‘Has Past Passed? Textbooks and Educational Media for the 21st Century’

The 7nd IARTEM Volume

Mike Hornsley, Susanne V. Knudsen & Staffan Selander (Eds.)
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Introduction

This volume from the 7th IARTEM conference on learning and educational media in Bratislava, September 2003. The overall theme was called: Has past passed? Textbooks and Educational Media for the 21st Century. In this volume, papers and keynote speeches from four different themes are represented: educational media, breaking the borders of otherness, content and quality in textbooks and, finally, curriculum reform in relation to teaching and learning materials.

The consequences of globalization are of increasing interest, not the least in terms of education. In a world of extended migration, a new understanding of 'identity' emerges. What is it 'to have' an identity, 'to be' somebody, to 'belong'? What values and what 'truth regimes' does the school offer through textbooks and the educational media? Is it at all possible to brake the border of otherness? This was one of the burning issues during the conference.

Since its very beginning in 1991, IARTEM has organized conferences with researchers and other interested parties from all over the world. There is an increasing interest in this area of research within different disciplines. From the very beginning the focus was on textbooks, and textbooks do still play an important role in most countries around the world. However, gradually both "older" media as film, TV, video and the "newer" media (ICT, mms etc.) have been highlighted as resources for learning – as educational media/texts.

The state of the art

This volume starts with some of the keynote speeches focusing on such themes as: education and textbook system in the Slovak Republic, foreign language education, textbook pedagogy in a socio-cultural perspective and textbook research 'with and without gender'.

Educational media

The electronic revolution changed our understanding of text’. Text is no longer only printed types on a piece of paper. The text-concept is today a much wider concept, covering both printed and spoken text and words as well as illustrations. To be literate means no more only to be able to read the words themselves, but also to use texts in different contexts. In this part, we will meet articles that discusses design and quality, electronic texts and active learning, computer games for learning but also critical remarks on the lack of consistent terminology in the field.
**Breaking the borders of otherness**

In this section, a very actual and ‘hot’ theme is addressed. Otherness is something ‘other’, that is seen from a specific, central point of view, be it political, sexual, ethnic etc. In a world of extended migration, a new understanding of ‘identity’ emerges. What is it ’to have’ an identity, ’to be’ somebody, to ’belong’? What values and what ‘truth regimes’ does the school offer through textbooks and the educational media? Is it at all possible to brake the border of otherness? Otherness will here be discussed in terms of nationalism and national heroes, gender gaps and gender effects.

**Content and quality in textbooks**

How do we measure quality in textbooks and educational media? This is an everlasting question, and the answer depends on national systems, theoretical perspectives and methodological approaches. Here we will find articles on the role of the canonicity, humanistic values, the learning of foreign languages and textbooks in mathematics and science. But we will also meet discussions about why teachers should talk about texts and help pupils to meta-reflect upon texts and the role of teachers’ guide.

**Curriculum reform and teaching and learning materials**

Texts are in many ways intertwined with policies and school reforms, not only with subjects but different traditions and fields of knowledge. The authors of the articles reflect on curriculum reforms and textbook improvements, what it means to transform curricula into teachers activities, and the problems of hierarchies in knowledge.

**Final section – educational programs for teachers, publishers and textbook authors**

In both Norway and Sweden programs for educating textbook writers have started. Also courses concerning the selection and use of textbooks are discussed, and the role of regional development plans.

**IARTEM and the development of new educational programs**

IARTEM has taken an initiative to create a master program for textbook writers and publishers. First discussions have taken place (in Sydney and Tønsberg) with representatives from universities and university colleges in Australia, Korea, Estonia, Germany, Scotland, Norway and Sweden. All information will be available at our web site and in our new, electronic journal on research on textbooks and educational media (soon started).

_Prof. Mike Horsley_  _Prof. Susanne V. Knudsen_  _Prof. Staffan Selander_

TREAT,  Centre for research on  Stockholm Institute
Univ. of Sydney  pedagogic texts and learning,  of Education
           Univ. college of Tønsberg
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1. State of the Art
Education and Textbook Systems in the Slovak Republic

The following presentation provides a brief overview of a current state of education system in Slovakia. The presentation then focuses on textbook system and describes specific issues of textbook policy, such as textbook approval system and tendering, textbooks financing, process of textbook preparation, publishing and distribution. The presentation is based on the outcomes of a research carried out by the National Institute of Education (NIE), in cooperation with the Open Society Institute, Budapest. The main purpose of the research study was to analyse the current situation in textbook system and to propose ways how to create optimal conditions for textbook preparation and improve textbook quality.

The large scale research was carried out in 2002 and included: a series of seminars with stakeholders to identify main problems in textbook policy; map current systems of textbook provision; analyse existing tendering, regulations and legislate documents, develop and test new sets of textbook evaluation criteria; and propose new systems of tender mechanisms. In addition, a survey of teachers’ satisfaction with the process of textbook approval, publishing, distribution, financing and utilisation of textbooks in schools was carried out.

The study concluded with a set of concrete recommendations on how to improve transparency and efficiency of the current system of textbook provision and, ultimately, how to improve the quality of textbooks. The recommendations included: establishment of an independent tender committee, allocation of fixed amount of education budgets for textbooks based on curriculum priorities identified well advance, preparations of objective textbook approval systems, preparation of new criteria for textbook approval and evaluation, preparation of a training system for authors, reviewers and teachers, creation of a new model for distribution of textbooks, which should incorporate, among other things, a solution to ensure free public sale of textbooks in bookstores. Several of the recommendations are being adopted already.

Basic data about Slovakia

The Slovak Republic was established in January 1993. The area of the country is 49036 km² and there are 5,379,455 inhabitants. The nationalities living in Slovakia include Slovaks (85.8%), Hungarians (9.7%), Roma (1.6%),
Ruthenians (0.4%), Ukrainians (0.2%), and Czechs (0.8%). Slovakia has a parliamentary political system. The Slovak Republic is a member of the European Union since May 2004.

**Development of education system**

The education system of the Slovak Republic has been developed during the 20th Century. The structure of the school system within the Czechoslovak Republic was, until 1948, similar to school systems in neighboring Central European countries. With the introduction of the communist regime, the government established a unified school system. From 1976 to 1989, the school policy included features of the unified school, unified curriculum and unified textbooks. The historical and revolutionary changes which took place in Czechoslovakia after November 1989 resulted in fundamental legal and organizational changes in the field of education. The school system has become more democratic and diversified. Today, teaching is based on a humanistic and democratic educational process. Educational changes include new system of school management and governance, as well as curriculum transformation.

*Table 1* The elements of school system and number of pupils (2002)

<table>
<thead>
<tr>
<th>Type of school</th>
<th>Number of schools</th>
<th>Number of pupils</th>
<th>% of the given population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursery schools</td>
<td>3,243</td>
<td>150,587</td>
<td>86.4%</td>
</tr>
<tr>
<td>Primary schools</td>
<td>2,406</td>
<td>626,645</td>
<td>100%</td>
</tr>
<tr>
<td>Grammar schools</td>
<td>217</td>
<td>86,239</td>
<td>18%</td>
</tr>
<tr>
<td>Secondary specialized</td>
<td>339</td>
<td>91,820</td>
<td>40%</td>
</tr>
<tr>
<td>schools</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary vocational</td>
<td>374</td>
<td>106,775</td>
<td>37%</td>
</tr>
<tr>
<td>schools</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special schools</td>
<td>437</td>
<td>32,244</td>
<td>0.3%</td>
</tr>
<tr>
<td>Universities</td>
<td>23</td>
<td>94,684</td>
<td></td>
</tr>
</tbody>
</table>

Source: *The Institute of Information and Prognoses on Education, “www.uips.sk*
Transformation of education system after 1990

System changes in education commenced in May 1990 by adopting the amended School Act. This Act has enabled diversification of schools. The compulsory school attendance was extended from to 10 years; 9 years of primary schools education was (re)introduced in 1997; and grammar schools (Gymnázium) with various lengths of study were established (4 years, 6 years, 8 years). Gradually, decentralization of schools has begun in accordance with the Act on State Administration of Schools. The regional and local governments have become founders of schools.

Some of the most significant achievements during this time include:

- Elimination of one-sided ideological biases in content of education and teacher training;
- Introduction of ethical and religious studies;
- Establishment of schools with alternative property rights (state, private, church);
- Establishment of schools with alternative educational philosophies and methodologies (e.g. Waldorf schools, schools with Step By Step program, and schools with integrated thematic teaching according to Susanne Kowalik);
- In 2000, a new national educational program, called *Millenium*, was adopted. The document outlines the new concept of education up to 2015;
School curriculum has become more flexible, enabling schools to make partial changes in curriculum. Schools have the right to include subjects in curriculum according to pupil’s and parent’s interests;

Central regulation of the education process was weakened;

For an objective evaluation of the quality of education and the comparability of the achieved results, academic standards for primary and grammar schools have been developed. The new standards established requirements for pupils’ knowledge and skills, together with illustrative tasks.

Criteria for educational outputs after the particular educational cycles have been developed;

The Slovak Republic has joined comparative international assessment studies of IEA and OECD;

Systematic national monitoring is commencing gradually;

The content of education is changing from encyclopedic knowledge towards the development of abilities, attitudes and towards acquisition of key competencies;

An independent State School Inspection (2000) has been established to monitor the quality of education in primary and secondary schools. The content and scope of its activities is determined by law;

A new Act on Universities was adopted in 2002.

**Planned changes for 2004-2006**

A new Act on Financing of Primary and Secondary Schools was adopted by the Parliament of Slovak Republic in November 2003, and instituted in January 2004. The Act aims to improve the system of financing mechanisms for schools. A new Act for Primary and Secondary Education (Schools Act) is being prepared. The new School Act will provide comparability of education levels with European education standards.

**Curriculum reform**

Planned curriculum changes will define a new content of education by emphasizing the practical use of knowledge acquired by students. Additionally, new general educational targets based on the new content in primary and secondary schools will be developed.

**School-leaving exam reform**

The current school-leaving qualification does not enable objective comparability of results among schools. The pilot testing of students within the MONITOR project showed major differences in the achieved results in par-
ticular schools in Slovakia. It also showed a small correlation between marks given by schools and scores in the centrally released tests. The reform calls for the introduction of five compulsory school-leaving exam subjects and completion of the school-leaving exam in two levels. The school-leaving exam on the higher level will require taking a compulsory didactic test.

**Teacher Training**

A new system of the further training of teachers is being prepared. It will include the development of a new career promotion system, improved conditions for the motivation of employees (including salary increase), a more complex system of teacher assessment and appraisal, as well as new certification criteria for educational institutions.

**Textbooks and Educational Media in the Slovak Republic**

**Basic characteristics**

Textbooks are the basic teaching and learning material in Slovakia. According to the School Act, textbooks are lent to pupils free of charge. Textbooks are financed by the state. According to the Constitution, the state must ensure textbook provision for all subjects and grades in primary and secondary schools. Workbooks are provided for free at the first stage of primary school. Teacher guides are not published. Textbooks for minority schools are translated, but occasionally new textbooks are created.

**Textbook financing**

Textbook funds are allocated from the education system budget, which is derived from the state budget. Gross domestic product for 2002 was 1,052 billion SK. Education has been allocated 40 billion SK from the state budget, which amounts to 15.5% of its expenditure. Approximately 0.4-0.5% of the above amount is reserved for textbooks. Annual textbook funds have oscillated between 167 million and 235 million SK (4,175,000 – 5,875,000 EURO) over the past five years.

From the allocated funds, in 2002/2003 306 titles of textbooks were published.

*Table 2  Financial budget for 2002*

<table>
<thead>
<tr>
<th></th>
<th>SK</th>
<th>USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross domestic product for 2002</td>
<td>1,052 billion</td>
<td>21.9 billion</td>
</tr>
<tr>
<td>State budget</td>
<td>258 billion</td>
<td>5.3 billion</td>
</tr>
<tr>
<td>Education budget</td>
<td>40 billion</td>
<td>0.8 billion</td>
</tr>
<tr>
<td>Textbook budget</td>
<td>0.4% of the education budget</td>
<td>3.63 million</td>
</tr>
</tbody>
</table>

Textbook procurement is centralized; individual schools send orders to one distribution agency. This reduces the average price per textbook for primary and lower secondary schools to approximately SK 30-60 (1–2 EURO). However, the textbooks prices differ significantly, especially between textbooks for primary and secondary schools. According to the publishing plan in 2002, textbook prices range from SK 25 to SK 2000. Textbook prices for special needs schools are higher due to the fact that print runs and fixed are higher.

*The process of textbook preparation and publication, authorization and distribution*

A fairly complicated process of textbook preparation, publication, authorization and distribution is based on the Ministry of Education document, “The Procedure for Creation, Publication, and Production of Material Teaching Resources.” (See table on page 19)

*Initiating a textbook tender process*

The preparation of a teaching resource (a textbook) can be initiated by the Ministry of Education, the National Institute for Education (NIE), the State Institute of Vocational Education, publishers as well as pedagogical and private persons. The objective of the tender process is to publicize the need for a textbook, to promote competition among publishers and to select the most appropriate manuscript.

