisons are to be made, or asking students to draw conclusions on a subject without providing enough content. Sometimes questions and assignments refer to activities without any reference to the resources needed in order to complete them.

Reasoning behind the standard

If questions and assignments are the main means within a textbook for activating student learning, the problem with pointless, unrealistic and vague questions and as-

signments is that they disrupt learning and render students' learning efforts nonsensical:

- They do not stimulate learning, but only waste the students' energy.
- Students are put in a situation which makes them feel unsuccessful because they are incapable of solving the problem. They are more likely to doubt their own knowledge of the subject than to question the adequacy of the task and will thus only become more confused.
- Such tasks have a demotivating effect on students and may even "kill" their enthusiasm for learning or any type of intellectual work.
- They support the development of bad educational habits; students may avoid attempting questions and assignments, or they will find alternative unsatisfactory solutions such as getting their parents to do them, copying another student's work, giving any random answer in order to avoid spending time on the task, etc.
- They take up space in the textbook, which means that the pages accorded to them are a waste of time and money.

E9. Diversity of questions and assignments

> Textbooks must present a variety of questions and assignments, in terms of form, level of difficulty and the number of people required to solve them.

It is necessary to include questions and assignments throughout the whole textbook; they must be given in as many different forms as possible, making sure that they are not reduced to only two or three types of task. It goes without saying that assignments should be designed to suit the content and learning objectives. There should also be a range of levels of assignment difficulty. Most tasks should be on a level that is accessible to and achievable by most students; in addition, there should also be assignments that are more difficult and demanding. In the textbook, the most common type of questions and assignments should be those on which students work on their own, but there should additionally be questions and assignments which need to be solved in small groups or teams, by the whole class, or with a teacher. (For example, the whole class might be involved in creating a timeline on which they will locate all the major events relevant to the period in history taught in the thematic unit).

Reasoning behind the standard

It is essential for questions and assignments to be diverse in form, level of difficulty and number of participants involved, as in this way they suit different learning styles, abilities and interests of students. Providing a variety of questions and assignments takes into account children's individual differences. By requiring a range of activities, questions and assignments facilitate the development of different forms of knowledge acquisition, e.g. application, analysis and evaluation of new knowledge, creative thinking and so on (see standard E10). If we offer a variety of questions and assignments, the book will retain the

attention of the students and their motivation for work, as uniform tasks easily become monotonous and lead to boredom and fatigue. Questions and assignments are ideally designed to meet the needs of different subjects by means of the specific type of content as well as to meet different learning objectives.

E10. Variety of learning methods in questions and assignments

> Questions and assignments in textbooks should support the aims and outcomes of the relevant subject by encouraging different methods of teaching/learning.

There is a repertoire of different methods of teaching/learning used in order to achieve the intended objectives. Questions and assignments are the principal "tools" of textbooks and are used to promote different methods of learning. Each question and assignment stimulates students to engage in a certain type of activity. The activities of the students, whether intellectual, technical, social or creative, are exactly what constitutes the core of every learning or teaching method. Questions and assignments thus require different types of activities (and students need to take on different roles) as well as different levels of independence in working.

All questions and assignments must be considered in the context of the content presented in the textbook, that is the context of the thematic unit and the textbook

set as a whole. The age group and potential previous knowledge of the student must also be taken into account, as well as the context of the set objectives of the subject within education as a whole. For every question and assignment featured in a textbook it is necessary to determine which method of learning it may trigger. The following classification of possible methods of teaching/learning may help conduct this analysis. Each method is described in terms of the type of student activity or activities it triggers:

- *Learning by heart (rote or mechanical learning)*
  Questions and assignments for repetition of material such as facts, dates, holders of positions or offices, technical terms, units of measurement, capital cities, countries, foreign language vocabulary, etc.
- *Learning with understanding*
  A whole variety of questions and assignments can support the process of understanding, which may require one of the following:
  - identifying similarities and differences between different phenomena and events;
  - extracting the most important content from a text in order to summarise it;
  - spotting the connections between two or more occurrences;
  - analysing and being able to draw conclusions from the given material (from, for example, different media sources, statistics, historical documents and so on);
  - defining a phenomenon or an occurrence in one's own words;
  - identifying a false statement from a number of statements;

- defining rules and principles in one's own words;
- linking knowledge acquired from textbooks about different phenomena with personal experiences and everyday life in general;
- determining the logical relationships between phenomena about which the learner has been taught;
- independently creating a review of learned material in the form of graphs, diagrams, tables, posters;
- connecting previous thematic units with new material;
- asking key questions;
- solving problems according to a particular pattern or algorithm;
- finding one's own examples of learned phenomena;
- analysing a historical document or illustration (e.g. painting, photograph, cartoon or poster).

– *Acquiring practical (motor) skills*

  Assignments that enable the use and continuous practice of a psycho-motor or any technical skill. Such tasks may entail:
  - using school utensils such as pens, rulers, compasses, paintbrushes etc.;
  - handling technical equipment;
  - using measuring instruments such as scales, thermometers, dynamometers, etc.;
  - using laboratory equipment, e.g. a microscope or test tubes;
  - operating mechanical devices and machinery;
  - working with computer equipment, e.g. installing a program;
  - practising musical instruments (this supports gross and fine motor skills);

  - practising different sports, or any form of physical exercise.
- *Acquisition of intellectual skills*
  These are questions and assignments which facilitate the use and practice of certain intellectual skills and competencies such as:
  - using indexes of authors and concepts, different ways of handling information;
  - formulating one's own summary of a thematic unit;
  - solving puzzles;
  - using information technology;
  - using different computer programs, such as Word, Excel, etc.;
  - reading maps.
- *Developing social skills and techniques*
  Questions and assignments which require the practice of certain types of social knowledge, social skills and techniques such as:
  - debating (the ability to formulate arguments during a discussion);
  - techniques of active listening skills;
  - understanding and respecting other points of view (e.g. via role play);
  - techniques of persuasion and negotiation;
  - leadership skills;
  - organisation of social events;
  - strategies of conflict resolution;
  - public speaking skills and PR skills.
- *Creative learning*
  Questions and assignments which seek to develop the students' independent creative output, such as:
  - developing their own literary style;

- producing a painting or any other visual artwork;
- composing music;
- designing a product;
- thinking of alternative ways of using a certain object.

– *Problem-solving*

This category covers all questions and assignments where one piece of data is given or known while another aspect (or various aspects) is unknown and needs to be deduced from what is known. For example:

- determining the possible consequences or implications of an event;
- presenting the results of an operation;
- solving small problems, with varying degrees of freedom in the choice of theme, methodology, material and form of presentation;
- designing and carrying out experiments independently or in groups;
- creating a Power Point presentation independently or as a group;
- finding novel ways of solving a problem from methods learned in class;
- finding the shortest, most elegant way to solve a given task;
- thinking of a different procedure which could be used to solve a problem (without solving the problem itself);
- executing tests or experiments in order to arrive at certain conclusions and generalisations:
- deducing or discovering a principle on the basis of a number of individual cases.

– *Cooperative learning*
  Questions and assignments which seek to develop cooperation and exchange or discussion with others. This might take the form of different types of collaborative work (in pairs or groups, or even as a whole class), for example:
  – working together to create a common product such as a poster;
  – working jointly on a presentation of the results of teamwork;
  – searching for common components in different value systems and points of view;
  – mutually complementing one another's skills and knowledge;
  – debating different points of view and theories;
  – engaging with different interest groups and searching for compromise;
  – challenging those who hold different sets of values, searching for common ground;
  – discussion with representatives from different backgrounds (i.e. students from urban and rural environments, students from different ethnic groups);
  – tackling socio-cognitive conflict, where those involved belong to different social groups and the issue is of a cognitive nature.
– *Combinations of different methods of learning*
  Assignments that require students to carry out small research projects designed for their educational value, which would typically take place in natural environments, libraries, museums, the local community and so on. Here are some examples:

- gathering data from multiple sources on a given phenomenon or event, either independently or in groups;
- outlining the steps required to find all the necessary information on a given occurrence or phenomenon;
- conducting interviews and surveys on a given topic and writing a report on the findings;
- conducting thorough observations, analysing these observations and writing a report;
- creating a report or a story about an event (the whole process, from the gathering of information to the presentation itself);
- researching one's family history and writing a report on the sources used, their reliability, missing or ambiguous data and so on.

Based on the activities that assignments in a textbook set require from the student, it is possible to create a complete overview of learning methods used. It is important to keep in mind that the aim is not to feature as many learning methods as possible, but only those methods that agree with the nature and aims of the subject. All the targets defined must be covered by activities stipulated by the assignments. We should mention here that the aims and outcomes of a given subject can also be realised through a range of textbook components. For instance, certain skills can be trained by exercise books, computer skills by using electronic components like CDs, etc.

Reasoning behind the standard

Different types of knowledge and skills are taught in different ways; by applying various teaching/learning

methods (for example, poems are often learned by heart, whereas for learning about the events of a certain period in history the method required is learning with understanding). The aims and objectives of a given subject define the knowledge, skills and behaviour patterns that students are expected to develop and adopt in relation to that subject. For this reason, the teaching of different subjects must be done through different activities performed by the learner, i.e. different methods of teaching must be applied. It is a typical flaw in teaching that only one method of teaching, for example the front-of-class method, is used to realise all the aims of a given subject.

Questions and assignments should be subject- and domain-specific, reflecting the nature of the discipline and ways of thinking typical of it. Questions and assignments should challenge students to perform activities that can lead to the realisation of the set objectives of that subject.