*Conditions for entering the tender process*

Publishers or authors interested in a textbook tender are requested to submit a detailed synopsis of the textbook, supplemented by a draft table of contents and detailed information on the extent of the textbook. Additionally, authors must submit two sample units (chapters), one specified by the terms of the tender process, and one chosen by the publisher or author. Alternatively, a completed manuscript may be submitted. The fundamental documents in textbook preparation are subject curriculum and subject standards.

*Textbook sample assessment by members of the tender committee*

Regulations for Tender Processes state, the guarantors that the textbook meet pedagogical and Anonymous textbook samples are assessed by tender committees, which are, as the technical criteria. The members of the tender committees use a set of evaluation criteria agreed on beforehand. The Ministry of Education appoints a separate committee for each school subject.
The textbook system in Slovakia

Initiating textbook tender

Tender process is open by the Ministry of Education

Authors or publishers prepare textbook concept and sample chapters according to the tender requirements

Required materials are submitted to the tender committee

Tender Procedure

Selected authors/publishers develop the complete manuscript

Publishers send the manuscript to reviewers

No

Reviewers' opinions on the manuscript

Yes

Publishers submit the manuscript and reviews to NIE

Preparation

Decision-making

Evaluation of the manuscript by NIE

No

Yes

NIE recommendation and the manuscript are sent to the Ministry of Education

Process

Approved of the manuscript by the Ministry of Education

Technical processing of text and graphic elements

Outcome

Printing of the textbook

Distribution of the textbook to schools
The tender committee makes a recommendation to the Ministry. However, the recommendation that a textbook manuscript should be published after completion does not mean that it will actually be published. It is the Ministry of Education, which determines whether the recommended textbook will be published.

One problem is that members of tender committee do not have sufficient qualifications. A different committee is set up for every tender, and its members are selected at random. The regional representation and largely proportional participation of educators and experts in tender committees is considered as positive. However, this does not necessarily guarantee the methodological and pedagogical quality of evaluations.

Another problem is that publishing houses and authors are not familiar with the sample evaluation criteria in the tender process, nor are they informed about the final result of the tender process or the reason for a sample to fail to rank among the best. The Regulations for Tender Processes do not deal with the right of a publisher to appeal against the decision of a tender commission.

Based on the experiences of other countries, the National Institute of Education, with consultancy and technical assistance provided by Open Society Institute, Budapest and international experts, developed a new set of evaluation criteria and a proposal how to select and train reviewers. It is also recommended that the trained evaluators will be placed in the database of reviewers. Members of the tender committees will be selected from the database.

**Manuscript assessment by reviewers**

The publisher in charge of preparation and publication of the textbook submits the complete manuscript to NIE, including illustrative materials. In addition, recommendations of evaluations and reviewers’ statements confirming acceptance of these evaluations must be submitted.

The publisher selects the manuscript reviewers. They can be active teachers, methodologists or subject specialists; in some cases they are members of the tender committee. The publisher pays for the reviews. Until recently, reviewers did not have clear evaluation criteria at their disposal. As a result, the quality of the manuscript reviews vary significantly. NIE has started to develop a database of reviewers to choose from when commissioning reviewers for a textbook.

The publisher passes the manuscript, along with the reviewers’ opinions, to NIE. Based on positive evaluations by at least two reviewers NIE issues a textbook approval notice and passes its recommendation to the Ministry of Education. Again, the ultimate decision to publish remains with the Ministry.
Textbook publishers

Following the Velvet Revolution in 1989, several new publishing houses have been established in Slovakia. The largest, previously state pedagogical publishing house was denationalised, thus ending the state monopoly in textbook publishing. At present the number of textbook publishers has stabilised at five relevant publishing houses (all of them private). *Orbis Pictus Istropolitana* is the largest publisher by volume of new publications.

Textbook distribution

The distribution of textbooks is carried out by AD REM, a private distribution agency. It is the only company distributing textbooks in Slovakia. Their charges for textbook distribution amount up to 16% of the allocated textbook fund, which amounts to SKK 26.7 million in 2002.

Given the fact that the annual Publishing Plan prepared by the Ministry of Education is finalized on the basis of order forms AD REM collects from schools, the system remains centralized and does not always meet the requirements of individual schools. Thus, there is no textbook market in Slovakia. The current system of textbook distribution can be presented as follows:

*Chart 3 Textbook Distribution*

At present, there are only a few bookstores in Slovakia retailing the whole assortment of textbooks, even though students, parents, pedagogues, and the general public indicate an interest in buying textbooks and other pedagogical documents.

The main achievements after 1990

- Every year, the Ministry of Education finances textbooks that are lent to pupils free of charge;
- Today, economic conditions do not allow yet introduction of a different system of textbook financing.
- Textbooks are not published by several publishers, allowing for a competitive publishing environment;
• Textbook content is no longer determined by the Ministry of Education; and teachers can create textbooks too;
• Alternative textbooks are published
• Technical quality, design and layout of textbooks are at high level, comparable with international standards.
• Pedagogical quality of textbooks has improved. There is an increased number of textbooks that are structured to encourage development of key competencies, including suggestions for projects, problem-solving tasks and teamwork.
• Textbooks are developed to respect psycho-hygienic requirements for pupils.

**Main problems identified by the research study**
• Current level of state textbook financing is very low. The annual budget for textbooks is 0.4% of the total education budget, in comparison to 1-2% in other countries with state funding of textbooks.
• Objective criteria for textbook approval need to be developed.
• The textbook tender process is not transparent.
• The database of qualified textbooks’ reviewers is not yet created.
• A very short process for textbook development and publishing does not allow testing in schools. Teachers can not influence the development of textbooks because authors must create textbooks in very short time spans (3-5 months).
• Teachers do not know how to work with new textbooks.
• Systematic teacher training on textbook use is yet to be established.

**Teachers’ satisfaction with textbooks**
A survey of teachers’ satisfaction with the process of preparation, authorisation, publication, and distribution of textbooks was carried out as part of the research study. For the purpose of the survey, a questionnaire was developed to measure teacher satisfaction with the process of preparation, publication, financing, and utilisation of textbooks for primary and secondary schools. The questionnaire was sent to 50 primary schools, 30 secondary specialised schools, and 20 grammar schools. The rate of return was slightly above 50%.
The results of the questionnaire show that:

- Only 1.3% of teachers think they have the opportunity to influence or create textbooks;
- 50% of teachers from all types of schools do not agree that textbooks should be purchased by parents. Teachers in grammar schools agreed in principle that parents should pay, but only if there are good quality textbooks on the market;
- 84.4% of teachers are not satisfied with the quality of textbooks, and 63% of grammar school teachers are very unsatisfied;
- A majority of teachers in grammar schools and secondary vocational schools request alternative textbooks, but 17% of teachers in primary schools are not interested in alternative textbooks. There are more alternative textbooks available for primary schools than for secondary schools;
- More than 50% of teachers do not know how to work with new textbooks;
- 45% of teachers from all types of schools use textbooks while preparing for lessons, only 27% of teachers in secondary schools use textbooks in preparation for lessons,
- Only 28% of teachers from all types of schools always use a textbook during lessons;
- More than 72% of teachers claim that textbooks are not received in time.

In addition, the study also used the results of pupils’ questionnaires included in international comparative studies of the International Association for the Evaluation of Educational Achievement (IEA) – TIMSS 1999 and PIRLS 2001. 3497 pupils from 8th grade (14 years old) participated at TIMMS and 3800 pupils from 4th grade (10 years) answered PIRLS questionnaire.

The main findings of this survey show that:

- Approximately 26% of 8th grade pupils use textbooks in mathematics and science lessons regularly; 34% of pupils responded that they use textbooks fairly often; 50% of pupils stated they use textbooks rarely or not at all.
- 91% of 4th grade pupils use textbooks as basic literature and as the only source of information in schools, only 8% of pupils claim they do not use textbooks at all.
- 98% of 4th grade pupils claim teachers use textbooks daily, and 2% of pupils claim to use textbooks weekly.
- Only 22% of 4th grade pupils claim they use workbooks daily, 50% of pupils use them weekly, and 1% of pupils do not use workbooks at all.
• Pupils at 4th grade do not use computers in schools.
• Pupils in the TIMSS questionnaire reported that they do not work in teams on the projects, on problem solving tasks, or demonstration experiments.

References


Law on the school financing
The School Law
The Act on Universities
www.education.gov.sk
www.ssiba.sk
www.finance.gov.sk
Language across Boarders: Foreign Language Education Website – Produced by Children for Children

Introduction

In recent years, more and more digitally based materials of learning and teaching have entered the market. These educational media are primarily CD-rom-based and recently web-based. Often, the educational media are based on approaches where textbooks and traditional teaching are fundamental. Their foundation is textbook and teaching design structures related to current physical classroom education. The first generation of these digitally based educational media has been strongly characterized by a transformation of the textbook where the digital possibilities regarding visuality, interactivity and virtuality are rarely exploited.

The digital activities of children have been studied in a five-year- research project Children growing up with interactive media – in a future perspective, supported by the Danish Research Council for the Humanities. In relation to these activities children’s practice forms are studied from a learning perspective inspired by Etienne Wenger’s concept of learning in communities of practice. The practice forms identified in the above project have been used as the basis for developing a web-based learning and teaching website Language Across Boarders (LAB) for the languages English, German, and French at 4th to 10th grad (ages approx. 10 to 17). The project is an ongoing project commenced in 2003 and expected to finish in 2004. This article will focus on the transformation of children’s digitally based leisure-time activities and practice forms to activities on the learning and teaching website and, on the basis of presently available empirical data from teacher interviews, analyse the applicability of this learning and teaching website in school.

In order to provide a characteristic of children’s use of digital media and the internet, the article will present children’s access to computer and Internet at home followed by two main conclusions from the project Children growing up with interactive media – in a future perspective. Subsequently, the article will analyze the practice forms identified in the above project since they are important elements in the design of LAB. In the following part, the activities developed in LAB will be described, followed by an
analysis of the appearance and character of practice forms on LAB as well as focus group interviews with teachers on their experiences with the use of LAB in school.

**Theoretical approach**

The theoretical frame for the project has its foundation in anthropologically inspired theories on culture, which view humans as “meaning creating individuals, expressing themselves through common communication systems and continuously creating interpretations and understandings” (Gulløv 2003:30). Focus is on the meaning construction in a child’s perspective as well as on the relations constructed between children, between children and adults and between children and artefacts. In other words, social patterns as part of what define and constitute the cultural aspect are included. The construction of meaning is both an individual and a social process, which takes place within the individual child who continuously negotiates and constructs its understandings through the interplay with other children, adults, and artefacts, which are elements in the social and cultural patterns of the child. Furthermore, the study draws on sociological studies of childhood, which emphasize children as beings rather than becomings (Janes, Jenks and Prout 1998).

The work has its point of departure in both the children’s own culture, i.e. texts, expressions, productions, stories and play, and in the social patterns of children. In order to study what takes place in the digital meetings which are established, the anthropological view places focus on children’s relations to each other, on relations between children and adults, and on children’s relations to the objects or artefacts which are part of their culture. In other words, the focus is on patterns of relations (Hastrup & Ramløv 1989). Children produce and reproduce meaning in a complex interplay with both children and adults in social contexts characterized by a certain degree of complexity as the social contexts of children are not only related to physical contexts but also to virtual contexts. The new information and communication technologies radically expand the social contexts of children. “They exponentially expand our communicative reach and thereby the number of people with whom we share ‘society’ [my translation] (Qvortrup 1998:28).

Additionally, the LAB project is based on experiences accumulated during the research project *Children growing up with interactive media – in a future perspective* where certain practice forms employed and valued by children are identified through 7 to 15 year-old childrens’ use of digital media at home, in recreation centres, at school, in computer cafés and in libraries. These practice forms will be described below.
Methods

A group of five teachers, two researchers and a computer programmer had participated in the development of the website. The five teachers had several years of teaching experience with children and adolescents in one or more of the foreign languages English, French and German as well as experience with digital media. The two researchers each represented their approach: a foreign language education approach and an approach of children’s use of digital media from a learning perspective.3

The development of LAB has taken place as an iterative design process, which has involved a repeated development of activities and testing followed by discussions in the development group, and, on this basis, revisions and adjustments have been effected. The process is inspired by action research where researchers have emphasized a change of practice on the basis of the research results (Launsø & Riber 1993). The work has involved dialogue oriented action research with a basis in the believed existence of utopian elements of what reality may become and what options it contains (Clausen, Lorentzen & Baumgaard 1992). In this connection, experiences from the above mentioned research project, which generated beliefs that the foreign language education at school could exploit both children’s use of foreign languages during application of the digital media and the Internet as well as the activities and practice forms of children indicated within this practice. From a researchers’ point of view, the intention was to transfer research results into practice in a dialogical process with the experiences of the involved actors.

LAB is developed in a process where the group initially established some theoretically based fundamental principles of pedagogy, communication, and design for the development of the website. During the development, the individual activities were implemented and tested in both a school context with subsequent evaluation meetings in the development group. The researchers have been a part the development process by 1) establishing the theoretical basis of LAB, and 2) participating in a dialogue oriented process, and 3) studying the use of LAB in the school context in a participatory research approach where focus is on the children’s application of the website. The five teachers have participated as 1) developers of the site, 2) teachers in an educational course where the site was applied, and 3) evaluators in a reflective process of the children’s application of the site during the learning and teaching processes. According to Peter Jarvis’s understanding (Jarvis 1999), one of the teachers assumed the practitioner-researcher role as she applied experiences in a master thesis where she developed theory on the basis of practice (Risgaard & Nielsen 2003). The computer programmer was in charge of the programming process and made draft designs
of the user interfaces, which have been continuously developed, based on testing.

The empirical data material from the participatory research includes current observations at five schools and informal conversations and interviews with children – both individual interviews and group interviews. Furthermore, there have been focus-group interviews with teachers in a combination of a loose explorative structure and a narrow focused structure. Additionally, the website is included where analyses of selected activities will be conducted. Finally, the material includes statistics of application patterns, which will also be employed in the analyses.

Children’s access to computer and Internet at home

Children’s access to computers and Internet at home has increased considerably during recent years. A North European study in five countries shows that most children have access to computers and Internet at home. The study shows that 97% of the 9 to 16 year-olds in Denmark have access to a computer at home and 50% have their own computer (see Fig 1). 77% have access to the Internet at home. The figures from the other participating countries are relatively close to the Danish figures as shown in Fig 2. The most remarkable deviation is among the number of children who have their own computer.

Most Danish children use the Internet several times during the week and 18% use the Internet several times every day. 54% of the Danish children started using the Internet before they were 10 years old. (SAFT: http://www.medieraadet.dk).

![Fig. 1. 9-16 year-olds’ access to computers at home](SAFT: http://www.medieraadet.dk).
Almost all children have access to computers at home and the majority of the children have access to the Internet. Only 3% of the children do not have access to a computer at home and 23% have no access to the Internet. The extensive access to computers and Internet has resulted in considerable changes in children’s daily activities, particularly in relation to play, communication and social relations.

Children learn from each other and act in virtual spaces

Two main conclusions from the research project *Children growing up with interactive media – in a future perspective* are stressed: 1) children live in both physical and virtual spaces, and 2) children mainly employ the digital media in leisure time and they learn to use digital media primarily from other children and through own experiments.

Virtual spaces seem to be of decisive importance for changes in childrens’ every-day lives, as the children have gained access to new and qualitatively different spaces of action. The physical spaces: the home, the school, recreation centres, etc. are central to childrens’ experiences within play, communication, social relations, identity, learning and information. Concurrently with the physical spaces being central to these activities and processes, the virtual spaces: chat rooms, online games, discussion forums, news groups, etc. gain increasing importance within the same processes and activities. Experience and play increasingly relate to chat and games on the Internet where communication is more closely connected to virtual spaces such as different forms of chat rooms, email, communication in relation to online games, discussion forums and news groups where children esta-
blish new social relations. Depending on the childrens’ age and linguistic abilities, relations to children in other countries are established and encounters with other cultures become part of Internet use. In relation to their identity constructions, chat rooms and childrens’ own web page productions seem to provide new and particular possibilities to test different ‘identities’ on the chat-channels and produce pictures and text on their private websites. The learning takes place both within and outside the school and part of the learning processes take place in connection with activities in the virtual spaces where learning is often a means to gain things or make changes. When search for information is concerned, the Internet has been largely adopted into the mental universe of children as the place to search for things related to either schoolwork or own interests.

The project indicates that children primarily use digital media in their leisure time. It also seems to be during this time that children seriously gain experiences with the use of the digital media. The majority of the children in the study do not use the computer very much in school but rather develop their competences regarding the use of digital media through social processes with other children of all ages and perhaps also with adults in their leisure time, and through experimenting with the Internet and programs of particular interest. Another comprehensive four-year study conducted in 12 countries of mainly European origin reaches the same result (Livingstone & Bovill 2001; Drotner 2001). With regard to the internet, this is also confirmed by a newly published quantitative study of 9 to 16 year-old North European’s use of computer and Internet. (SAFT: www.medieraadet.dk). This study shows that when children learn to use the Internet, they state that their sources of learning are, in prioritized order, their friends, their parents, own experiments and finally their teachers.

Some of the activities are particularly interesting in a foreign language perspective, i.e. chat, news groups, discussion forums, and online games because the children often apply foreign language in relation to these activities.

**Digitally based practice forms**

The mainly digitally and socially based out-of-school learning processes or informal learning processes seem to be central to the learning processes in school as these, in many relations, appear to be very effective. During leisure time, when children undertake various activities, learning occurs through online games, chat, and production of web pages. When adults learn at work, learning is also a means to produce a product or to participate in a project. The fact that learning in the workplace is a means indeed makes Etienne Wenger’s theories a source of inspiration to the study of childrens’ ways of learning. Wenger’s theory is developed on the basis of the learning which
takes place in workplaces (Wenger 1998, Wenger, McDermott & Snyder 2002). Wenger’s theory on learning in communities of practice can be regarded as a challenge to the educational approach, which favours the mediation of knowledge from teacher to pupil.

From the point of view of children’s culture and an anthropologically inspired perspectives as well as inspired by Etienne Wenger’s theory of learning in communities of practice (Wenger 1998), focus is directed towards children’s ways of using the digital media in their everyday life. The intention is to isolate some practices or practice forms, which are essential to children in their interest to learn and in their strategies or ways of learning. The word practice has its origin in the Greek prattein, prassein, which means to conduct, to do or to act, to practice and to realize. Practice is not to be understood from a theory – practice dichotomy. In this context, practice forms should be understood as the forms, which are connected to what the children do or practice with digital media. Practice forms are understood on a more fundamental level than activities such as chat, multimedia production, or online games where there are specific goals of the children’s actions. Childrens’ everyday lives with each other are characterized by social relations, socialities and interpretive communities in both physical and virtual spaces, and, in this connection, there has been particular interest in studying how children learn together and from each other when they employ the digital media as well as in studying the means of practice forms in learning processes. The practice forms outlined here are practice forms, which are identifiable in children’s use of digital media and simultaneously singled out by the children themselves.

In the use of digital media, the children emphasize interactivity and their own action. Interactivity should be understood in a wide perspective as communication patterns in conversation, consultation, transmission and registration (Jensen 2000:201-203)\(^5\) It is characteristic that the children focus on action, navigation and interaction. As an example, it is important for children to be able to exercise a strong power of action in games where the completion of the game depends on their actions, strategies, choices and decisions. The interactivity is an underlying theme when the children speak of computer games and chat for example. Children like to control and make decisions, which is a characteristic feature that appears in many interviews and discussions with the children in the research project. In computer games, the control of characters or avatars provides the children with influence on the life of the avatars and on the universe in which they exist. The children like to have influence and to have an effect on things. Janet H. Murray applies the term agency to indicate the satisfaction of having power and making marks (Murray 1999:126). They make choices, which influen-
ce the continued course of action. When the children play computer games or online games, they gain power over figures, objects and universes. When children navigate in the various virtual universes, they create an overview and make decisions and choices. They like the feeling of being in control of what they are doing.

The activities of creation, such as making pictures, composing music, writing stories, producing multimedia and web pages are important to the children. The children emphasize the ability to exert themselves individually or together with others and create something they are proud of and feel good about during the process. This reflects Wenger’s concept of reification – i.e. the process in which we form experiences through production of objects, texts, designs and pictures, which can manifest our experiences and contribute to understanding (Wenger 1998). In the reification, practice is made explicit but Wenger points out that practice cannot be described in full or codified (Wenger 1998: 55-61). Wenger applies the concept of reification in relation to communities of practice. Here, the concept is used in connection with both productive processes in communities and individual productive processes. The children experiment, explore, change and evaluate their productions, which often result in new experiments. The creative activities of the children have gained new dimensions with digitalisation. To some children, the new media introduce options of aesthetical production with particular emphasis on sound and image in creative processes characterized by choices of various elements such as pictures, text and sound which they process and combine in new ways.

Many children seek challenges in their use of digital media. Challenges arise when the children experience demands or problems and, at the same time, feel involved, excited, and eager to submerge into a given problem. This becomes obvious when children meet challenges of accomplishing e.g. a computer game even though this may take months. Often, the children have to make several attempts, think up new ways of solving difficult passages or seek help by friends. It is very much a question of problem solving processes or problem-oriented processes, seen from a practice perspective – which practices do they apply to solve problems? In many cases, problem solving is merely seen as a cognitive process (Illeris 1999). The satisfaction consists in challenging oneself intellectually and then being able to solve the problems and deal with the tasks. The challenge may involve personal achievement but it may also be a question of achievement in relation to friends. The challenge may be characterized by exploration, challenging of the uncertain, and unknown, and finding out where it leads can be very satisfactory on an emotional and experiential level. To some children, the aspect of winning is connected to competition, which, in itself, can be
regarded as a challenge. A goal may be to concur yourself or an opponent. To compete and to win are driving forces for many children in their media activities. It is not only in relation to computer games that these forces become apparent but also in their search on the internet where they seek out pages containing quizzes or they manufacture quizzes themselves for other children to solve.

The bigger children are testing the possibilities of communication with strangers in the virtual and public space of the internet, e.g. chat, news groups, discussion forums, online computer games, and others’ or own web pages and many children are active in these virtual spaces. The concept of communication is understood from a practice perspective as exchange of information, knowledge, experience, thoughts, attitudes, feelings and fantasies. Communication is taken up later in the article in relation to intercultural communication. The new options of communication, which the internet provides, have constituted a website for new communicative performances and experiments. Media-based communication between children has increased in line with the extensive expansion of the internet and mobile telephones. When children meet other children on the internet with whom they communicate particularly well, internet friendships are developed. Between the internet friends, new forms of communication are established based on the written language and emoticons, where the physical body is absent. During the communication, they are serious; they discuss, tease, and fool around. The meetings on the internet often provide the children with a feeling of being able to act more freely than in reality. Some children emphasize the absence of the physical body as a possibility to psychically get closer to others as the body, gesticulation, and facial expression in physical meetings may constitute barriers in conversation with others. Communication on the internet in news groups provides children with new possibilities, which have not previously been part of their cultures. The participation in different news groups and discussion forums are dependent on the children’s interests. Some children are active in these spaces where they participate every day or very often to get information or to discuss sports, TV-series and computer games. The dialogues and discussions can be regarded as extensions of conversations and discussions with friends in physical spaces.

The internet and the mobile phone have provided children with possibilities of both maintaining social relations and of establishing new social contacts and networks across geographical distances and cultures. More and more children exploit the new virtual relations, not only for games but also for conversations, interpretation and discussions as well as for solution of problems. The new possibilities of development of virtual, social rela-
tions do not imply changes in the social relations – that the children replace physical social relations with virtual social relations. To the children, it is not a question of either/or but rather of a both/and. When the children master English, they use foreign online games, chats, and discussion forums, which place the intercultural aspect of a global perspective on the agenda. The virtual, global spaces are places where cultural differences and similarities become central on the basis of the themes introduced into these spaces by the children. The internet has opened for a global extension of children’s social relations where alternating social and cultural contexts are essential factors.

The children emphasize self-interpretive processes. This particularly applies in connection with productive processes, production of web pages, in discussion groups, and in chat where the children themselves, to a high degree, are the pivoting points as they communicate about themselves. When the children seek experiences through the media, they involve self-interpretation and thereby identity construction. The children test and construct identities in processes, which actualise the concept of multiple identities where identity is formed in relation to situations and relations (Gergen, 1991). Construction of identity is a process, which continues throughout life. In other words, the identity is not fixed but rather an ongoing process. Children use media as reservoirs for interpretation of themselves. They select characters and roles from TV-series and computer games, which are then tested on a mental level, in everyday actions, and/or in virtual spaces as possible take-offs for alteration processes.

As children both apply and emphasize these practice forms – and as they seem central to the informal learning processes (Sørensen 2003), it has been obvious to attempt to transform these practice forms in the web-based educational media design. This is the subject of the following section.

**Foreign language website**

On the basis of results from the project *Children growing up with interactive media – in a future perspective*, the initiative for development of a web-based learning and teaching website for foreign languages arose. The project indicated that children apply foreign languages as a living means of communication in chat, online games and news groups. This applies particularly for English, which is the primary foreign language of Danish children. Many of the oldest children have already gained experience with the meaning of the language in an intercultural and global perspective from these web-based communication contexts. A large part of the children use remarks such as “my friend in France”, “my web-friends” and “web-buddies”. In addition, the children state that they learn new words and develop
written proficiency competences through their use of foreign languages as communication means on the internet (Sørensen 2002).

For the web-based learning and teaching website for foreign languages, LAB, it was the goal to develop a production and communication website for children to use for school purposes and provide them with an option of developing their linguistic competences with focus on the written proficiency as well as their intercultural competencies.

Children growing up with interactive media – in a future perspective indicated that the children focus on practice forms. These practice forms have been applied in the development of the learning and teaching website. We believed that these digitally based practice forms, from a leisure time context, could provide a basis as well as a support for new learning and teaching forms in school.

The project commenced in the Autumn of 2002 as an open digital and virtual website for the foreign languages English, German, and French where children, through processes of play, game, communication and production, are able to learn across boundaries of age, sex, schools and nationalities. On LAB, the focus is on the communicative use of language and interaction across national borders which means that the main focus is placed on the children’s own productions and their work with language in this relation as well as on their intercultural learning processes.