E11. Questions and assignments for assessing student learning progress

> If a textbook includes questions and assignments used to monitor and assess learning progress, they must be able to support different methods and levels of learning.

One of the functions of questions and assignments is the verification of acquired knowledge and skills, that is, the provision of feedback to the student on how much they

have learned. Therefore, questions and assignments, as a rule, tend to appear at the end of a thematic unit or at the end of the book or as part of another supporting component of the textbook set, such as, for example, a workbook or a collection of tests. The volume of material covered by this type of questions and assignments may vary.

This type of questions and assignments is designed to examine different levels of knowledge and skills. Examples are assignments that require:

- the literal reproduction of content such as definitions or dates;
- the understanding of content (students describing something in their own words, connecting and comparing information, drawing conclusions from key pieces of content);
- transferable skills and the ability to apply knowledge outside the context of the thematic unit;
- analysis and synthesis (where the question or assignment asks for connections beyond the content of the thematic unit itself; these connections may be vertical or horizontal, or both);
- creative, innovative production;
- evaluation, a personal viewpoint, a substantiated evaluation of specific content or the ability to self-evaluate learning achievements. Standards E8 (meaning) and E9 (variety) also apply to this category.

Reasoning behind the standard

The function of these questions and assignments is to offer feedback to the students on the level and quality of their knowledge, i.e. to evaluate the effectiveness of their

learning. This in itself supports the process of learning. Questions and assignments used to monitor and verify learning progress may have a significant motivational role. In the same way that grades given by teachers in a thematic unit can motivate a student to learn, finding out how well one is doing from a test may also encourage further learning. This perspective on questions and assignments is important for the development of evaluative behaviour and students' self-assessment skills, which is another way of developing self-awareness.

E12. Support for the development of creative thinking and behaviour

> Depending on the nature and the aims of a given subject, textbooks should stage situations in which students can exercise their creativity.

This standard primarily refers to arts subjects. Textbooks may realise this aim using the following means:

- assignments that require creative output from the student in different fields: art, music, creative writing, technology, science, etc.;
- open-ended assignments which encourage students to search for alternative, original ways of approaching a problem and different responses to the same problem;
- assignments which require the production of a hypothesis for certain situations, a choice of procedures,

different ways of presenting the results of the research or experiment in question, etc.;
– assignments that require uncensored expression of ideas, such as brainstorming;
– assignments that call for original combinations of different elements;
– assignments that require a translation of content from one domain or medium to another, e.g. interpreting music in an image or text;
– assignments calling on students to demonstrate patterns of creative behaviour, i.e. showing how someone made a discovery.

Textbooks should provide a range of different creative assignments and activities for students, as their variety in itself is a form of inspiring and developing creativity.

Reasoning behind the standard

By promoting an atmosphere of support for the attempts of students at creativity and by involving them in producing their own creative or innovative output, a textbook contributes to the realisation of its educational function: it encourages the growth of creative ability and the development of a creative personality. It enriches the students' emotional life, shapes and develops their aesthetic tastes and cultivates expressive skills (expression of inner states and emotions in a variety of artistic forms). Most importantly, it promotes the development of self-awareness and students' sense of their own capabilities.

E13. Support for the development of critical thinking

> Textbooks should support the development of critical thinking through their presentation of content and by engaging the student in independent activities.

The best way to stimulate the development of critical thinking in a textbook is to promote and support a critical attitude as the principal, dominant cognitive approach. This is the foundation of all critical thought. For example, a textbook that promotes the development of critical thinking:

- shows different scientific/academic viewpoints (theories, approaches), i.e. alternative interpretations of the same phenomenon;
- carefully states its sources of information and interpretations;
- explains the different positions or beliefs held by various parties and creates conditions for the critical comparison of their respective arguments by giving the main thesis for each viewpoint and interpreting its meaning;
- carefully differentiates between facts and interpretations;
- demonstrates how to evaluate the given content and the application of certain procedures (definitions, interpretations, sources of information, stages of research, standards and modes of conduct, etc.). It defines the criteria on the basis of which an evaluation

should be made as well as the arguments for and against the given thesis;
– explains the logically deductible consequences of certain attitudes or interpretations of events;
– approaches problem-solving as a method of presentation, showing the scientific processes that have led to the knowledge required for the solution of the problem;
– promotes values, attitudes and skills that are connected with critical thinking, such as autonomy of thought, open-mindedness to different interpretations and the adoption of a measure of scepticism in order to exercise caution in accepting and passing judgements.

Assessment of the above criteria requires special attention if the textbook content communicates any type of values (see standards D12 and E6).

There are two main ways in which a textbook can support critical thinking: a) by structuring content in the form of problems to be solved; b) by engaging students in independent activities in which they have to exercise critical thinking, i.e. through questions and assignments which require an evaluation of the text (e.g. finding contradictions, critically assessing sources, analysing biases in presentation etc.). The greatest educational effect is achieved if both methods are used.

It is important to include types of questions and assignments in textbooks which challenge students to exercise critical thinking and require the following:
– logical/analytical reasoning: drawing conclusions or evaluating the foundations and validity of the conclusions given;

– critical examination of the adequacy of different procedures;
– taking a critical stance: constructing an argument from one's own point of view, formulating and evaluating statements that contradict that argument and so on.

Likewise, there should be questions and assignments which focus on the following skills:

– argumentation: identification and presentation of arguments for or against certain statements; further explanations of answers, attitudes and action derived from them; confrontation of students with different opinions in a group discussion or debate or similar;
– interpretation of facts and ideas: interpretation especially of implicit messages, i.e. reading between the lines; enabling students to recognise the origin of messages; comparison and evaluation of different points of view;
– setting and solving problems independently: training students in problem-solving skills and boosting their confidence when approaching complex problems, even if there are no clear-cut solutions; identifying connections between what is taught and everyday life experiences.

Reasoning behind the standard

The inclusion of critical thinking in the process of knowledge acquisition is one of the mechanisms for the active construction of knowledge. Knowledge that is gained in such a way tends to be more lasting and more useful, both in school and in everyday situations. It also increases the student's intrinsic motivation for learning

and intellectual work in general, because critical thinking promotes a positive personal attitude towards learning.

In our "information age", it is important for students to develop skills of selection, interpretation, evaluation and use of information, as well as the ability to recognise different techniques of manipulation and propaganda.

Democratic institutions are founded on the concept of the active, rational, autonomous and socially responsible citizen who reflects on and examines his or her own decisions, attitudes and behaviour as well as established social models and patterns. The development of the autonomous critical personality is one of the important educational goals that textbooks can promote, either by their method of presentation that in itself provides a model of critical thinking, or through questions and assignments that require students to exercise critical thinking.

Group F: Quality standards for the language of textbooks (Ivan Ivić)

One of the preconditions for understanding any text is its compliance with standards of quality which relate to the use of language. The common aim of this group of standards is that every student, depending on his or her age, level and personal experience, is capable of understanding the text from which he or she is learning.

F1. Respecting linguistic norms

Textbooks must comply with the rules and standards of the language in which the textbook is printed.

Deviations from this standard are only permitted where the textbook quotes original texts or sources (documentation, art), which for obvious reasons may depart from linguistic norms, or to make a specific point.

Reasoning behind the standard

One of the main goals of education as a whole is to develop literacy. This aim cannot be realised just by teaching the native language, but must be pursued and promoted throughout the entire education process. For this reason, every textbook must be a model for the correct use of the native language in all its aspects, i.e. in terms of spelling, semantics, vocabulary, syntax, morphology and stylistics.

It is self-evident that learning the standard form of language is crucial in establishing literacy in the strict as well as the wider sense of the word.

F2. Explanation of unknown words and phrases

For each word the author assumes may be unknown to the majority of students, an ex-

planation of the basic meaning should be offered on the page where the word first appears.

In contrast to standard E1 (which shows how technical and specialist terms are an integral part of knowledge acquisition in a certain field), this standard concerns all words that are not part of the technical terminology of a particular discipline, but instead those words which the author predicts will be difficult for most students to understand (foreign terms, archaic words, local terms, rarely used words, abstract terms and so on). The meaning of these words must be explained, and such words must be used consistently throughout the textbook. In the case of polysemic words (words with multiple meanings), every time the word is used in a new context, the new meaning of the word must be made clear.

The author of the textbook should not overestimate the scope of the students' knowledge and experience and simply assume that they are familiar with particular words or terms. As a rule, it is better to err on the side of caution and offer explanations of words that students may already know than to do the opposite.

Ideally, explanations of new and unknown words should not only be provided on the pages where they first appear, but also at the end of the book in a glossary of unfamiliar words and phrases or in the main index as technical terms. Special attention should be paid to the use of metaphors, which should be employed carefully, keeping in mind the students' age and previous experi-

ence so as to avoid misunderstandings or the development of misconceptions.

Reasoning behind the standard

The purpose of this standard is to contribute to increasing students' understanding of the meaning of given texts and enriching their vocabulary.

F3. Control of sentence length

Sentence length in textbooks must be kept in check and must correspond to students' level and abilities.

Reasoning behind the standard

The length of a sentence (measured by the number of morphemes or words) which can be understood by students of a certain age is one of the more important factors in the acquisition of language in children. On the basis of research, we can outline some approximate standards, rules and norms for the development of sentence length according to age group. It is very important to avoid the risk of creating texts that are too difficult to understand. Wherever possible, it is better to break down long sentences into several shorter ones, as long as this does not compromise the expression of more complex points. On the other hand, gradually increasing the length and complexity of sentences, if appropriately paced, may be in itself an important educational aim.