LAB-activities

The following sections describe some of the activities on LAB. Common to all activities is that the users choose language: English, German, or French, as well as a role of either creator or player in relation to the individual activities. The website is designed for children between 10 and 17 years of age and is open to the public. A teacher’s manual is available. Children from all over the world contribute with input and, at this point in time, the five involved teachers and their students are initiators when new activities are developed. The activities are developed continuously.

One of the activities is Odd man out, where children as creators choose four words or sentences of which the three words or sentences possess a semantic relation within a given category. They insert the words or sentences: e.g. rubber, book, pencil, or ruler. The task of the player is then to figure out which word does not belong in the semantic relation. The players click on the word, which has no relation to the others and a message appears. If the choice was correct, the message is …Correct! The book doesn’t belong in a pencil case’ appears. As a player, children solve 25 tasks in a play and gain points.

Lab’ardy (the site version of Jeopardy) is another activity where child-
ren create five categories such as Geography, Football, Mixed, Animal, and Explorer. Within each category, the creator constructs five questions which the player answers and gains a given number of points. For each question, there are four options and the player must answer within 20 seconds. E.g. who discovered America first? The Vikings, Christopher Columbus, Marco Polo, Ferdinand Magellan. If the player does not answer in time, the correct answer appears and no points are awarded.

In **Hang-Man**, the creator chooses a word, which the player is supposed to guess before the drawing of the man in the gallows is completed. During the play, the creator has constructed some statements, which pop up to assist the player.

In **Chain stories**, a child begins a story, which other children continue. The children choose whether they will begin a chain story or resume another story.

There are also different options of designing **Postcards** through drawing, digital photos, or scanning of different types of pictures. The postcard is turned and the children can write to one or more persons on the reverse side.

In December, a **Christmas-site** is designed where children from all over the world can upload Christmas pictures. Furthermore, they can enter stories of Christmas traditions from their respective countries, such as Italy, Japan and Denmark.

Furthermore, there is a **Market**, where children upload pictures and symbols and by clicking on these, texts and perhaps more pictures appear on different topics, such as Harry Potter, sports or music.

Finally, the children create and read **Jokes** and participate in the contest **Best jokes**.

At the moment, a **Chat room** is being designed and implemented where children can communicate simultaneously and where they may vary between fiction-oriented and reality-oriented chat. Fiction-oriented chat is a chat form where children create a fictive basis from which the chat develops, and, in the reality-oriented chat, the children chat on the basis of ‘themselves’ as expressed in their own words. (Sørensen, Olesen, Audon 2000; Sørensen 2001)

In the construction of the different activities, activities for all children at all levels of foreign language competencies are emphasized. As an example, Odd man out, Lab’ardy and Hang-man are linguistically more demanding than the Christmas site, Postcard and Market which offer a higher degree of differentiation.
**The incorporation of practice forms in LAB-activities**

From a design point of view, the website is designed for children who produce learning activities for other children. Interactivity, reification and agency are thus pivotal for all activities. The activities are based on the individual and common creative processes of children in an interactive process in relation to the website tools and designs. The participating children influence the contents and design through their creative processes within the basic frames of the website design. In the creative processes, primarily words and text production are in a foreign language. Furthermore, there are pictures of either own production or downloaded and processed in various ways in different image editing tools.

The activities are designed from various perspectives of challenge with a problem-oriented aspect. The Chain story, Postcard, Christmas site and Market represent different ways of accompanying these challenges by placing demands or igniting interest and, at the same time, making the children feel involved and eager to continue the work and solve the problems which arise from the challenge. As an example, the challenge of a chain story consists in starting a story in such a way that inspires others to continue writing and then follow up on who continues the story, how the story develops and for how long the story continues. This is a virtual communication process where children cooperate with other children beyond their physical space on the construction of stories. Postcard is mainly designed for novices of foreign languages and also possesses a communicative aspect and functions primarily through the communicative challenge of verbal and visual communication with other children in the virtual space or with children known from their physical space. The Christmas site is only available in December and designed on the basis of the teachers’ experience that Christmas is a subject, which excites many children. In other words, the subject is decisive for the challenge. The Market function involves individual interests in particular subjects.

Children’s interest in different forms of games with various competition aspects is realized in three of the games: Odd man out, LAB’ardy and Hangman. Both on TV and on the internet, children seek competitive activities in the form of quizzes, etc. where they are able to test themselves and compete with others. The development group in relation to the pedagogical reflection has discussed competition as a phenomenon. The question has been how to exploit and apply the potential of the competition in a foreign linguistic learning context. On LAB, the children construct the competitions at the same time as they enter the game as players. Roger Calliois applies the concept Agon for the type of play, which is based on competitions. The
competition demands attention, training, persistence and will to win from the player. Additionally, the winner is celebrated or the looser is degraded dependent on the nature of the game and the situation in which the game takes place (Callios 2001; Konzack 2003). Seen from the point of view of children’s interests in competitions, there is a challenge in rethinking competition in relation to the pedagogical context as indeed attention, training, persistence and will to win are elements which are important in many learning processes. In a pedagogical context, the problem is the celebration and degradation aspect, which is why the competition is not being used in the pedagogical context. Odd man out, LAB’ardy and Hang-man incorporate attention, training, persistence and will to win in the activity concept and they also operate with the celebration aspect in a high score list connected to the games for the players to see who earned most points. The degradation aspect is not involved. However, it can be claimed that it is indirectly present to players who never appear on the high score list.

Communication as the point of departure of the site is regarded as a dynamic process (McQuail 1983; Saville-Troike 1989, Kress 1993). Inspiration has been found in Gunther Kress who combines communication and culture.

"Culture is the domain of meaningful human activity and of its effects and resultant objects; communication is in the domain or intended and unintended exchange of meanings between social/cultural agents. The processes of communication produce meanings; cultural production brings into existence meaningful objects, which in their turn communicate their meanings. The concept of meaning therefore inextricably links these two aspects of one domain”. (Kress 1993:2)

The site encourages meaning construction in the productions, which make up the contents of the site architecture. Communication processes take place in a socially and culturally formed world (Kress 1993:4). These different socially and culturally construed worlds are indeed particularly actualised in children’s virtual productions and communication. When children of different cultures meet through productions on the site, e.g. Chain story, Postcard, Market and Chat, reflection over the socially and culturally constructed worlds is encouraged. Unlike the other activities, Chat is a simultaneous communication space, which is expected to provide communicative possibilities known from the leisure time universe.

In Postcard, Market and Chat, it is possible to establish new social relations and/or maintain social relations. Postcard often functions in the way that children send greetings to someone they know or to all interested in reading the greetings. In the Market, relations are established between child-
ren with identical interests while the simultaneousness of the chat can create other kinds of sequences, which facilitate social relations. In a social relation perspective, concepts such as ”intercultural learning” and its implied goal ”intercultural competence”9 are actualised. According to Robert O’Dowd, these concepts are a source to an ongoing debate and disagreement in the field of foreign language methodology (O’Dowd 2003:2), which also brings many definitions in the field. It is beyond the frames of this article to enter this discussion and clarification of concepts. Michael Bryan presents an extensive model of intercultural, communicative competences that contains elements such as skills, attitudes, knowledge and critical awareness, which have been seen to constitute intercultural competence. The model contains the following elements:

• “Attitudes: Curiosity and openness, readiness to suspend disbelief about other cultures and belief about one’s own.” (Bryan 1997: 50)

• “Knowledge: of social groups and their products and practices in one’s own and in one’s interlocutor’s country, and of the general process of societal and individual interaction” (Bryan 1997: 58)

• “Skills of interpreting and relating: ability to interpret a document or event from another culture, to explain it and relate it to documents from one’s own.” (Bryan 1997:61).

• “Skills of discovery and interaction: ability to acquire new knowledge of a culture and cultural practices and the ability to operate knowledge, attitudes and skills under the constraints of real-time communication and interaction.” (Bryan 1997:61).

• ”Critical cultural awareness/political education: an ability to evaluate critically and on the basis of explicit criteria perspectives, practices and products in one’s own and other cultures and countries.” (Bryan 1997:63).

The internet establishes contact between cultures but that does not automatically imply a cultural understanding and a web-based learning website offers intercultural exchanges but not necessarily an intercultural learning. The above elements of Bryan’s model can be regarded as goals of intercultural learning. Even though the development of LAB is also targeted towards intercultural learning, this does not imply that all the above elements are included in LAB and certainly not in relation to the fact that children constitute the user group. In reality, the pedagogical ambition is only related to the first two elements where children through single culturation processes learn what works and what does not work in interactions with other children.
In Chat, there are spaces designed for self-interpretation as various ‘roles’ can be established in the dialogues where the children test themselves and operate within certain degrees of fiction and reality. Several of the productive processes taking place at LAB can also be regarded as self-interpretive processes, e.g. Chain story and some activities within Market as the children are able to expose themselves in various ways within these features. The global character of LAB means that the cultural aspect become part of the self-interpretation as the children will meet with a multitude of cultural positions, which may challenge their cultural identity. As the LAB-chat takes place in a formal learning space, the pedagogical settings will be of importance to the ways in which the chat-function will be used.

**LAB in a teaching and learning practice – provisional experiences from a teacher point of view**

In the following, LAB’s function in learning and teaching practice from a teachers’ point of view is in focus. As already mentioned, the study utilised a variety of methods such as participant observations, informal conversations and interviews but since the project is continuing, it has not been possible to use this part of the empirical data. The following is based on teacher statements from mainly focus group interviews with the five participating teachers after six months’ experience with the use of LAB in the teaching processes. The five teachers are, as mentioned earlier, co-developers of the website. On one hand, this may have as effect that the teachers place positive values on attitudes and statements. On the other side, the co-developer position may also have as effect that they remain particularly critical towards the website as a critical position is essential in a perspective of further development. This constitutes a validity difficulty in relation to the content of the interview statements. This should be reassumed and reinvestigated in the final phase of the project when the remaining part of the empirical data is available. Triangulation may prove necessary where identical themes are studied from several angles by incorporating various methods and informants. (Kvale 2000: 215)

**The public web-space – demands to own productions**

When the children make productions on LAB, they are very conscious that they are producing for a public space and their productions are read and used by other children. This means that the children are considerably more aware of their spelling and formulations than in ordinary paper writing for the teacher. The children use dictionaries and spelling control to a much higher degree when producing on LAB. In other words, the children value their productions more highly and place higher demands on their productions than in traditional teaching situations.
They enjoy that their names are stated on the texts and products on LAB, and it makes them proud to see their own names on the internet. For some children, this has a very positive effect on their self-esteem. At the same time, as teacher B states, the announcement of the name also makes the children put higher demands on their products:

“if their names are stated, I feel that they are very conscious about whether their writings are correct and without too many errors.” (student)

Teacher A adds: “Some of them constantly make sure that what they are doing is correct – not because they are particularly inferior or … they just feel… they want to make certain that this is correct and acceptable.”

The higher demands on the productions are not particularly related to the childrens’ proficiency in foreign languages. The aspect of producing for a public space is a challenge that many of the children favour in such a way that they mobilize an interest in solving linguistic problems to which they would not have paid much interest in the traditional classroom teaching. In a learning perspective, the efficiency and persistence of the children are actualized in linguistic attention. Teacher D expresses this as follows: “if I ask them to make a piece of written work and hand it in… particularly linguistic weak children may tend to write a word in Danish if they do not know its translation – she[the teacher] will figure it out, right? Now I have told her what I meant … they do not do that here. They know right away… this is going on the internet so I cannot do that.”

The children’s demands for correctness apply in the production processes and not only in relation to the linguistic aspect. This also applies when they produce games. When they produce LAB’ardy, they have to make sure that their factual knowledge is correct regarding the subject they are using for their production. Often, the children use geographical maps to see where cities and capitals are situated, or they check history books, encyclopaedias, or the internet. The game constructions often make connections to other areas. The reification process on LAB where children produce in foreign languages and for learning of foreign languages, the available empirical data suggests that LAB is a challenge to the language acquisition in the way that the children are interested in using LAB and, at the same time, place demands on themselves and their products. These demands are normally made by the teachers in traditional classroom teaching processes.

**Cooperation cultures and learning network**

As they often have not been able to gain help from parents, educators or teachers because they lack the necessary competences to help the children with problems and questions regarding the use of computers or internet, the
children growing up with computers have developed their own computer cooperation cultures and computer learning networks (Jessen 2001; Jessen 2002, Sørensen 2003). These cooperation cultures and networks are applied at school when they work with computers. In the traditional class culture at school, usually the teachers are asked for help. Experiences with the use of LAB show that the leisure time related cooperation cultures and network gain ground in the learning processes in the classroom. Teacher D expresses that when the children lack words during LAB-courses, they seek help from each other by asking:

“Does anyone know what it is called? And, then someone answers. And suddenly another pupil asks how a word is spelled… and they do it better than in ordinary class – because then they always ask me.”

Another kind of culture arises in the learning space when the children work with computers. This culture is based on other relations between the actors than in traditional classroom teaching. The children are more inclined to seek help from each other in the learning processes. And they move around to watch or get inspiration from each other. Or, if necessary, they establish other orders than in the traditional classroom teaching order where the pupils remain seated quiet during the entire process. In connection with the LAB-work of one particular class, teacher B stated that the children remained seated at first and then suddenly they stood up to consult the world map by the blackboard.

“They stood in fact at the map and discussed where this and that city was placed… actually they all stood by the map to find out that… that city is not where you said it would be.”

When the children work with the computer, the teacher is no longer the “command and information centre” that controls and assembles all communication threads. The teacher becomes a leader with knowledge management functions which means that the teacher investigates which competences are present in the group of children and makes strategies of how to get these competences into play so that they become available to others. Some teachers organize the work deliberately to promote the cooperation between the pupils. Teacher A says:

“I have deliberately chosen to place them two by two – even though it might have been possible to gather enough computers for them to have one each – because they benefit from each other, the cooperation and… they use each other, both to gain ideas and to talk about what to write. But also more concrete, how to spell words.”

The experiences here suggest that the application of the computer at school
is an essential factor in the construction of other organization patterns and social relations. This is also evident in other studies (Sørensen, Jessen & Olesen 2002). Compared to the vertical relations between teacher and children in a traditional education, more horizontal relations between teacher and children in a digital media based education (Sørensen 2003) are evident. The experiences from the childrens’ use of computers in their leisure time suggest, as mentioned earlier, that agency is central to the children. The work with LAB appears to promote agency in a school context, which is clearly expressed in teacher C’s statement:

“When they work with the computer they work unsupervised and it stimulates their desire to work, they feel that they themselves are in control where, previously, others were in control of their lives. Here, they are able to have influence, right, I believe that this means a lot to them. This is exactly where all the weaker children are able to feel that… okay, I am also a part of this… and they grow with the challenge, no doubt. No one is on the backs and saying …you are stupid’.

The remaining part of the quotation is about the weaker pupils. More of the teachers have experienced a high interest among the linguistically weak pupils. They manage to produce visible results on LAB and they are concerned with the linguistic preparation of their texts.

LAB – also in leisure time

The study shows that when the children make categories for LABardy, take up Chain stories, and play different language games (Hangman and Odd Man Out), they also continue learning outside school at home. Children rarely reassume schoolwork at home unless it is homework dictated by the teacher. Teacher A states:

“I have never heard of any children who voluntarily take up homework. But I think it is cool that they bother continuing the schoolwork at home just to see whether they are able to score more points, right. I believe that this shows that the website addresses other aspects of those children and other aspects of learning which are important and do not clash with what they do in their spare time, right – and which they seek out themselves.”

Conclusion

The point of the development of LAB has thus been children’s use of foreign languages on the internet. In the development and construction of the website, the digitally based practice forms of children have been acknow-
ledged and children's productions of learning activities in foreign languages for other children is the main principle of the website. On the basis of the teacher-based empirical data, we draw the conclusion that the children are motivated by the LAB-work and that LAB is an element in the foreign language education that supports the acquisition of written proficiency within foreign languages. When the child-based empirical data have been collated it will prove whether the children share the teachers' view of LAB.

In addition to the goal of language acquisition, LAB also aims at aspects of intercultural learning. On the basis of the present teacher-based study, it has not been possible to make definite conclusions, which will not become apparent, until the conclusion of the child-based study and the second part of the teacher study is completed.

Digital media, the internet in particular, have moved society into a communicative complexity, which is qualitatively different than the complexity of previous society forms and which radically, expands our communicative horizon (Qvortrup 1998:29). This means that cultural exchanges and foreign languages have gained a prominent position in the everyday lives of children. This means that the methods and contents of foreign language education are challenged. Clearly, the foreign language education was previously a school domain but, today, informal learning takes place at the same time as the formal learning of the school through the digital media, which, to some children, play an essential role in their language acquisition. Media-based informal language acquisition is an essential element in the study of the character of further development of media-based education and teaching methods within foreign language education. Learning processes in the interplay between formal and informal learning environment seems to be essential in a future educational media perspective.

References


**Notes**

1 www.lab.emu.dk
2 The project is supported by the Danish Ministry of Education initiatives regarding development of IT and media in the Folkeskole through the project *ICT, Media and the Danish Folkeskole* (ITMF). In 2003, LAB received the European Cirus Language Award.
3 The teachers who have participated in the project are Jette Risgaard, Lise Olrik, Mette Storm Jeppesen, Lone Nielsen and Dorrit Werther. Ole Brockhus participates as computer programmer and Bente Meyer and Birgitte Holm Sørensen participate as researchers.
4 The study is financed by the EU and is based on 4700 replies from Danish, Swedish, Norwegian, Icelandic and Irish children between 9 and 16 years of age. In addition, 3200 parents have participated in a parallel investigation in Denmark, Sweden, Norway, and Iceland. The investigation started in September 2002 and will be finished mid 2004.
5 The elaboration of these concepts will be too extensive a task for this article, which is why Jensen 2000 is used as reference.
6 The definition used here is related to children’s use of the Internet. Communication is employed in another definition later in the article – in relation to intercultural communication.
7 Emoticon is a combination of emotion and icon, which covers a variation of expressions related to what is mediated, e.g. whether it should be understood ironically or with a sense of humour.
8 (http://www.lab.emu.dk)
Textbook Pedagogy: A Sociocultural Analysis

Introduction

Although textbook researchers have coined the phrase 'textbook pedagogy,' this notion has yet to be fully explicated and explored. The term may, however, be considered to refer to such factors as the ways that teachers use texts in the classroom, access to texts which creates a context for their use, as well as to text features and characteristics that may improve or constrain learning. This article attempts to explicate notions of textbook pedagogy through a sociocultural analysis of the mediated use of textbooks by teachers. A socio-cultural approach to learning, based on the work of Rogoff (1998), provides a way of theorizing this mediated use of texts. Rogoff’s cultural practice model considers learning to involve enculturation into the practices of particular communities. From the perspective of a textbook pedagogy, textbooks play a central role in the enculturation of students into the tenents, knowledge and practices of the various academic disciplines.

The sociocultural analysis of textbooks and their use can therefore be considered through examination of contextual factors and text characteristics. Contextual factors involve exploration of the way teachers mediate the use of textbooks in teaching and learning through processes of scaffolding and the creation of zones of proximal development.

Textual characteristics also influence the ways teachers enculturate students into academic disciplinary practices through scaffolded textbook use involving the creation of intersubjectivity and zones of Proximal Development (ZPDs). Additionally however, textual characteristics may afford or constrain student learning.

This paper attempts to explicate the notion of a textbook pedagogy through a sociocultural analysis of data obtained from previous and new textbook research (Horsley, 2001; Young and Horsley, 1995; and Lambert, 2002).

Textbook pedagogy

“Textbook pedagogy” is a term first used by Lambert (2002) in his discussion of research on the classroom use of textbooks and teaching and learning materials. Textbook pedagogy refers to the ways that teachers mediate the role of artifacts like textbooks, worksheets and teaching and learning materials through their use in teaching. The idea of textbook pedagogy has arisen through new research (Horsley and Lambert 2001; Lambert, 2002) on the classroom use of teaching and learning materials.
Most research about textbooks is either in the form of surveys of supply and expenditure, sometimes supported with questions about perceptions of textbook use, or is concerned with content and/or style analyses of the textbooks and teaching materials (Horsley, 2001; Horsley and Lambert, 2001). Simulated studies, where teachers demonstrate their possible use of teaching and learning materials in a laboratory style environment (Zahorik, 1990) are also limited. Textbooks and text resources, have for many years been studied as if they were inert artifacts, not used in interactive learning situations. The major research focus in textbook research (and in the literature) is content analysis, where inferences have been made about textbook uses and effects, through research on the content of the material in texts. Such an approach has been likened to “learning about driving behaviour by studying cars” (Horsley, 2001). As a result, little is known about the specific ways employed by teachers using textbooks and teaching resources with their students. It is known that this use is heavily influenced by the culture of the school, and the culture of the classroom, and the organisational structures (i.e, departments) in which the teachers work (Lambert, 2002). Publishers in particular, though producing for classroom markets and conducting market research, have had little access to the real functional in class use of teaching and learning materials and the meaning made of them by teachers and pupils.

Very little research into the use of textbooks has been based on observation of teachers selecting textbooks and teaching materials and using them with their students in their classrooms. Very few studies have explored how students use teaching and learning materials (together or independently) to learn. Despite the fact that much teaching and learning material used in classrooms is photocopied, (Horsley, 2002) little research has been undertaken to analyse how teachers select, copy and use such materials in their teaching, and what influences their choices in approaching developing teaching and learning materials. In particular, observation research requires researchers who are sensitive to the ways teachers and classrooms operate and can interpret the behaviour of students and teachers sensitively and analytically.

This article will apply sociocultural perspectives to the way that teachers resource their teaching and learning. In doing so, it will conceptualise more fully the role that teacher mediation plays in the use of textbooks and teaching and learning materials.

Such research may help clarify how the mediated role of textbooks, within learning environments, support learning. This analysis will use existing and new classroom research on the use of textbooks and teaching materials undertaken by the Teaching Resources and Textbook Research Unit (TRE-
AT) at the University of Sydney, and by University of London Institute of Education. This research has identified a number of crucial results from classroom based observation. The idea of textbook pedagogy has arisen from this research into the way textbooks are used in teaching and learning, in particular:

- in what ways does textbook provision and mediation - in both qualitative and quantitative terms - impact on teaching and learning?
- in what ways do the characteristics of the teacher-text-student interface – that is, the nature of classroom dynamics in relation to the textbooks and the way they are used impact on teaching and learning?

This paper will also report on recent research into the photocopying behaviour of teachers, undertaken using data from classroom observation studies and examinations of school copying records collected by Australia’s Copyright Agency Limited.

**Textbook pedagogy and pedagogical knowledge**

Following Shulman (1987), it is now widely accepted that teachers develop 'pedagogical content knowledge’. This is the specialised professional knowledge that teachers use to interpret the students prior learning, the concepts that students will find difficult, the most appropriate teaching strategies and the resources most useful in teaching. Pedagogical content knowledge arises from the teachers need to represent and teach their subject to children. It consists of three main components: knowledge of the subject matter, knowledge about students and their characteristics and thirdly, knowledge of the school, community and classroom contexts in which the learning takes place. Pedagogical content knowledge inevitably embodies, invokes and focuses on ‘those aspects of the subject that are most germane to its teachability’ (Shulman 1987). This knowledge includes the most regularly taught topics, the most useful forms of representation, most successful analogies, demonstrations, examples and illustrations, and the ways of making the subject familiar and understandable to others (that is, the students). Thus, pedagogical content knowledge can be learned and is often passed on within a professional community such as that which exists in a school subject department. Though teaching can appear to be highly individualised therefore, the strength of the school or departmental culture can be so powerful that (in our view) professional knowledge is sometimes shaped significantly by received wisdom and observed practice. New teachers often feel most comfortable teaching what has been taught before, using 'authorised' methods. An important aspect of pedagogical content knowledge is that it is a representation of the subject discipline culture of the classroom. Teachers
develop varied pedagogical content knowledge and use teaching resources in varied ways. Teachers seem to differ significantly in the value they place on their own disciplinary knowledge in shaping their pedagogic knowledge. As a result, some studies have shown that teacher lesson and program planning is heavily dependent on the resources they have to hand and choose to use. For some teachers, both novices and their more experienced mentors, the textbook is the representation of the subject – even if texts are not used directly in the classroom, as the study of photocopying will show – textbooks and teaching materials delimit the essential subject matter.

Alverman (1987) observed science teachers and how they used textbooks in discussions. Hinchman (1987) observed textbook use by three teachers through observation and interviews. She concluded that teachers exhibited three different types of textbook use; methodological coverage, textbooks as an information source, and reference use in higher level class discussions. Lambert’s (1999) work resulted in a different – though clearly related – threefold division of the ways textbooks are used by teachers: as coursebooks structuring the ’scheme of work’ (’coverage’), as a means of motivating or stimulating learning (more than merely a source of information) and as a teacher support (acknowledgement that textbooks can play a part in effective classroom management and organisation). Some recent work by Horsley (2001) confirms the suggestion that teachers use textbooks to support their professional needs and inform and shape their pedagogical content knowledge. Again, this happens in different ways depending on whether the need is to provide informational or instructional resources for learning, sources of student activities and tasks, or whether there is a pressing need to find ways of occupying (’engaging’) the pupils. These issues are taken up in the research discussed later in the paper.

Given their importance it would be expected that the role and function of textbooks in teacher education and classroom learning would be significantly researched. However, there is a surprising lack of attention paid by teacher educators and trainers to how novice teachers are inducted into the use of textbooks, and their wider role in interpreting the curriculum and shaping pedagogy. The triangular relationship between pupil-teacher-text/teaching and learning materials is not really featured during teacher training. Though there is significant research on the (Chalmers and Calfee, 2000) optimal design of school textbooks, identifying comprehensibility, curriculum and instruction as their basic template for analysis, they do not link this to wider questions of teaching and learning – for example the design of lessons. However, they stop short of theorizing ’textbook pedagogy.’ Such a textbook pedagogy would indicate how, for example, may teachers use textbooks more ’effectively’ with pupils? To what extent is ’effecti-
Sociocultural theories

Sociocultural theories in education have their origins in the work of Vygotsky and his colleagues. Sociocultural theories emphasise the social nature of learning and thinking, the embeddedness of learning and thinking in social, cultural and historical contexts, as well as the distribution of learning and thinking across other persons, resources and artifacts. Sociocultural researchers concerned with school learning have explored student learning in collaborative contexts (Rogoff, 1998) and in classroom communities of learners (for instance, Brown, 1997). Socio-cultural theory and research provides an important body of knowledge for textbook researchers to use to analyse classroom based observations and mediated use of teaching and learning resources and artifacts.