According to these standards, the length of a sentence in textbooks for the beginning of primary school should not exceed 6–8 words. Throughout the whole of primary school, average sentence length should not be greater than 10–12 words (depending on sentence structure). The maximum length of a sentence in a primary school textbook should not be greater than approximately 20 words (again, depending on the structure of the sentence).

Group G: Quality standards for electronic textbook components and electronic textbooks (Aleksandar Bogojević, Ana Pešikan and Slobodanka Antić)

In recent years there has been a surge in electronic versions of entire textbooks or individual textbook components. Electronic media provide a new way of interacting with students and are particularly suitable for showing a flow of events, animations, procedures or structures (e.g. in chemistry for demonstrations of chemical reactions and so on). Unfortunately, these electronic editions were not all created with the particular advantages of electronic media in mind. It is not uncommon to find textbooks with e-version components that were merely created in order to conform to the latest trends and do not make use of the specific features of electronic media to further learning processes. Now, in the digital age, it is very important to set standards for these media and the way they should be used.

G1. Reasons for the use of electronic textbook components

Electronic editions of textbook sets make sense if they contain content which cannot be easily included in traditional printed textbooks and which supports comprehension and learning in substantive ways.

The use of electronic textbook components and electronic textbooks presupposes the existence of the relevant equipment in schools as well as the basic skills necessary to use these editions on the part of students and teachers. The additional difficulty related to the use of digital editions is that they are founded on technology that is still relatively new and is still modifying its standards of recording and regulating the necessary note-taking software and hardware. On the other hand, optimally designed new electronic textbook components and electronic textbooks may be an important way of facilitating and deepening the process of learning with understanding. In addition to this, electronic textbook components and electronic textbooks have an important role in ensuring basic literacy for students (the modern meaning of this term presupposes the ability to use a computer and new multimedia tools). Taking all this into account, electronic textbook components and electronic textbooks currently represent important potential units of the textbook set, but are not a replacement for the printed textbook. Quality electronic textbook components and electronic textbooks are predominantly focused on

those parts of content that cannot be easily incorporated into traditional printed textbooks (interactive text, animations, audio and video recordings, simulations) which have been shown to significantly support learning.

Alongside all the functions that can be achieved with the use of illustrations, images and icons in the textbook (see standard E2), the use of animation and simulation can give electronic textbook components and electronic textbooks additional functions because these media can make parts of the curriculum which otherwise could not be easily represented appear more obvious and concrete (some examples might be micro and macro processes, long durations of time, the internal structure of an object, etc.).

The degree to which this standard is fulfilled can be determined from the answers to the following questions:

– To what extent is the material presented in the electronic edition beneficial to learning?
– Could this material be accurately realised in conventional print media without losing its essential educational properties?
– To what extent does students' use of the electronic edition enable them to acquire basic ICT literacy?

Examples of possible beneficial electronic content could be:

– a collection of selected works of art with a video featuring the most famous relevant museums and galleries, which would include multimedia demonstrations of the most important artistic skills and interviews with famous artists;
– digital simulations of different experiments in physics, astronomy, chemistry or biology which enable students to view micro- or macro-phenomena which cannot be perceived with the naked eye. Students

would be able to change the input variables, watch the results of the simulations and independently perceive and formulate certain principles and laws. They would moreover be able to verify to what extent the principles demonstrated agree with the results of their own simulations or the findings of real experiments;
– interactive videos of certain historical periods and processes which link the order of events into a timeline. Such videos, through the use of multimedia segments such as music recordings, film inserts, three-dimensional models and animations of life at a specific time in history, can better illustrate historical events.

As this list of examples demonstrates, there are many different potential realisations of electronic textbook components and electronic textbooks and the appropriate solution largely depends on the subject in question.

Reasoning behind the standard

The key advantages of digital media are their interactive and multimedia features. Digital media thus significantly support the process of understanding the curriculum by making content from textbooks appear more accessible, clear and specific.

However, offering interactive and multimedia features is not an aim in itself. Such features must be directly and clearly related to the aim of the given subject, the whole textbook set and the important characteristics of the field of knowledge concerned. The material in this type of electronic edition must be carefully designed and presented in such a way as to support student learning.

Digital textbook components can also contribute to the motivational and affective function of textbooks.

G2. The balance between different types of electronic records (video, audio) and their effect on learning

> The presence and proportion of different types of records in electronic formats (text, sound, animation, video, simulations, tests, etc.) should be determined on the basis of their usefulness to learning in the particular context.

All records in electronic textbook components and electronic textbooks are given in digital form. One of the simplest measures for determining the quality of electronic textbook editions relates to achieving a good balance of all the available content formats on the basis of their usefulness to the process of learning.

The technology which makes these e-publications possible is still relatively new and offers many new features, but in some cases the authors of electronic editions have not considered all the possibilities and limitations of the medium. The electronic textbook components and electronic textbooks on the market sometimes make the instruction offered therein more attractive, but not necessarily of better quality. The items are often selected according to their technological virtuosity or on the basis of the diversity of their multimedia content, meaning the technological advantages of these new me-

dia are not being used, in these instances, to find solutions that optimise the process of learning.

Reasoning behind the standard

Animations, quality videos and audio recordings usually take up much more space than text, hypertext (interactive text), simulations, tests and images. The "jazzy" appearance and technical virtuosity of multimedia features are precisely what make e-publications attractive and popular. The end results are usually e-publications with a disproportionate amount of space dedicated to electronic design and programming, while simultaneously prioritising "appealing" types of content to the detriment of elements that make the presented material more comprehensible and connect it into a coherent whole. An insistence on a good balance of content evaluated on the basis of its usefulness in learning is precisely what differentiates (or should differentiate) electronic textbook components and electronic textbooks from games and other purely commercial electronic publications.

G3. The network structure of electronic textbook components and electronic textbooks

Unlike conventional printed textbooks, where content is linked by a linear structure, content in e-publications should form a wide network structure which reflects the structure of the discipline in question as much as possible.

Electronic textbook publications should maximise the advantages of new digital media. Their interactive nature should be used to establish a complex network structure between the units and concepts they include, a structure that may reflect the inherent structure of the subject in question more accurately than the generally linear structure of printed content and which can offer the student more "cognitive trajectories" through the presented material.

Assessment of the extent to which this standard is met is carried out by experts in the relevant subject (in consultation with experts for didactic design) by answering the following questions:

– To what extent is the structure connecting different units in the e-edition different from the linear structure of printed textbooks? One caveat here is that some material can be very effectively presented through a linear structure, in which case a conventional textbook is usually a better option than an electronic one.
– To what extent is that structure compatible with the inherent structure of the field in question?
– How often has the textbook been improved and amended? Are these amended or improved versions free for the textbook's original purchasers?

Reasoning behind the standard

Electronic textbook editions enable the author to easily create complex connections between different parts of the book and the concepts studied. This network of connections can fairly accurately reflect the structure of the subject being taught. The material presented in this

new medium can be approached in many ways: there is no single beginning or end; every unit can lead to a number of other thematic units. The very structure of such a textbook demands a very high level of active involvement on the part of the student. By selecting his/her own cognitive trajectory, the student learns to adapt to new situations, to ask questions and solve puzzles. Thus one textbook can reach individual students in many different ways. By comparing their own approach to approaches taken by other students, learners can achieve a deeper understanding of the subject as a whole.

An additional aspect relates to temporal structure. Electronic textbooks and electronic textbook components make it much easier to create new editions and minor revisions, and to distribute these improved versions via the internet. One of the greatest benefits of this new medium is that it facilitates modular teamwork between authors, which in turn affects the speed and number of new editions and revisions. Revisions and amendments might thus be executed several times during a single school year.

G4. Adaptability of electronic textbook components and electronic textbooks to students' needs

One of the basic indicators of the quality of an electronic textbook is the extent to which it takes advantage of the opportunities of digital media, especially their interactivity. Does it succeed in adapting its content to the differ-

ent abilities, interests and prior knowledge of individual students? Does it serve as an important tool that supports the process of learning with understanding?

This flexibility refers to:
– questions and assignments;
– the content presented (extra and supplementary content);
– its adaptability in terms of its approach to different methods of learning, memorisation and understanding.

The choices the student makes while using electronic textbooks generate a detailed "identity card" of that student, about his/her abilities, interests and prior knowledge. The principal measure of the quality of electronic textbooks is their ability to use that knowledge to adapt to every individual student as well as to communicate this data to the teacher.

Assessment of the extent to which this standard is met entails attending to the following questions:
– To what extent is the electronic textbook tailored to the different abilities, interests and prior knowledge of the students using it?
– To what extent does the structure of an electronic textbook (the interconnection of concepts and units within it) facilitate a variety of possible cognitive trajectories and thus a more flexible approach for each and every student?
– How much space is dedicated to quality interactive simulations which help students to arrive at a deeper

understanding of phenomena through questions, trial and error?
- Is there a website for the textbook on the internet, where students can obtain additional explanations or find directions to other useful sites where they can post questions to the author?
- To what extent does the textbook include modules such as virtual tutorials which can offer direct assistance to students and serve as an intermediate level of communication between teacher and student?

If there are applications such as virtual tutorials, they must be carefully designed. Authors of such applications need to demonstrate and give a detailed explanation of the algorithm used for classifying and assessing students' choices.