There has been considerable recognition of the importance of sociocultural perspectives for understanding student learning in schools. While there are many sociocultural theories which derive from the initial work of the Russian psychologist Lev Vygotsky (for instance Rogoff, 1998; Greeno & The Middle-School Mathematics Through Applications Project Group, 1998; Engestrom, 1987), all share the following assumptions (John-Steiner & Mann, 1996): learning and cognitive development are considered to be fundamentally social and to have their origins in social processes; language and other symbol systems are considered to play a central role in learning and cognitive development; learning and cognitive development need to be considered in the historical context of the individual’s own activities, as well as those of the community and culture more generally. Although sharing these common assumptions, some sociocultural researchers have emphasised the view that learning and cognitive development involve participation in, and enculturation into, the cultural practices of various communities (Rogoff, 1998), while others have focussed their attention on the aspects...
of the environment (Greeno & The Middle-School Mathematics Through Applications Project Group, 1998) that can facilitate or support learning and cognitive development, or alternatively constrain or limit these processes. Yet other researchers have developed sociocultural understanding of the activity systems (Engestrom, 1987) within which human beings learn, work, and otherwise conduct their affairs.

A central notion in the sociocultural approach which links learning and cognitive development, and which has therefore been of significance to educators, is that of the Zone of Proximal Development (ZPD). This notion is also important in that it provides a sociocultural explanation of the way in which processes which exist at a social level are transformed so that they become individual processes and attributes. The zone of proximal development has been defined (Vygotsky, 1978) as "the distance between the actual developmental level as determined through problem solving under adult guidance or in collaboration with more capable peers" (p. 86). Vygotsky and subsequent sociocultural theorists consider that it is through the creation of zones of proximal development that learners become able to successfully engage in activities, with the assistance of more capable others, that they are unable to complete successfully by themselves. The cognitive scaffolding provided by more capable others when zones of proximal development are created allows learners to internalise or appropriate higher order thinking skills, such as problem solving and self-regulation.

For textbook researchers, the process of the internalising of thinking in the zone of proximal development is assisted by the mediating role played by cultural artifacts and tools. These tools which may range in scope from symbol systems such as reading and writing, to the use of textbooks and computer programs (Wiley, 2003). Textbooks, worksheets and teaching and learning materials are cultural artifacts and tools that may provide scaffolding and cognitive structuring for learners as they engage in activities for which they are developing competence and skill. In effective teaching such tools and artifacts are mediated in their use in the zone of proximal development by more capable others, such as teachers and other students, who scaffold the appropriate use of the materials in learning.

It is in the Zone of Proximal Development that learning occurs, according to Vygotsky (1978), and it is in this zone that learning contributes to, and leads development. This is in contrast to what Vygotsky referred to as the Zone of Actual Development (ZAD). The Zone of Actual Development refers to what students can do alone and unassisted. When skills learned in the Zone of Proximal Development have been fully mastered they become part of the Zone of Actual Development and no longer contribute to development. Therefore, when teachers assign tasks and students are able to
complete them without assistance, the tasks are within the students’ Zone of Actual Development and the skills required have already been mastered. From the perspective of textbooks, when students use textbooks in the absence of mediation by the teacher, or other students, they are operating in the Zone of Actual Development.

Two major sociocultural theories will be used in this paper to further develop the notion of textbook pedagogy and the mediated use of textbooks by teachers: the cultural practice approach of Rogoff (1998, 1994) and colleagues (Rogoff, Matusov & White, 1996) and the extension to the zone of proximal development by Valsiner (1987; 1997). Although these two theoretical approaches are quite distinct, key notions from both theories can profitably be applied to the understanding of the mediated use of textbooks by teachers.

The cultural practice approach (Rogoff, 1998; 1994), has extended upon Vygotsky’s initial ideas concerning the zone of proximal development through understanding of the way in which individuals become established members of a community of practice. The term ‘community of practice’ refers to a sociocultural group that collaborates to achieve shared goals through particular practices and activities. Although these practices might vary considerably between different communities, such as the practices of various professional communities and those of lifestyle communities like surfers and motorcyclists, they are highly valued by their members and they provide the context (Miller & Goodnow, 1995) in which human learning and development takes place. The members of such communities vary greatly in their mastery of community practices, however the community provides the context in which the more established members assist the less established in their mastery of community practices through joint involvement and collaboration. As individuals are enculturated into the practices of a community their identity undergoes change (Rogoff, 1998) and they may likewise contribute to change in community practices. Schools and the classrooms within them constitute a particular kind of community of practice, often called a community of learners (Brown & Campione, 1994). In these communities of practice students are enculturated into academic practices in general, as well as the practices of specific academic disciplines. Textbooks and teaching and learning materials play an important role in these enculturation processes. They also provide the basis for much teacher-student interaction and collaborative student activity in the culture of the classroom.

The notion of the zone of proximal development has also been reconstructed and extended in the work of Valsiner (1987; 1997) and applied by other researchers (for example, Pressick-Kilborn and Walker, 2002). While
Valsiner (1997) uses the notion of the Zone of Proximal Development, the concept is reconstructed with the aim of relating it to two new zones of learning and development: the Zone of Free Movement (ZFM) and the Zone of Promoted Action (ZPA). Essentially these two new zones are concerned with the constraints and affordances for learning and development which operate in the present moment. The Zone of Free Movement (ZFM) notion explains the impact of constraints or limitations on learning and development while the Zone of Promoted Action explains the promotion of learning and development. All three zones are considered by Valsiner to be socially constructed and all are interlinked, however, the two new zones are concerned with the present moment while the zone of proximal development is concerned with near future possibilities. Thus, the promotion of learning in the Zone of Promoted Action (ZPA) and the constraints on learning posed in the Zone of Free Movement (ZFM), provide the possibilities for learning and action which become actualized in the zone of proximal development.

From the perspectives of textbooks and their use by teachers, Valsiner’s system of zones provides a way of considering the affordances or benefits of texts as well as their limitations or constraints. Textbooks can therefore be considered as tools which both promote and constrain learning and which provide important possibilities for learning in the zone of proximal development. As will be shown later in the article teachers can use texts in ways which promote (or constrain) learning, and there are aspects of textbook design and presentation which impact on the mediated use of texts by teachers. The use of the textbook by the teacher, or textbook pedagogy, determines the extent to which learning from text is promoted or constrained.

**Textbook pedagogy: A sociocultural analysis**

In this section of the article sociocultural theories are applied to the analysis of the notion of textbook pedagogy. Two main lines of analysis are presented: firstly it is argued that changing conceptions of the nature and role of textbooks are very much in accord with a sociocultural perspective on textbooks, and secondly the mediated use of textbooks by teachers is further considered for the perspective of sociocultural theory. This analysis is conducted through two empirical studies: an analysis of teacher photocopying behaviour and an analysis of Copyright Agency Limited (CAL) school photocopying records.

In relation to the first line of analysis, textbooks, once seen as vehicles for transmitting knowledge, are from this perspective seen in a very different light. Whereas previously they provided information and congruent activities, nowadays textbooks are increasingly conceptualised as provi-
oping opportunities for students to construct understanding in interaction with complex multi-modal knowledge sources. Textbooks are also, as indicated in the first sections of the article, increasingly considered representations of the ways of learning in discipline areas. As such they enculturate learners into these disciplinary areas and into the practices of the discipline. Additionally their increased pedagogical complexity allows them to be used for the joint construction of meaning in collaborative activity, rather than as the basis for individual learning.

This new conception of textbooks is contrasted with the traditional conception in the Table 1.

Table 1 Changing conceptions of textbooks

<table>
<thead>
<tr>
<th>Roles</th>
<th>Transmission</th>
<th>Constructivist</th>
<th>Sociocultural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching and learning materials e.g. textbooks</td>
<td>Source of information Basis of transmission Structure of a teaching and learning program</td>
<td>Activity and inquiry source. Provision of multiple sources for students and teacher selection</td>
<td>Scaffold learning. Enculturate student into knowledge domain. Source of inquiry activities Basis of explicit teaching</td>
</tr>
<tr>
<td>Student</td>
<td>Passive recipient of Information provided in teaching and learning materials and by teacher</td>
<td>Active agent in inquiry activities</td>
<td>Uses text in collaboration with other students. Engages in authentic activities of disciplinary communities</td>
</tr>
<tr>
<td>Teacher</td>
<td>Authority in knowledge domain, Dissemination of appropriate knowledge</td>
<td>Creates environments for active learning and inquiry</td>
<td>Collaborative participant in enculturation process. Uses text to create intersubjectivity, establish common student goals, Identifies and utilises texts to create ZPD for students. Uses materials to enculturate students into key disciplinary understandings.</td>
</tr>
</tbody>
</table>

In relation to the second line of analysis, theoretical concepts from sociocultural theory in general as well as the work of Rogoff and Valsiner, previously outlined, are used to examine how teachers use textbooks in their teaching. Sociocultural notions like the ZPD, ZPA and ZFM are used to
provide an understanding of the extent to which the mediated use of textbooks by teachers is likely to lead to learning and development. The article now considers the mediated use of textbooks by teachers as exemplified in two empirical studies:

**Study 1 Pilot Observation Study of Teacher Photocopying Behaviour**

10 lessons of seven newly qualified teachers within the first three months of commencing their teaching careers were observed. The purpose of the observation was to identify how these teachers resourced their teaching and learning. In this context resourcing refers to the knowledge sources and printed teaching material the teacher planned to use in the lesson and was provided to their students. In this context resourcing also means the source of classroom tasks and activities, and any other teaching and learning resources to be used in the lesson by teacher and students. Earlier studies conducted by TREAT used a textbook observation schedule termed TEXTOR to explore how teachers and students use textbooks and teaching resources in the classroom. The original TEXTOR schedule sought to identify

- the details and condition of the materials being used (a)
- the length of time taken to issue and collect texts (b)
- how the student gained access to texts (c)
- the length of time texts were used in teaching and learning (d)
- whether pre-reading or activation and assessment of prior learning took place (e)
- how did students read the text (f)
- what tasks were set by the teacher (g)
- were the texts to be used for homework (h)
- how did the students use the text in the classroom (i)
- what was the teachers purpose for using the texts in class (j)

In this study, only items a (the details and condition of the materials being used), c (how the student gained access to texts) and j (what was the teachers purpose for using the texts in class) were observed and analysed in two schools over a one week period in the 10 lessons.

In the 10 lessons observed the 7 teachers handed out photocopied sheets (handouts) in 8 (80%) of the lessons. In two of the lessons overhead projections of the handouts by the teacher accompanied student use of the photocopied handouts.
The 7 teachers handed out 532 photocopied pages in the lessons observed. Since the 10 lessons contained 207 students, teachers hand out approximately 2.5 pages per student per lesson. This figure of 2.5 photocopied pages per lesson correlates with two other TREAT studies on photocopying handouts in lessons. Horsley, (1994) in a study of an expert teachers use of textbooks concluded that expert teachers tended to hand out specially prepared photocopied lesson notes and activities (2.5 pages per student per lesson). A yet to be published 2001 TREAT study on how final year practicum students resourced their teaching and learning in their classrooms also calculated a 2.5 pages per student per lesson figure. In one of the lessons where no photocopied handouts were used the teacher used textbooks from a book room to resource teaching and learning. In only one of the lessons observed were paper resources not employed – in this lesson students completed a role play in a drama lesson. The conclusion to be drawn from this analysis is that in Australia teachers spend considerable time and energy in locating, selecting and preparing resources for their lessons.

**Use of Photocopied texts**

In 3 (30 %) of the lessons observed teachers used photocopied textbooks. The textbooks were either not available due to funding constraints (1 lesson), or were compilations from different texts. In one lesson knowledge from an old text was updated and added to and the photocopied handouts reflected multiple texts. In these three lessons the teachers and students used the materials as both sources of knowledge and as sources for class activities and problems. Typically these lessons proceeded with the teacher introducing and previewing the material to be covered with the students. Students then read the material silently or aloud around the classroom. Discussion ensued to highlight key concepts, discuss important ideas and then students completed tasks set out in the materials. When asked why they choose and prepared these teaching resources teachers indicated that they “sought to provide the appropriate knowledge and activities for the curriculum and its outcomes and the students’ age and stage level, their abilities and interests.” Deeper analysis showed the photocopied textbooks were mediated by the teacher’s intended use. In the lesson where the photocopies were made of an existing text due to funding constraints the teacher’s decision did not reflect the ZPD. The material was chosen and photocopied to provide problems and activities for students to work on unassisted (ZAD). In the other lessons the teachers obtained a wide variety of resources, based on their pedagogical knowledge of the students, and used them in various ways to create ZPD’s. For instance, one teacher used text photocopies as a basis for scaffolded discussion.
**Teacher Prepared Sheets and Handouts**

In five of the lessons observed, lessons were resourced by teachers who prepared their own teachers notes and handouts for their students. These notes can be categorised into distinctive types.

**Multiple Knowledge Sources**

In one of the lessons observed a History teacher prepared photocopied sheets which consisted of multiple knowledge sources, charts, diagrams, pictures, source documents and illustrations. These were collated from a number of textbooks and selected to provide the material that the teacher could construct ZPD for the class in teaching this particular topic. For example, the teacher created a collage of sources that the students investigated in collaborative groups.

**Tasks and activities**

In one of the lessons observed the teacher produced a photocopied sheet of tasks and activities for the students in her class. Students had access to textbooks and knowledge sources but the teacher regarded the tasks and activities in the textbook as too difficult and as not meeting the learning needs of her students. So new tasks and activities were produced and distributed, in addition these activities had a greater literacy focus than those in the textbook available. These tasks and the teachers’ use of them reflect more the idea of the Zone of Promoted Action. Rather than use tasks too difficult, beyond the ZPD, the teacher photocopied new and challenging tasks which were within the students’ zones of proximal development.

**Teacher prepared text**

In two of the lessons teachers prepared their own text based on their research of the topic to be copied with their class. In both cases schools had not purchased new textbooks for the students and the teachers were not prepared to use old textbooks with old knowledge. In both cases the teachers used new textbooks and internet sources to construct teaching notes with activities for the students and the lesson. These were photocopied and distributed to each individual student. The preparation of these lesson resources was an attempt by the teachers to construct ZPD for the students in the class.

**Illustrative Material**

In this lesson the teacher compiled and produced a collage of illustrative material for the students. These types of illustrative material have been observed in many lessons mostly in Art and History. Teachers photocopy a
range of source documents or artworks produce a mini anthology, and use this in their explanations of principles and processes that they wish to highlight and reinforce for their students. Many of these illustrative collages are compiled and prepared by gaining access to multiple knowledge sources such as the full range of textbooks on the topic supplemented by other reference material, sometimes even from the teachers prior university subject study. One study of expert teachers use of textbooks showed that expert teachers often resource their teaching and learning in this way, in an attempt to develop a ZPD for the students.

**Study 2 An analysis of Copyright Agency Limited (CAL) school photocopying records**

It is often ignored that teachers, librarians, head teachers and senior teachers such as principals select teaching and learning resources that are used by students in classes. Indeed the planning of instruction and location of suitable resources are one of the main functions of teachers.

Each year CAL commissions an independent copyright survey in 120 schools in three states in Australia. The survey is representative of urban and rural, private and government schools and is conducted throughout the entire year. In 2001 the survey showed that on average 243 pages per primary student and 203 pages were copied – 76% from books (mostly textbooks). (Other and artistic works making up 17 %) These records are used to assign the funds that are collected by CAL to the authors and publishers of the photocopied works (expected to be almost 16 million AUD in 2002). There is some evidence that the CAL surveys under-represent the amount of photocopying conducted in Australia’s 10000 schools. Studies undertaken by Horsley (1994, 2002), from very small samples showed that typically teachers copy 2 pages per student per lesson. Nevertheless the photocopying data collected by CAL provide a rich source of data on the selection and use of resources in teaching and learning.

During 1998 CAL undertook legal action to increase the amount of funds received per photocopied page under the Copyright Act to reflect the increased costs of publishing educational materials. In preparation for this action individual school and textbook title records were accessed from the 1997-98 surveying period. The most commonly copied pages from school textbooks were identified from this research.

The table below shows the 5 most commonly photocopied textbooks from the CAL survey conducted in schools. (The study analysed the 50 most commonly photocopied textbooks). For example the most commonly photocopied text in the 1997 schools survey was Heinemann’s Observational Survey of Early Literacy Achievement. 44 schools photocopied this book, and 3451 copies of pages were made. Further research established
the most photocopied pages in these commonly photocopied textbooks. Based on this information almost 20,000 AUD was distributed to the authors and publishers of this work alone.

Table 2 The Five Most Commonly Photocopied Textbooks

<table>
<thead>
<tr>
<th>Total Pages Copied</th>
<th>Instances</th>
<th>Title of Text</th>
<th>Publisher</th>
</tr>
</thead>
<tbody>
<tr>
<td>3451</td>
<td>44</td>
<td>Heinemann</td>
<td>Heinemann</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Observational Survey of Early Literacy Achievement</td>
<td></td>
</tr>
<tr>
<td>3028</td>
<td>115</td>
<td>Signpost Maths 6</td>
<td>Pascal Press</td>
</tr>
<tr>
<td>2667</td>
<td>37</td>
<td>Mission 2000: Daily Meditations</td>
<td>Tabor Publishing</td>
</tr>
<tr>
<td>2634</td>
<td>81</td>
<td>8 Plus Maths</td>
<td>Longman Cheshire</td>
</tr>
<tr>
<td>2605</td>
<td>69</td>
<td>7 Plus Maths</td>
<td>Longman Cheshire</td>
</tr>
</tbody>
</table>

The 50 most photocopied textbooks from 1997 were analysed by school level (primary/secondary) and subject area. The photocopied pages and books were subject to content analysis to determine whether they consisted of tasks and activities for students

- knowledge to be used as the basis for teaching
- knowledge and tasks together
- assessment instruments to measure student outcomes
- teaching and learning support such as homework contracts or forms
- teacher resource materials such as guidebooks on teaching

The Table showing this analysis is provided below.

Secondary 16 Books

<table>
<thead>
<tr>
<th>Subject</th>
<th>Total Activities/ Tasks</th>
<th>Knowledge</th>
<th>Assessment</th>
<th>Teacher Support</th>
<th>Teacher Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>10</td>
<td>9</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Maths</td>
<td>8</td>
<td>7</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Science</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOTE</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

Primary 34 Books

<table>
<thead>
<tr>
<th>Subject</th>
<th>Total Activities/ Tasks</th>
<th>Knowledge</th>
<th>Assessment</th>
<th>Teacher Support</th>
<th>Teacher Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>17</td>
<td>10</td>
<td>4</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Maths</td>
<td>8</td>
<td>7</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Science</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>LOTE</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Contracts</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>
The photocopying data showed that for the most copied 50 titles, the majority were primary titles. This may reflect the situation existing in New South Wales where primary Government and Non-Government schools are not allocated funds specifically for teaching and learning materials. The majority of the copying of these titles were class sets of photocopied pages. The class sets were mostly activities and tasks for lessons, and possibly for homework. The majority of photocopies reflect teachers providing resources for student unassisted work (the ZAD). Further analysis of the pages copied indicate that some copying was undertaken to provide knowledge (descriptive or expository text), some to be used in instruction, and some to be used in such activities as collaborative learning (ZPD) for students in classes. Smaller amounts of photocopying reflected teacher need for reference materials about teaching topics, new content or updating teaching methodology. Much primary photocopying was undertaken due to resource constraints.

There were significant differences in the characteristics of primary and secondary photocopying. There were major differences in subject areas (mathematics dominated primary and English secondary). As well there were major differences in the purposes and types of photocopying. A significant proportion of secondary photocopying was related to developing resources for creating classroom learning environments and ZPD, especially in English. Over 30% of secondary copying was of a teacher support and development nature, much fewer activities of ZAD type material was photocopied.

One of the major findings of classroom observation research on the use of teaching and learning materials in the classroom is that teachers mediate the use of teaching and learning materials. The argument used in this paper is that teachers utilize a textbook pedagogy that accords with how they perceive and use teaching and learning materials in the classroom. As a result the large scale photocopying study of the pages copied was followed up by small scale observational and interview research. Four teachers (two primary and two secondary) identified by the photocopying survey and known to the authors were contacted. They were interviewed and their use of the photocopies in their classrooms were analysed.

One of the secondary teachers taught Italian and used photocopies from *Avanti*, the twenty seventh most photocopied title from the study. This teacher had a textbook available (not *Avanti*) for use with her class but photocopied pages 81, 106 and 107 from *Avanti* for her students. In using page 106 she argued that the activities in *Avanti* for this outcome better suited the ability and interests of her class, creating a zone of promoted action in selecting activities and tasks to be used. In using page 107 she created a ZPD around role play activity and conversation that the diagram in *Avanti* provided for the lesson. The teacher conceded though in one class in previous
years she had used page 107 for unassisted student activity (ZAD). In this way the teacher mediated the way that teaching and learning materials were used.

Two of the primary teachers interviewed used the same photocopied pages (page 83 in Signpost Maths 6) in different ways. One teacher (A) photocopied a class set of the page and distributed the page to students for homework. This use reflected the ZAD approach that this teacher used in much of her mathematics teaching. The teacher typically conducted mathematics lessons by demonstrating to students how to complete a mathematical problem and then set seatwork and tasks where students could practice individual solutions to the problems. Much of her photocopying was to provide homework and activities in the ZAD. The other teacher (B) used this page in a different way, using the photocopies as the basis of a ZPD based around collaborative problem solution. She also photocopied a class set of the page but made on overhead projection of the page and worked with the class to jointly construct an answer to problem 1, thus creating a ZPD. Then students worked in groups to complete some of the other problems (ZPD). Tasks not finished in class were then assigned for homework.

This analysis accords with the textbook analysis undertaken as part of the TIMMS (international benchmark analysis of mathematics and science achievement). Video analysis of 87 lessons worldwide showed that in mathematics classrooms and lessons At least 90 per cent of lessons made use of a textbook or worksheet of some kind. This research also hypothesized that typical Australian mathematics lessons conform to the lesson pattern described in the classroom of teacher (A). The photocopying records reported in this research (in the predominance of activities and tasks) also lend support to the TIMMS conclusions about typical mathematics lessons in Australia.

**Competing Theories in the Role of Teaching and Learning Resources: The Rise of Learning Objects**

The explication of sociocultural theory and its implication for the analysis of the role of textbooks and teaching and learning resources has occupied the paper so far. However, a new competing theory on the roles of textbooks and teaching and learning materials has arisen from computing studies and e-learning education (Wiley, 2003). This section of the paper will briefly describe “learning objects” and draw comparisons and contrasts with the traditional textbook and teaching and learning resources.
Learning objects have been described in a number of ways

• "modular digital resources, uniquely identified and metatagged, that can be used to support learning." (National Learning Infrastructure Initiative)
• "any digital resource that can be reused to support learning" — David A. Wiley, "Connecting Learning Objects to Instructional Design Theory" The main idea of 'learning objects' is to break educational content down into small chunks that can be reused in various learning environments, in the spirit of object-oriented programming" — David A. Wiley
• "[A]ny entity, digital or non-digital, which can be used, re-used or referenced during technology supported learning” — Learning Object Metadata Working Group of the IEEE Learning Technology Standards Committee (LTSC)

In some views learning objects are seen as a new way of thinking about learning content and teaching and learning resources. Traditionally, the content of lessons and programs of study are presented in time periods ranging from 30 minutes to two hours. Learning objects are described as teaching resources, incorporating subject matter that are much smaller units of learning, typically ranging from 2 minutes to 15 minutes. In addition learning objects or re-usable learning objects are

• Are self-contained – each learning object can be taken independently
• Are reusable – a single learning object may be used in multiple contexts for multiple purposes
• Can be aggregated – learning objects can be grouped into larger collections of content, including traditional course structures
• Are tagged with metadata – every learning object has descriptive information allowing it to be easily found by a search

Learning objects are an attempt by online e-learning developers to supplant and replace textbooks. Unless learning objects are developed to have the following characteristics, it is likely the costs of e-learning environments will continue to be exhorbitant, restricting the use of e-learning. Learning objects are seen to be a mechanism for connecting online learning resources with detailed course objectives.

Flexibility. If material is designed to be used in multiple contexts, it can be reused much more easily than material that has to be rewritten for each new context. It’s much harder to uncouple an object from the context of its parent course and then recontextualize it than it is to contextualize as part of design and development.
Ease of updates, searches, and content management. Metadata tags facilitate rapid updating, searching, and management of content by filtering and selecting only the relevant content for a given purpose.

Customization. When individual or organizational needs require customization of content, the learning object approach facilitates a just-in-time approach to customization. Modular learning objects maximize the potential of software that personalizes content by permitting the delivery and recombination of material at the level of granularity desired.

Interoperability. The object approach allows organizations to set specifications regarding the design, development, and presentation of learning objects based on organizational needs, while retaining interoperability with other learning systems and contexts.

Facilitation of competency-based learning. Competency-based approaches to learning focus on the intersection of skills, knowledge, and attitudes within the rubric of core competency models rather than the course model. While this approach has gained a great deal of interest among employers and educators, a perennial challenge in implementing competency-based learning is the lack of appropriate content that is sufficiently modular to be truly adaptive. The tagging of granular learning objects allow for an adaptive competency-based approach by matching object metadata with individual competency gaps.