Reasoning behind the standard

E-publications of high quality can become key solutions in establishing a system of education of broad scope, high quality and substantial relevance. The need for far-reaching coverage means that a textbook of some sort is necessary, but the criteria for quality and relevance presuppose great flexibility in order to address different students, something that is very difficult to do with traditional printed textbooks. A high quality e-publication must be adaptable to the different abilities, interests and prior knowledge of students who use it.

Electronic textbook components and electronic textbooks are not just pre-set texts, images, audio and video files, but also programs which can respond to the choices students make and their answers in tests and quizzes. The most sophisticated realisations of electronic text-

books have a built-in program similar to a virtual tutorial which monitors the progress of the individual students. These findings are used as a basis for offering support for further study and also forwarded to the teacher.

4. The use of quality standards for textbooks

4.1 Using standards in the creation of textbooks

Standards of quality may be an effective instrument available to publishers, authors and teams of authors as a support for establishing an internal system of quality in textbook publishing, which from a business perspective works in the long-term interest of publishers.

The main way in which publishers, authors and teams of authors can create textbooks that are compatible with the quality standards is by adjusting the content and design of the textbook to the nature of the knowledge and skills required by the given discipline, the textbook's intended use, the aims it is designed to achieve and the characteristics of the textbook users – the students.

The theory of textbooks and the standards defined here have to be general by their nature. That notwithstanding, this publication opens the door to the development of original textbooks that will be adjusted to the characteristics of the discipline and the educational level of the students for whose use they are intended and will take into account the characteristics of the user. Obviously, there is nothing in the nature of standards to prevent authors of textbooks coming up with creative ways of combining solutions to all these separate issues, even discovering new approaches inspired by all the relevant information offered in this publication, and going above and beyond the defined standards.

4.2 Using standards in the textbook review and accreditation process

The main application of quality standards for textbooks is their role as the principal instrument for reviewing and approving textbooks. As we stated in the introduction, quality standards for textbooks should be the basis for the national standards of quality that determine decisions regarding the accreditation of textbooks. Such standards are necessary for a systematic approach to the production, approval and use of textbooks and the development of the textbook market.

Different countries have different approval systems for textbooks. Broadly speaking, there are four main models: a) liberal or laissez-faire, b) centralised, c) the accreditation model and d) the professional assessment model.

The liberal model is defined by its strong reliance on the mechanisms of the marketplace and the belief that these mechanisms, above all competition between publishers, will lead to better textbook quality. This model is in use in only a small number of countries, for the simple reason that most countries consider the question of textbook content and quality to be very important for long-term national interests and believe that the state must therefore play a decisive role in the regulation of the textbook market. The liberal model also presupposes the existence of a *developed* marketplace. In practice, this model appears in two very different forms. The first form is characteristic of countries that are stable (i.e. countries with a long tradition of producing textbooks in market-driven conditions; with a number of reputable publishers, which due to their own business interests

have developed internal systems for the quality control of textbooks; with powerful teachers' unions to monitor and verify the quality of these textbooks and with established practices of selecting textbooks on the basis of their practical use in school). This type of liberal model is in place in the UK, the Netherlands and Sweden.

The second form of this liberal model exists in countries that have only recently introduced a market economy, such as some former socialist states and certain developing countries. What often emerges in these countries is essentially a caricature of the liberal model. This pseudo-liberal model is characterised by its lack of regulation and quality standards; a number of small, inexperienced publishers; no defined methods for textbook selection; the absence of textbook research and experts in this field and the lack of any form of publicly conducted criticism in the domain of textbook production. There is no real competition under such circumstances and there are opportunities for mass corruption. The World Bank (WB) has played an important role in assisting the transition of some of these countries to a true liberal model. In fact, the WB exerted pressure on the majority of these countries to move in the direction of liberalisation and privatisation of the production and distribution of textbooks. In the documents that specify the conditions for granting loans for the creation and production of textbooks (World Bank 2002), the requirements for countries taking on loans are given in detail. When we take into account the professional expertise of the World Bank in terms of textbook content and didactic design on the one hand and demands for de-monopolisation and liberalisation without insight into the real situation in each country on the other, these projects have on occa-

sion led to a decline in quality. There are, of course, some positive examples, such as Romania, where a number of good quality textbooks were created within the WB project.

The centralised model is defined by the following characteristics: the only books used in schools are those approved by the country's ministry of education; there are no publicly known criteria and procedures of accreditation; as a rule, there is only one textbook for each subject and there is only one existing publisher of textbooks.

The centralised model in its authentic form existed in former socialist countries. However, it was accompanied by serious attempts to improve the quality of centrally approved textbooks. Thus the Soviet Union had a well-developed area of research dedicated to the study of textbooks and a series of very good publications on textbooks issued by a specialist publishing house (Zujev, 1988).

A special variation of the centralised model exists in some Islamic countries such as Saudi Arabia, where, in the absence of professional requirements for the creation of textbooks, there is strict control on religious and ideological grounds.

The accreditation model and the professional assessment model are very similar. Both models apply a procedure for the approval of textbooks on the basis of publicly known criteria. The difference is that the accreditation model is more formal, and the accreditation procedure is most often conducted on a central level (in federal states this is usually a federal unit). The professional assessment model may approve a number of textbooks, but the selection of textbooks to be used in school is done by the schools, either by the head or by

teachers' associations for particular subjects – in some cases parents are involved. The way it works in practice is that a professional body compiles a list of approved books, selected on the basis of explicit criteria and a publicly known procedure, and the users of textbooks then make their selection exclusively from that list.

There is usually greater freedom at local level in choosing additional instructive material to be used in schools. Local councils for education, school boards, schools and teachers are involved in choosing what best suits their local circumstances.

Professional systems for textbook approval are rather different. In some cases, textbooks are approved by carefully selected professional bodies consisting of top experts in a given field. In others, there are defined principles for selection applied by professional bodies. Sometimes there are catalogues of requirements that every textbook is expected to fulfil, either in the form of checklists, or very formal procedures on the basis of which every textbook is given a quantitative score according to different parameters and an overall mark is awarded at the end. Detailed expert reviews are often written as a starting point on which the expert bodies can base their decisions (e.g. Kahn, 1978; Gerard, 1982; Seguin, 1989; Rauch and Tomachewski, 1995; Johnsen, 2001; Mikk, 2002; Tholey and Rijlaarsdam, 2002; Oakes and Saunders, 2002; Ansary and Babaii, 2002).

It is important to stress that models of accreditation and expert assessment contribute to the quality of decision-making by applying the following measures: a) the entire procedure is public and transparent; b) decisions are made on the basis of expert evaluation and c) there

are measures for making the selection criteria as objective as possible.

In the first and second chapters of this publication, we discussed the significance of the quality of textbooks as one of the most efficient and effective ways of improving the quality of education in general. We demonstrated that defining quality standards is crucial for securing the quality of textbooks.

In countries without standards for the quality of textbooks, we advocate the introduction of such standards to improve and safeguard the quality of textbooks. For this purpose, we would advocate that the following measures be implemented:

Legal status

National quality standards for textbooks should be a document that has the status of secondary legislation and is binding. The legislation should then be adopted by a professional body (in Serbia, for instance, this would be the National Council for Education). The legislation should define the following: a) national standards for the quality of textbooks; b) the procedure for the application of national standards for the quality of textbooks; c) the independent professional body in charge of carrying out this procedure; d) regulations for the selection of expert committees to apply the national standards for the quality of textbooks.

The function of standards of quality for textbooks

The purpose of standards is to define the main requirements or criteria that must be fulfilled by every book before it can obtain the status of a textbook to be used in schools. In other words, the standards define the requirements for the quality of textbooks, on the basis of which the textbook is permitted to compete in the market with all other textbooks which have fulfilled the same basic conditions. This also means that there are further opportunities for the quality of textbooks to move beyond these basic standards. Market competition then contributes to the continuous process of improving the quality of textbooks.

To encourage continuous improvement and development in the quality of textbooks, other means and mechanisms should be used in addition to the standards. Some examples might be: measures introduced by the state (state awards for the best textbooks, better loan rates, etc.); action taken by individual publishers, such as the formation of departments for the development of textbook quality or teams of authors; the creation by third parties of awards for textbooks of the highest quality. Other incentives may include activities involving teachers and teachers' associations (regular evaluations of textbooks by teachers, selection of textbooks for school use based on sound and explicit criteria, awards given by individual associations of teachers for the best textbooks on their subject, public critical analysis of textbooks, the study of students' responses to textbooks they use and so on). Research conducted by academic institutions is another way of improving quality by means of systematic evaluation of textbooks and their use, theoretical elabo-

ration of better solutions for textbooks, the publication of expert criticism of textbooks, public debate on the subject of individual textbooks between the author of the textbook, parents and experts who conduct research into textbooks, etc.

In the presentation of standards in this publication we have deliberately excluded a part which appeared in the original Serbian publication. This segment was deliberately omitted as it was of an operative nature and specifically designed for experts who have the professional knowledge necessary for a valid application of standards. However, it is important to note that this part (entitled "Technical and methodological elaboration") plays a key role in the accreditation of textbooks in Serbia, as it provides an operational definition for the procedure used to assess whether a textbook fulfils the given standards.

The improvement of the quality of textbooks should be viewed as a long-term process. The role played by national quality standards for textbooks may be defined as follows:

– Upon completion of all the essential adjustments and any necessary empirical verifications and amendments, the standards outlined here should be adopted as mandatory national standards and made accessible to the public (especially to authors and publishers).
– From the entire list of standards (numbering 43 in total), a separate, introductory list should be compiled, consisting of 10 to 15 standards of quality whose use should be mandatory immediately after their adoption. These represent the main requirements that every textbook must fulfil. With regard to the rest of the standards on the list, the authors and publishers need to be given time to learn about them

and incorporate them into new generations of textbooks. It is worth noting that specific combinations of key quality standards which should be met by a textbook could be chosen depending on subject and the educational level at which the textbook is targeted.

– All other standards specified here can be viewed by anyone interested in entering the competitive textbook market. The exact length of time to be allowed for the fulfilment of all standards, not just the main 10 to 15, should be decided by an agreement between the Ministry of Education, the publishers and experts in the specific field.

Such a procedure for the application of the standards discussed in this book would initiate a process of continuous improvement in the quality of textbooks, which would take into consideration real-life circumstances.

Textbook reviews are an integral part of the accreditation procedure. The review process is in fact a form of systematic assessment of the extent to which an individual textbook (or, more accurately, a textbook manuscript) meets the requirements defined in the list of national quality standards for textbooks; in addition to the standards given here, the fulfilment of standards for the quality of technical and graphical characteristics is also evaluated (e.g. the quality of the paper, print and other relevant parameters such as illustrations and binding).

Review can also take place in other forms, such as public critical analysis of textbooks. Review in the form of critical analysis may benefit from relying on the said quality standards as a foundation for evaluation in order to avoid vague assessments. Quality standards for textbooks should serve as a reminder of all the dimensions

and methods the reviewer should take into account. Once this is done, there is ample scope for the reviewer to evaluate the extent to which the authors succeed in conveying their original creative synthesis of the subject matter, which gives textbooks their particular authorial stamp, while at the same time meeting all the standards of quality.

4.3 Using standards in the selection of textbooks

The main problems that emerge in this respect are as follows: who is making the selection (would it be done on a local or regional level, by school governors, municipal departments of education, school boards, heads of schools, expert committees, teachers, teachers' associations, heads of departments for certain subjects, parents, with the optional participation of students, or any combination of these parties?); what is the selection procedure and, above all, what is the purpose of this selection and which criteria serve as a basis for the selection process?

Countries with a long history of textbook selection have found different solutions to these problems. In some countries where these issues have not yet been resolved, there are public reports of corruption due to the large profits that are at stake for those in control of an important sector of the market. In Serbia, the authors' home country, in the case of primary school textbooks with circulation figures of 70–80,000, a textbook for just one subject for one grade can yield significant profits even in a divided market.

When teachers are in charge of making the selection, which is one of the better solutions, the criteria on which their selections are based is frequently unclear to a degree. How teachers choose textbooks, and on what basis, are issues that require close scrutiny. This is especially true in a free market, where a professional selection process favouring quality textbooks could ultimately become the decisive mechanism that propels competition between textbook creators towards superior standards of quality. At the same time, however, random choices or selection based on some outside interest or on the basis of superficial characteristics could be a factor in diminishing the quality of textbooks.

To increase the quality of the textbooks in use, the primary factor in textbook selection must be their adaptability to the characteristics of the student population that will use them. This is the third mechanism of textbook use adaptation.

As has been stated, the first mechanism of textbook use adaptation consists in the selection of units for the textbook set. This means choosing units that will reflect the nature of the knowledge imparted in a given school subject (see 1.2). This type of use adaptation should be carried out by experts and by publishers according to their publishing policies.

The second mechanism for textbook use adaptation is realised in the process of textbook creation (see 4.1). In other words, authors, respecting standards of quality, the characteristics of the subject, the age group targeted and the students' learning process, create the textbook in a distinctive personal style.

The third mechanism consists in allowing schools and teachers to choose the textbooks they consider most

adequate for use in their local environment from those textbooks that conform to the standards determined. If in the course of using the textbook teachers take note of students' reactions to the selected textbook, then the choice of books can help increase the effectiveness of the textbook as a genre. (We will see later that there is a fourth way of adapting the textbook, through competent use in the classroom.)

Quality standards for textbooks are indispensable when attempting to constructively apply mechanisms for textbook selection. The list of standards is in itself an indicator of what needs to be considered in the process of selecting a textbook. It serves as a basis for the person in charge of choosing a textbook to make their own list by prioritising standards for their own purposes. This presupposes that the person or institution making the selection has a clear vision of what they want to achieve and that they have students' needs in mind.

This is followed by the weighty task of making some kind of systematic comparison between textbooks on the basis of the standards selected. Some standards can be of an *eliminatory* nature, meaning that if the person making a selection decides that some standards are essential, then those textbooks that do not fully meet those standards are automatically eliminated.

The selection of textbooks on the basis of standards can result in a wide diversity of scenarios; for example, one textbook may be better in terms of meeting a particular standard, but less effective in terms of others. This is where the meaningful selection of textbooks comes into play; it is essential to identify the textbook that is most suitable for use in local conditions and for work with a specific population of students.

Due to the complex process of meaningful selection of textbooks, committees of local teachers for a particular subject from one school or a group of neighbouring schools might be best equipped for the task. Teachers must be given the adequate training to provide them with the competencies needed to make the selection. These important professional competencies have been neglected in teacher training to date, both in its initial stages and during the specialisation phase. The process of selecting textbooks on the basis of standards is an excellent opportunity for teachers to explain their selection criteria, engage in professional discussion and assess textbooks in terms of individual standards, in order to decide on the textbooks most suitable to their working conditions and the student populations they teach. In addition, having a greater number of people involved in the selection process decreases the possibility of irregular or illegal selection practices.

Teacher training seminars for the use, selection and evaluation of textbooks (Ivić, Pešikan and Antić, 2007) have provided demonstrations of the manner in which teachers tend to choose textbooks. In our experience, when we ask teachers to make a selection between two textbooks, first on the basis of their own spontaneous responses and following that on the basis of certain explicitly stated standards, then as a rule the choice made the second time is the book that was rejected at first. This observation is a striking illustration of the serious problems posed by procedures and criteria for selecting textbooks.

Training teachers for the selection of textbooks is a good way of solving these problems. This should be a cooperative form of training, with joint definition of the

issues and discussion of methods of selecting textbooks and their implications, with a view to acknowledgement of the practical experiences of teachers, comparison of these experiences with theoretical arguments (such as defined standards of quality) and participation in joint evaluation of possible solutions, which should always lead to better selection processes for textbooks/textbook sets in respect to the environment in which they are to be used by students.

4.4 The use of standards and the evaluation of textbooks

The central issue of this publication is the problem of the quality of textbooks used in schools. Assessment or evaluation of textbooks may be carried out in different ways (Mikk, 2002). We can distinguish between three types of such evaluation:

The first type consists in surveying teachers, parents and students on different quality-related aspects of textbooks. This is a very simple way of conducting research, which most often involves questionnaires with questions regarding different aspects of textbooks. The problem with this type of evaluation is that it can produce very different results for a single textbook, which may put the whole of the evaluation into question. In addition to questionnaires, there is also another way of conducting research involving teachers: monitoring how they use a given textbook. The person conducting the research may provide guidance to the teacher; with their help, the teacher might note down his or her own observations, comments and suggestions on the textbook. Observa-

tions which have been verified and accepted by a number of teachers would be useful for revision of and additional refinements to the text.

The analysis of textbooks is another form of assessment. Analysis can be quantitative and/or qualitative. Quantitative methods involve a quantitative expression of certain characteristics of textbooks according to strict rules. For example, calculating the length of words and sentences in the textbook determines the readability index of the text. Some types of analysis can be done on the computer, which allows for any corrections to be made before the book goes into print. The more precisely and clearly defined the elements being counted are, the more reliable the results of the analysis will be. It goes without saying that not all the important features of textbooks can be quantified, for example, the coherence of the text or its implicit meaning, its context and so on. Therefore the analysis of textbooks usually resorts to qualitative methods, especially methods of content analysis. In this approach, the researcher interprets different meanings contained in the textbook and makes them comprehensible. The ultimate goal of the qualitative approach is to investigate the meanings of specific content, i.e. the explicit and implicit messages of the text. It is very important that the analysis is conducted by means of clear and verifiable scientific methodology. There have been attempts to integrate the advantages of both the quantitative and qualitative approaches into a new approach (e.g. the qualitative structural approach, Mayring, 1988, reproduced in Selander, Tholey and Lorentzen, 2002, p. 149).

The third way of evaluating textbooks is experimental research. This is the most complex kind of assessment,

but its results are the most reliable indicator of a textbook's effectiveness. This is the costliest type of evaluation, in terms of time, money and the researchers' level of expertise. The experiment must fulfil very demanding requirements; for example, the researcher must make sure that different groups of students are represented equally and that the experimental draft and research instruments (tests, questionnaires, reviews of student work, etc.) are relevant to the task in hand. Experimental design in this field requires juggling between the ideal and the applicable (Lawson, 1977). Experimental investigations may assist the verification of the results obtained from other types of textbook evaluation (e.g. content analysis). Content analysis of textbooks is often conducted first, in order to identify all the obvious deficits contained in a textbook, and experimental research follows after.

Assessment, or evaluation, of textbooks is a particularly significant mechanism for the improvement of their quality.

When assessing textbooks we need to examine the process of evaluation in terms of:

– the function or purpose of the assessment, e.g. what will be achieved by this evaluation and how its results will be used: for example, is this purpose the selection of a textbook or the elimination of other textbooks, or simply to generate proposals for new improved editions?;
– the assessor(s). This is important for two reasons: first, because the method of assessment has to be compatible with the competencies of the person conducting it, and second, to eliminate any conflict of interest (the assessment may be done by experts on dif-

ferent aspects of textbooks, professionals in the area of textbook research, teachers, parents, students, media experts, etc.);
- the parameters assessed (the textbook as a whole, the didactic design of the textbook, its language, illustrations, implicit value systems, presence of stereotypes, etc.);
- the evaluation models used (evaluation versus self-assessment, evaluation on the basis of standards versus scientific research projects investigating certain issues around textbooks, formative versus summative evaluation, objectified versus impressionistic, etc.);
- the intended addressees (a professional or lay audience, teachers, educational authorities who make decisions on textbooks, publishers, the general public or professional public figures, financial sponsors of the production of textbooks or research in this area, domestic or foreign investors, etc.);
- evaluation methods (diverse quantitative and qualitative methods, assessments based on standards).

Different types of assessment projects and useful results can be generated by means of careful combination and adjustment of the various components of textbook evaluation.

Teachers' assessment of textbooks has the greatest importance with regard to the development of quality standards for textbooks. The first reason for this is that it is the teacher who ultimately should make the final selection of which textbooks to use. Improving teacher competence in the area of textbook selection is thus an im-

portant objective.[14] Further, as we have shown, the selection of textbooks is a very important mechanism for the improvement of their quality. Only those textbooks that are chosen by teachers and used in the classroom will survive in the marketplace. The second reason for this importance is that teachers are in a position that allows them to see how students, as the end users of textbooks, respond to them and what difficulties they experience in their everyday use. Thus students also become involved in the textbook evaluation process (older students may be directly involved in some evaluation projects). Due to the important role of textbook assessment performed by teachers, teacher training for competent textbook assessment is vital.

> For all models of textbook assessment, quality standards are a valuable supporting tool. How these standards are applied depends to a great extent on the above evaluation parameters.

4.5 The use of textbooks in the classroom

During the process of textbook production, from the book's conception to its implementation in the class-

14 In Holland, for example, there is a free market for textbooks and 28 publishers of educational literature, thus there are 110 different textbook sets for subjects taught in primary school, from which teachers have to choose one (Tholey and Rijlaarsdam, 2002).

room, the actual use of the textbook is the final and decisive stage. The way in which a textbook is used depends on the way in which it is perceived by teachers. Is it viewed as a concrete form of the curriculum, or as an instrument which facilitates the organisation of teaching, or as a source of information, or is it considered to be the main educational device intended for student use, i.e. a learning tool? Or is the textbook perceived as a combination of all these possible uses? Trials conducted at teacher training seminars for the use of textbooks (Ivić, Pešikan and Antić, 2007)[15] confirm the existence of all these views on textbooks, which are important because they greatly determine the way textbooks are used in the classroom.

Another important observation that has arisen from discussions with teachers is that they have never been trained to use textbooks. They have, of course, been taught the content of the subject they teach, but not how to make the best use of textbooks to achieve educational objectives or what to do if a textbook is not adequate to fulfil its role.

Let us outline the problems which may arise during the use of textbooks in the classroom. The first is the adaptation of the textbook to specific needs or specific conditions, to a particular environment, school or even individual class. To return to our discussion of mechanisms of adaptation, the fourth of these is complement-

15 This is a teacher training programme entitled *Improving Skills of History Teachers for the Selection, Use, Assessment and Creation of Textbooks, Teacher Development Programme* (Ivić, Pešikan and Antić, 2007).

ing textbooks with additional information in order to meet the needs of specific classes.

The skill involved in the "adjustment" of textbooks to specific conditions by the addition of complementary information is a vital professional competency in which every teacher needs to be trained. This type of adaptation is much like a project, i.e. it consists in devising a way of using the textbook unit that will ensure that students assimilate the subject matter. Drawing an analogy to the teaching process, we adopted here the term "scenario" from the *Active Learning* project (Ivić, Pešikan and Antić, 2003; Antić, 2005; Antić, 2007b; Antić, 2008). The scenario is a concept of how learning should be organised when working from a textbook. This scenario includes the following components:

– A scene: the place where the lesson takes place, making the maximum use of resources or opportunities provided by this "scene" – the classroom, a cabinet with special equipment, an outdoor area, a museum, the neighbourhood – what constitutes a scene depends on the local environment.
– Clear and precise definitions of the teaching objectives to be fulfilled by the given textbook unit. The teacher must have a clear notion of what he or she wants students to learn in the given thematic unit(s).
– The text, which corresponds to the part of the thematic unit being taught.
– Supplementary instructive material (dictionaries, encyclopaedias, articles from newspapers and magazines, tables, worksheets, audio and video recordings, etc., depending on the needs of the learning environment).

– Tasks and instructions for students to work on the text (either from the textbook itself or from the supplementary material). Instructions and assignments help engage students in independent activities through which they achieve the aim of the thematic unit. Tasks should be divided into small and clear sequences which are logically derived from one another.
– A thematic unit management plan: Where and why does the teacher intervene? All the previous points are part of the process of "opening" the textbook to the unique set of students in the class and their needs; it is an important task of the teacher, who is the person who knows (or should know) his or her students well enough to be able to tell when a new concept needs explaining, when additional information is needed, when students need to be left to their own devices to solve problems independently and when they need assistance and what type of assistance may be required, etc.
– Brief and simple tests to verify whether students have achieved the learning objectives: This is an optional part of the scenario, which may not be possible or even necessary for every thematic unit (it is actually better to plan a test for a whole overarching unit after a number of thematic units have been taught).

Such planning of the use of particular material in the textbook requires well-designed practical training for teachers.[16] Teaching teachers how to make the most

16 As part of the task of developing standards of quality for textbooks in the Education Forum in Serbia, a programme was created for the professional training of teachers entitled

effective use of textbooks is an important element of the enterprise of improving textbook quality because only by including the teacher in the process can the quality of education in general become complete.

Teachers should be involved in all stages of the creation and use of textbooks (creation, assessment or evaluation, selection and – it goes without saying – use). We would like to end this book by emphasising the role of teachers in the process of creating textbooks. Some teachers have been authors and co-authors of textbooks. In the teacher seminars we ran, we had the opportunity to see that many teachers also have their own instructive materials (effectively textbook parts) which they created as supplements or replacements for badly written segments in textbooks. The participation of teachers in the creation of textbooks, especially in teams of authors, is a very effective way to profit from their practical teaching experience. Teaching experience is a valuable resource for improving the quality of textbooks; thus teachers should be encouraged to get involved in the creation of textbooks. Another way of mobilising this resource is the systematic training of teachers with the specific purpose

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Improving the competencies/skills of history teachers for the selection and use of textbooks. On the basis of this programme, its devisors created another training course called *Quality of textbooks and the improvement of competencies/skills of history teachers for the selection and use of textbooks*. The institutions running this programme are the Education Forum, Platoneum and the Pedagogical Institute of Vojvodina, The programme was approved (accredited) by the Institute for the Improvement of Education in 2007.

of developing teachers' skills in relation to textbooks. It is essential for this type of training to become part of the initial education of teachers as well as their specialisation. The importance of these skills will doubtless increase in the future, which will pose its own challenges.

4.6 The wider use of quality standards for textbooks

In previous sections (4.1–4.5) we have looked at the ways in which standards for textbook quality, as they have been defined in this book, can be used. In this part we will emphasise that these standards may have a much wider use.

There are two general applications of these standards. First, they can be extended beyond textbooks to all other types of printed instructive materials or teaching aids. Second, they can also be applied to materials provided in any medium, audio-visual or electronic.

The justification for an extension of the use of standards for textbook quality to all other instructional materials can be found in Bakhtin's theory of genres. All genres are defined by specific types of communication, specific functions and specific addressees for whom they are intended. Materials intended for teaching and textbooks are defined by pedagogical communication, their learning function and the fact that they are addressed to users of a particular age and with specific developmental characteristics. From this it necessarily follows that standards of quality may be directly applied to learning materials beyond textbooks, for example to didactic texts, books and magazines for children and young adults, features with educational purposes in magazines and newspapers,

popular science books, all kinds of illustrations and illustrated materials, etc.

The other wider use of our standards relates to all media (with the application of additional standards to individual media). Such an application of standards for the quality of textbooks and other instructive materials would be particularly desirable for electronic products (such as online tutorials) because the general assumption is that electronic media on their own can adequately solve all learning issues. All environments have their advantages and limitations, and standards of quality can help us to establish whether the opportunities provided by each medium are fully exploited for more effective learning.

These quality standards do not exhaust all possibilities for their application. We hope to gather feedback in the next few years regarding the process of applying standards to different materials and in different environments, as this would benefit any further work on standards and the development of their different practical applications, from research to teaching.

5. Appendix

5.1 Glossary

Activities

Students' Activities	This refers to all activities performed by students in all stages of the teaching process – activities that occur during thematic units as well as in independent work inside and outside the classroom (i.e. listening, reading writing, problem-solving, research, etc.). Activities in the teaching process occur *in a continuum*, starting with the simplest and building towards the more complex. We do not speak in terms of an absolute lack or absolute presence of activity, but rather about different modes and degrees of activity. Activities should be diverse. Students' activities within the teaching process can be classified according to a number of different criteria, such as whether they are productive or reproductive; meaningful or pointless; cognitive or motor; simple or complex; pre-set or self-initiated; manipulative, etc. Some types of activity are apparent to the teacher, enabling him or her to recognise them and then correct and redirect them. However, the activities that are observable from the outside are not quite as important as internal cognitive activities which are not discernible.
Cognitive Activity	The process of thinking initiated by an assignment or through work in the textbook, most often by means of questions and assignments. The nature of the student's cognitive activity is determined by the content of the thematic unit, the assignment and the cognitive developmental

level of the student. The student's cognitive activity is manifested on different levels, from rote memorisation to understanding and many more complex forms of thinking, including analysis, synthesis, problem-solving, evaluation and so on. Within teaching as a whole (both in the classroom and in textbooks), as many different forms of thinking as possible should be activated in students. A problem arises if all questions and assignments in the textbook only require one type of thinking; this makes it impossible for the textbook to assist in the implementation of a number of teaching aims, while the process of learning itself is easily reduced to rote memorisation of isolated facts that are easily forgotten.

Competencies — The capacity, skill, knowledge or ability to perform a task correctly, effectively and within the range of individual or group opportunities or knowledge (Colman, 2001).

Concepts

Concept — A concept is "[a] thought or idea which verbally expresses the essence of a class of objects, phenomenon or relationship. It emerges as a result of abstracting the relevant and extrapolating the essential characteristics of a class of phenomena and their generalisation" (Trebješanin, 2000, p. 347). Concepts may be organised into categories which also contain other categories and may differ in terms of their use and level of abstraction. In this way, a system of concepts becomes established as the principal manner of knowledge organisation (see: System of concepts).
We can differentiate between scientific/academic and everyday concepts (Vygotsky 2012). Scientific/academic concepts (school, academic and expert knowledge) are not gener-

ally acquired through direct interaction with objects and reality, but through other people and culture. They are represented by symbols (letters, numbers, graphs, etc.) and organised into systems. Everyday concepts (experiential, practical knowledge, personal life experience) consist of practical knowledge and skills gained through sense perception (acquired through direct contact with objects or people). Such knowledge and concepts are isolated, individual and emotionally charged.

System of Concepts

The primary definition of knowledge, regardless of the discipline involved, is that it is organised into connected structures or systems and that their construction or development takes place in a clear order. Each individual item of knowledge acquires meaning only within the integral (comprehensive) structure or network of connections to which it belongs. Without such a structure, these items of knowledge are isolated fragments with very limited use, from which we cannot derive new knowledge and relationships. Knowledge organised as a system of concepts is easier to retain, more applicable and easier to build on; this makes establishing a system of concepts an extremely important educational aim.

The system of concepts for a particular discipline should be recognised and introduced in textbooks for that discipline at a level appropriate to the age group of the students (see standard D6).

Knowledge

Construction of Knowledge

Contemporary scientific perspectives on the nature of learning at school see learning as the process of the learner's construction of knowledge; this is what is known as the con-

structivist approach. This means that knowledge cannot be directly transmitted, given or received ("poured from one head into another"), but must be built or constructed by the learners themselves. Learning is a long-term developmental process with its own complex dynamics. The starting point in the learning process is the learners' previous knowledge, on the basis of which they can make connections between new facts and information. Only knowledge constructed thus can become permanent and applicable to other contexts.

Conceptual Knowledge

Conceptual knowledge relates to cognitive representations of concepts, including the knowledge of the differences between concepts. An example might be the ability to answer the question "What is the difference between a field and a garden?" Conceptual knowledge consists of knowledge and understanding of relationships (see: System of knowledge). Conceptual knowledge cannot be acquired by rote learning, but only through meaningful learning.

Declarative Knowledge

Knowledge of facts, individual data, factual information about objects, ideas and events in the local environment (Sternberg, 2005). The term also relates to knowledge about concepts (for example, knowledge and understanding of Pythagoras' theorem, knowledge of dates, e.g. the dates of World War II). It is often described as "knowing WHAT" as opposed to "knowing HOW" (see: Procedural knowledge).

Procedural Knowledge

Knowledge of the procedures or methods necessary to perform a sequence or the steps of a procedure or an operation; in other words, "[t]he understanding and awareness of how a certain task is performed" (Sternberg, 2005, p.534). Skills are acquired through a series of

trials and repetitions. Procedural knowledge is often referred to as "knowing HOW", as differentiated from "knowing WHAT" (see: Declarative knowledge).

Literacy

Basic Subject Literacy

Basic subject literacy in a particular field pertains to the content of the educational programme for the subject (knowledge and skills) and the competencies and thought patterns that experts in the field believe are crucial for students to know. This is usually the type of content which is most often included in curricula used in different education systems and most often covered in national and international examinations of students' achievements (in subjects where such examinations exist).

Basic subject literacy represents the foundation of knowledge and skills for a given discipline provided by compulsory education (facts, concepts, terminology, laws, basic methodological procedures, theories, conventions). It is a prerequisite for further study at higher educational levels and for the acquisition of knowledge that is relevant to everyday life and a part of the general culture of every citizen.

Teaching/Learning

Teaching/ Learning Methods

Educational and psychological literature often refers to two separate methodological processes: methods of teaching and methods of learning. By using the phrase *teaching/learning*, we wish to emphasise that it is one single process – a particular type of pedagogical interaction which when observed from one angle is called teaching and from another angle learning. During instruction the teacher provides the conditions, that is, he or she creates the situation in which learning

occurs. The teacher must choose a method which will enable the students to actively work on the given material and make sure that the objectives of the thematic unit are realised. The textbook with its questions and assignments also involves the student in certain activities, thereby initiating certain forms of learning. Every teaching/learning method has its own characteristics, and no single method is sufficient to achieve all the aims of a given school subject, or a particular thematic unit within the subject. It is therefore necessary to recognise the advantages and limitations of each method. The teacher chooses to apply the most appropriate teaching method in accordance with the content set for learning and the objectives of the thematic unit and taking into account the particular working conditions. Content should be taught by the methods which can produce the maximum gain from the material, while at the same time respecting the principles of efficiency and cost-effectiveness and remaining in line with the aims of the curriculum.

The Teaching Situation

The smallest discrete unit of the teaching process, which contains all its important elements. The teaching situation encompasses the context in which the teaching occurs. It includes the following elements: the physical environment – "the teaching scene or stage" (the classroom, laboratory, school playground, a museum, etc.). Then, the scenery (a term borrowed from the theory of drama, as it relates most closely to the organisation of the setting where teaching takes place). The "scenery" encompasses all material objects which are present, whether they are an integral part of the background or are deliberately introduced: examples might be the blackboard, tables, maps, drawing boards, books, laboratory equipment. The term may also refer

to roads, rivers, gardens, workshops and so on. The most important element of the teaching situation is the pedagogical content. This includes: the content (which is more or less tied to the curriculum), the educational objective it is intended to achieve (which entails an implicit concept of school and education and makes reference to the overall educational policy of a country) and the selection of the method of teaching/learning. All these elements should be connected in such a way as to create the necessary and sufficient conditions to incite learning activities by students.

Mechanical/ Rote Learning

The defining characteristic of this method of learning is that it is literal learning of material as it is given, without any changes, and without meaningful connections within the material itself or between the material and other materials, other knowledge or the students' experiences. In practice we also call this type of literal learning "regurgitating", "parrot fashion", or "drill". Rote learning is entirely dependent on memorisation as the dominant cognitive process, and the manner in which this is achieved is repetition and the asking of questions. The motivation for this type of learning is extrinsic. Variations of this method of learning are:

- learning by heart material which is not in itself meaningful, e.g. names, chemical symbols, telephone numbers, names of capital cities, etc.;
- learning by heart material which the student understands but which for some reason needs to be learned by heart, e.g. memorising multiplication tables, poems, lines in a play, quotations, proverbs, technical terminology;
- learning by heart, without understanding, material which is meaningful in it-

self – the student does not understand the material, because it was not made comprehensible to him or her, and so has to learn it mechanically by heart (Ivić et al., 2003, p.22).

Motivation for Learning

Concern for the motivation of students originates from findings which show learning to be more effective when students are motivated. Intrinsic motivation is more effective than extrinsic types of motivation such as external stimuli and rewards. Textbooks consist of a series of mechanisms which can increase the motivation of students to work with the textbook and heighten their interest in the subject and their love of books in general; these mechanisms include the content itself and its didactic and graphic design. Visual aids include different fonts, colourful text boxes with additional information, illustrations and so on.

Connecting learning material with the student's everyday knowledge and experiences is a good way to increase motivation for learning. This does not mean, however, that the textbook should become overloaded with visual tools, as the visual appeal of the textbook is not an end in itself; it must serve the purpose of greater educational efficacy (see standards B2, B3, C2).

The Participatory Role of the Learner

Teaching that is effective from an educational point of view does not regard the student as a blank slate (*tabula rasa*) onto which the teacher only needs to pour out knowledge which will then be assimilated. Students enter the pedagogical interaction with a particular level of previous knowledge and skills which they actively invest. Thus they are active constructors of their own knowledge. Recognising prior knowledge and putting students in a situation that allows them to actively build new knowledge and skills on

this pre-existing foundation is the essence of encouraging the participatory role of the learner.

Pedagogical Interaction

Like every other type of interaction, pedagogical interaction (which is the foundation of the teaching process) has participants, or partners in communication. Further, it is by nature variable and not static; it includes behaviour (both verbal and non-verbal); it is governed by specific rules; it is sensitive to different types of outside influences (i.e. it does not take place in a vacuum, but in a given context, a specific physical and social environment) and it pre-supposes a two-way interaction or influence between communication partners. Pedagogical interaction is specific because it essentially consists of the process of learning, that is, the stimulation of the development of one of the communication partners (the student) in the broadest sense of the term. Therefore the quality of the mutual interaction of its participants is unique. This is an asymmetrical interaction because the teacher and student are not equal in terms of experience (the teacher is more knowledgeable, his/her knowledge fits into a system of concepts, he/she is familiar with the procedures and patterns of thought characteristic of a given scientific or academic discipline and has professional experience). The teacher does not build a knowledge structure inside the student's head; instead, this construction of knowledge occurs through student-teacher interaction, so learning/teaching becomes a process of co-construction of knowledge. As in systems of connected vessels, whoever takes the biggest part leaves their partner in the pedagogical interaction with a smaller share; in other words, if the teacher takes up more space, time and qualitatively diverse activities, the less time, space and opportunity students have to construct their own knowledge.

Position of the Child

Improving the position of the child in the teaching process primarily means increasing his or her active participation in the teaching process itself. It indirectly involves acknowledging the child's personality, interests, extra-curricular activities and knowledge. However, the need to change the position of the child in the lesson must not be limited only to psychological concerns for the development of his or her personality (even though this is a valuable concern); instead, this requirement must serve the function of greater educational efficiency in schools. If the student is reduced to a passive recipient of reproduced knowledge, then the quality and use of such knowledge will be very limited.

Relevant Activities in the Learning Process

This is the central and most important concept of active learning/teaching. Students' activities are specific to the nature of the subject if they involve the content and ways of thinking and procedures characteristic of that subject. The relevant activities for children in class must reflect a micro-model of all that is involved in the underlying subject discipline. For example, biology as a science has a precisely defined subject – that is the content it covers –, characteristic investigation procedures (collection of samples, observation, classification, experiments, etc.) and a specific thinking process (inductive-deductive, but also deductive-inductive thinking, analysis, classification, conclusion on the basis of experiments and so on). Activities for children that are relevant to learning about nature and biology will be easily identified if they include content, procedures and thought processes typical of biology as a science, all tailored to the students' age and cognitive abilities.

Meaningful Learning

Contrary to mechanical/rote learning, meaningful learning is learning with understanding, which involves students' establishing connections between their prior knowledge and new material through their own thinking activity (see: Construction of knowledge). The student is able to understand material thus learned and can apply it to new contexts and connect it with further knowledge. In this way, the outcome of meaningful learning is active, permanently retained and applicable knowledge.

Textbook

Structural Components of Textbooks

The didactic apparatus of a textbook consists of different structural components which are used to facilitate and improve the acquisition and retention of particular pieces of knowledge and information. Connections between the content and students' prior knowledge and experiences can establish stronger, more meaningful links with other material from the same subject or other school subjects. For easy recognition and better use, each structural component in the textbook should be marked separately (graphically, using a colour, sign, symbol, etc.; see standards B2, B3, C3).

Structural components of textbooks include:

- the table of contents
- introductions to chapters
- overviews of previous material, signposting to further learning material and its aims
- the basic text
- a vocabulary list alongside the text of the thematic unit
- an opening question or questions as a guide to reading:
  - chapters

  - thematic units
- timelines: a "time machine" (a list of key facts and dates)
- timelines: a "jump in time" (what is happening today with the phenomenon discussed)
- maps
- graphs, diagrams, schematic representations alongside the text
- photographs, images, illustrations
- additional information
  - text boxes with key information
  - text boxes with vital information about key words
  - boxes containing interesting facts
  - boxes with puzzles
  - boxes with content from original documents
  - boxes with stories related to the topic
  - boxes with additional information
  - boxes with "DIY" instructions (hands-on activities)
- biographies of famous figures at the end of the textbook
- questions or assignments, which may be located:
  - alongside the thematic unit
  - alongside a photograph, image or illustration
  - at the end of the thematic unit
  - tests verifying the understanding of the material covered
- a text box with a summary of:
  - part of a thematic unit
  - the whole thematic unit
- a list of key terms to remember from the

thematic unit and the whole chapter; a concept map that provides an organisational chart of all the key concepts from the thematic unit
- metacognitive units (explanations of how to use and interpret graphs, diagrams, tables, illustrations, etc.)
- references to other, related parts of the text in the same book
- recommended further reading
- references to additional sources such as CD-ROMs or websites

This is not an exhaustive list of all structural components; new textbooks may introduce new solutions which belong in this category.

Table of Contents

One of the important structural components of the textbook, the table of contents is a list of the content (topics) covered in the textbook. It may be found either at the beginning or at the end of the textbook and can appear in different forms; for example, it might be arranged in a hierarchical order, according to the degree of generality of topics, with an overarching topic and subordinate topics which belong to it. Or it might be linear, with only a list of themes given without differentiating topics that are more general in relation to others.

Organisational Components of Textbooks

These are technical types of components which contribute to the easier and better handling of the textbook. We call them "technical" because their principal aim is to help students navigate through the textbook and use it more easily. Indirectly, these units also enable more effective learning of the material presented in the textbook.

Organisational units include:

- different types of indexes (subject index, author index)
- lists of abbreviations
- lists of illustrations
- different types of supplementary or auxiliary tables (logarithmic, climatic, chemical, etc.)
- an introductory explanation of the structure of the textbook
- explanations of the meaning of the significance of each symbol, diagram, demarcation or colour in the textbook
- tags and references indicating the sources of illustrations, quotes, graphs, etc.
- notes on authors
- tables of contents

Textbook Set

The term "textbook" often has two meanings: first, it refers to the book used for learning by students, and second, it is used to denote a group of different components necessary for the study of a particular subject at a specific level. The term "textbook" frequently finds itself used synonymously with the term "textbook set". Each of the components in the textbook set must have a specific role and cover an aspect of learning which cannot be fulfilled by the textbook alone. All the units taken together make up the textbook set. They may include:

- the book for student use
- the teacher's manual
- a collection of texts/a reader
- a collection of assignments
- a collection of documents
- a collection of reproductions of works of art (visual or musical)

– a manual for experiments (laboratory, field or computer work)
– workbooks, activity books for students
– audio-visual aids
– atlases, maps, charts
– electronic units (CDs, DVDs, websites)

Individual components of the textbook set assume different functions in the process of the learner's construction of knowledge, although they all lead to the common goal of establishing permanent and useful knowledge and skills in the same field. In other words, the existence of different components within a textbook set is justified when one (often the main textbook) cannot realise all the aims of a given subject. For example, it would be difficult to realise the aim of a chemistry lesson such as "gaining skills for laboratory work" if the textbook set did not include a laboratory manual as a component to help students practise these skills.

The combination of components used should reflect the specific nature and features of the subject; it will thus necessarily be different in each subject or discipline.

The Didactic Apparatus of a Textbook

This is composed of all the structural components of the textbook (see: Structural components of textbooks) which are planned and purposefully included during the construction of the textbook in order to facilitate the learning process. The didactic apparatus is a distinctive characteristic of textbooks and is what differentiates them from other genres of books. In other words, a book without some form of didactic apparatus cannot be considered a textbook (see standards E1–E13).

Didactically Designed Content

Every type of content used in the teaching process (including that given in textbooks) must be a representative sample of contemporary scientific or academic knowledge. This knowledge must be accurate and contemporary, and it must be valid for individual scientific disciplines (see standards D3 and D4). However, this knowledge must also be didactically designed, which essentially means that it is prepared, organised and adapted to the learner and to his or her needs, existing knowledge, age and intellectual abilities. A text's didactic design can be discerned in the way it is presented and by the presence of its didactic apparatus, i.e. particular structural components of the textbook (see: Structural components of textbooks). The main purpose of didactic design is to facilitate and improve the learner's understanding of the knowledge included in the textbook (see standards E1–E13).

Developmental and Formative Role of the Textbook

The traditional concept of the textbook views its main function as conveying facts and knowledge from a particular discipline to students (Transmissive role). New evidence in educational psychology has led to a new understanding of the process of learning/teaching itself; the logical consequence of these findings has been a new understanding of the textbook. A textbook, with its content and educational apparatus, should enable students to acquire knowledge, construct their own knowledge and develop a system of concepts and new intellectual skills as well as encouraging the development of thinking and problem-solving.

Simply put, the transmissive function of the textbook applies the cumulative principle of the construction of knowledge, i.e. the process of adding as much information and as many facts as possible to the knowledge already present.

The developmental and formative function of the textbook, on the other hand, is governed by the principle of mediating relevant content and of the choice of the most effective way of mediating the relevant knowledge selected for inclusion.

Transmissive Role of the Textbook

The function and hence also the definition of the textbook depends on the understanding of the teaching process and the concept of learning at school in general. If the principal aim of school education is to convey certain facts, and if its emphasis is on the content of the material and its transmission, then the textbook will have a predominantly transmissive role, i.e. will be primarily concerned with the presentation of information and facts. Our current concept of school is very close to this model, with twofold consequences, the first being that the textbook is effectively "the implemented or operational curriculum" (Ivić et al., 2003, p. 9), i.e. an extension of content outlined in the school curriculum. The second result is that "[t]he textbook has been, and still is, an almost literal replication of 'ex cathedra' class teaching, since the main text is almost a copy version of a lecture" (Ivić et al., 2003, p.10).

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