Increased value of content. From a business standpoint, the value of content is increased every time it is reused. This is reflected not only in the costs saved by avoiding new design and development time, but also in the possibility of selling content objects or providing them to partners in more than one context. (Longmire, 2002)

More funds are to be allocated to the development of learning objects in the next three years in Australia, England and the United States than for the purchase of textbooks in the last five years. In the view of proponents of learning objects textbooks are the old way of resource sharing. From the e-learning perspective textbooks can not be customized for individuals, they are difficult to link with other resources. According to Downes (2003) The vast majority of course syllabi require that students obtain more than one textbook. Courses frequently use only parts of textbooks; entire chapters are omitted as being beyond the scope and purpose of the course. Moreover, students frequently use parts of books (or parts of journals) in their research and reading. That’s why most university libraries come equipped with photocopiers… A ”description” of the sine wave – or an account of the Holocaust, or a reading of Hamlet – becomes ”a piece of learning material” when it becomes able to meet a ”learning objective.” Of course by ’description of a sine wave’ we refer to more than merely a page or two of
text plus an illustration. That’s not what happens in the classroom; students are given a variety of examples, asked to calculate their own examples, are tested on their understanding, etc. A better phrasing, perhaps, is a ‘lesson on sine wave functions’… While today most guides and references discuss online course authoring, the proper reference point is the authoring of learning objects, where a learning object is an element of a course as described above. As we have seen, a learning object may be one of any number of items: a map, a web page, an interactive application, an online video – any element that might be contained inside a course.

In this way learning objects are seen as becoming vastly superior to textbook presentations, as textbooks disappear into the e-learning trash compactor.

**Context strategies**

Proponents of learning objects such as Wiley (2003) have advanced a number of ways to enable contextualization of learning objects, depending on the systems and technologies available and on the extent to which the learning content needs to be adapted to individual needs. Following are some possible approaches.

**Tailored wrappers.** Context wrappers consist of information that is associated with a learning object. One object can have multiple wrappers, each providing a different way of contextualizing the object. In a learning environment, an instructional designer might generate multiple context wrappers (some using audience-specific data). When a learner accesses the RLO, the context of the object will be a function of the correlation between learner attributes and content object attributes (described with metadata tags).

**Tailored context frames.** As noted earlier, ideal RLO content is not addressed to one small audience. However, on the level of context, an object can be personalized with such techniques as humor, visual or linguistic themes, or explanations that relate it to a specific body of knowledge. Object framing and instructional activities can be specific to an organization or group of people, as long as they can be divorced from the object. Context frames can be designed to match learner profile characteristics such as interests, needs, level, knowledge, and performance gaps.

**Adding context links to objects.** If a development environment allows for editing of learning objects themselves (not just metadata wrappers or context frames), then links can be added to the learning object that point to outside context. This way, developers may spend very little time changing the object and provide links to context that the learner can choose to follow or not. The linked context can be updated and can provide context for multiple objects.
**Pattern templates.** Pattern templates provide a data structure based on metadata attributes defined by users. For learners (and instructional designers), these templates provide opportunities to contextualize information in a variety of meaningful ways according to variables defined by users. One application of pattern templates is the use of competency models to contextualize learning objects in relation to abilities, knowledge, and attributes of excellent performers in an organization (a performance-based approach to using learning objects). (Longmire, 2002)

In the jargon of learning object proponents “Whatever development environment and tools are used, sound instructional design will remain important both for customized development and for template-based development. The combination of thoughtful planning with intelligent deployment of advanced authoring tools will result in myriad benefits for both content producers and learners. The most successful learning object delivery systems will be able to provide not only learning object content, but relevant and meaningful context, as well.”

Learning objects are designed to be teacher free. And in the tradition of e-learning enthusiasts they are described as be able to meet the learning needs of individuals rather than groups of students. Currently e-learning discussion, government funding for ICT and new metatagging standards are based around the development of learning objects.

**Learning Object Critique**

From the point of view of textbook pedagogy and the sociocultural mediation of textbooks by teachers however, there are a number of problems with this notion of learning objects. Firstly, they ignore the sociocultural context in which learning is to take place. Secondly, they assume that all learners are at the same learning level. Thirdly and most importantly, the analysis of textbook selection, and use by teachers presented earlier in this paper strongly suggests that teachers may not use learning objects to create Zones of Proximal Development and thus produce effective learning and development. The analysis of the photocopied materials presented earlier indicated that many teachers resource learning within the students’ zone of actual development and this is likely to also be the case with the use of learning objects in e-learning environments by teachers. In addition, because learning objects have a universalised quality (and are metatagged in this way), they will not be able to be used by teachers to promote learning in the ZPA in the way that textbooks can be used. This aspect of instructional design has yet to be understood by the designers of learning objects.

An additional critique of learning objects from a sociocultural perspective is that these objects merely transmit information through text and anima-
tion and thus are primarily concerned with the transmission of knowledge rather than the construction of meaning by students. Further more as they lack a truly interactive dimension they do not enculturate students into general academic and specific disciplinary practices.

In some ways some of the illustrations and pedagogic devices in textbooks and teaching and learning materials are indistinguishable from learning objects that have been used to generate funding. The most commonly used diagram in textbooks, Pythagoras triangle has been used almost without change in textbooks for almost 500 years. Even though the world wide web and online environments have added to the diagram, made it interactive and provided interactive simulations of it; the diagram must be understood by a student as prior learning otherwise all the online resources about Pythagoras’s triangle have no meaning.

Critics of learning objects have concluded that the term itself is meaningless and undervalues current educational practices. Two further worrying issues also concern learning object critics; research on current e-learning resources highlight the lack of orientation and context as the main weakness in this approach to supporting learning and photocopying of print by students in online learning environments is as least as prevalent as in non e-learning environments. Despite this, learning object approaches have been adopted by governments eager to provide online learning environments that are hypothesized to replace textbook and print in the near future.

**References**


Dancing with and without Gender – Reflections on Gender, Textbooks and Textbook Research

**Introduction**

Although the Nordic countries over the last 40 years have developed women’s studies, gender research, and, more recently, men’s studies using various theories and methodologies, such gender perspectives are rarely reflected in textbooks and even less used in textbook research. Also, in the so-called Western countries – i.e. Europe and the USA – gender perspectives in textbooks and textbook research are rarely reflected upon and depend on relatively fragmented and autonomous environments. In the Baltic countries, the former Soviet Union, and the Central and South Eastern Europe there has been some awareness of gender matters in textbooks and textbook research (Kalmus 2003, Magno et al. 2003). I have given my article the title "Dancing with and without Gender", because the aim of the article is to inspire textbook researchers to analyse textbooks with gender perspectives emphasizing the blind gender spots in the textbooks used in schools and higher education.

The article is divided into three sections corresponding to the varieties of gender research in general across the countries named above. The three sections consist of gender as category, gender as construction, and gender as deconstruction. Gender as category is the most widespread in textbook research. Through quantitative and qualitative analyses of gender, the researchers reveal gender roles and gender-based stereotypes. With gender as construction, the textbook researchers focus on how femininity and masculinity are formed by society and its institutions or by discourses, agents, and arenas. From this kind of textbook research I would present a few examples and show how they could inspire coming textbook analyses. Gender as deconstruction is a destabilizing of gender as a binarity pair by perceiving gender as category and gender as construction. However, the deconstruction as I use the term could not do without analysing gender as category and gender as construction. Inspiration from gender as deconstruction is still a relatively new phenomenon in textbook research. I briefly described some methodologies in the report of the 2nd IARTEM Conference (Knudsen 2002). In this article, I would like to elaborate on some of the methodologies for hopefully coming textbook research.
Gender as category

With gender as category the analysis is focused on gender roles. Gender role studies in textbook research point out that for instance women are pictured as mothers and housewives in family life, while men are pictured as car drivers, with a job outside the home (Knudsen 1984). Gender as category studies encompass both quantitative and qualitative analyses. Quantitative analyses provide documentation of the number of men and women presented in textbooks. Such analyses employ categories to reveal the parts of the world in which men and women are located: outside/inside the home, public/private spheres. They may develop oppositions such as active/passive, connected to culture/nature, transcendent/immanent. In qualitative analyses, the researcher might ask: What kind of materials do the authors of textbooks highlight for girls and for boys, respectively? How are the materials presented in words and pictures for girls and boys? Do the text and illustrations co-operate with or contradict each other? In what ways have historical changes influenced and affected gender roles as presented in textbooks?

In Norway, research concerning gender roles in textbooks for primary and secondary school has been carried out since the late 1950’s. The Norwegian Hjørdis Heide has analysed two social studies textbook series from the 4 th-grade through the 9 th-grade from the perspective of gender roles (Heide 1972). Her main conclusions are that the textbooks do not query the women’s situations, and they do not reflect on the contemporary history with women as double workers. An example from a textbook given in her research from the fifth grade is from an everyday dinner table: ”The father tells his family about what he has been doing at his working place. The children tell stories about what happened at school, and the mother about something that has happened at home when the other members of the family were out.” (Brock-Utne og Haukaa 1980 from Heide 1972, my translation). Not only the text in social study textbooks, but also the illustrations in these as well as textbooks used in mother-tongue lessons, English, and science lessons tell the story about traditional gender roles Heide and other textbook researchers as Brock-Utne and Haukaa point out. In the textbooks used for mother-tongue teaching written by the famous Norwegian author Thorbjørn Egner the numbers of girls and boys included in the texts have been counted, and the lack of personal female qualities and female role models has been criticized (Bræk 1975). Halldis Breidlid and Tove Nicolaisen have written about gender role models in relation to ethnicity in Norwegian religious textbooks. With focus on the presentation of Sita from the Hindu tradition they analyse the narratives told and not-told in Norwegian textbooks and teacher’s handbooks. They show how Sita is told as ”a sub-
ordinate, faithful wife in the framework of a traditional pattern of sex roles” and as the "invisible”, but very seldom as "an independent, acting person in her own right” (Breidlid and Nicolaisen 2002, 141-42).

Both the quantitative and qualitative analyses in Norwegian textbooks conclude that men, and the world of men, dominate in all kinds of textbooks for primary and secondary schools. Most of the involved researchers have been women who have been interested in making women’s’ lives visible in the textbooks. In 2000, Norwegian Sissel Anette Marthinsen studied gender roles as portrayed in 42 Norwegian history textbooks for secondary schools from the period 1946-1986. She identified three characteristics: 1) Women’s lives are rendered invisible through gender-neutral language, such as the use of concepts like ”people” and ”the universal right to vote” in relation to France in 1848 (French women achieved suffrage in 1944). 2) There is a failure to problematize women’s lives, i.e. women’s lives are presented sporadically. Women themselves are not described individually, but rather presented as mothers, lovers, or daughters. Only a few individual women are portrayed in order to highlight their historical roles in connection with a political event, e.g. Joan of Arc. 3) Political history dominates as a basic structure, i.e. war history, the histories of kings and presidents, the French revolution – but not the history of people’s daily lives. (Marthinsen 2000, my translations).

Marthinsen finds a tendency to place more focus on women’s lives in the history textbooks of the 1980s, as inspired by research in women’s history as well as and suggested by the guidelines for ”Gender Equality” published by the Norwegian Ministry of Education, Research, and Church Affairs in 1974. But the visibility of women’s lives, Marthinsen documents, has resulted only in a tendency to include more facts about women’s right to vote, women’s conditions in the labour market – in short, women in public life. The dominance of political history is still at work as a basic structure in history textbooks for Norwegian secondary schools. At the University of Tartu in Estonia a research group under the supervision of Jaan Mikk has studied gender roles in textbooks in the last decade. In her dissertation Veronika Kalmus from this university presents studies ”on the depiction of gender roles” in Estonia ABC-books (1907-1997) and in three social studies textbooks (1997-99). In the Estonia ABC-books she mentions ”three overlapping discursive patterns”:

”(1) a persistent pattern of rigid gender division regarding a number of roles, activities, and objects of action (i.e. things used by men and women); (2) a moderate development towards gender equality (in newer ABC-books both parents are assumed to have equal authority,
some male actors are engaged in “feminine” household activities; also, female actors are depicted more frequently on illustrations; (3) a dynamic pattern of role division that advances in leaps and bounds (patriarchal role division in the first half of the 20th century is followed by a more egalitarian social order in the Soviet-time primers, which is overthrown by inclinations of patriarchy in the post-Socialist ABC-books.” (Kalmus 2003, 23-24).

The research in three social studies textbooks is a comparative analysis of responses from Estonian and Russian students (Kalmus 2004). With the Estonian textbook research as presented by Kalmus the gender as category overlaps the gender as construction, inspired by Foucauldian discourse analysis. Furthermore, she shows how textbook analyses could open for a dialogue with students when they respond to the textbooks’ traditional gender roles as “resistant readers” (Gilbert 1992).

Gender role studies in textbook research often focus on the misrepresentation of women’s lives and are based on feminist critique of ideology. With gender as a category, men and women are fixed in their traditional roles. As a reader of these analyses, you would find your concept of gender differences confirmed.

The potential of analysis using gender as a category is that the invisible women, and invisible women’s lives, can be made visible. In textbook research, you can demand greater visibility for women (and men), and you can suggest that the barriers and carriers for women (and men) should be made visible. You can tell stories of women and men who revolted against traditional gender roles.

The problem with this research is the blindness that goes along with thinking in terms of gender as a category. Gender is fixed as SEX, as biological gender, as essentialism that cannot be changed. This research has a tendency to fix woman and man as opposites. From this tendency could grow thinking in binarities, where textbook research would retain the traditional genders, i.e. the woman complementing the man, and vice versa, in a heterosexual discourse.

Gender as construction

The concept of GENDER as construction is inspired by historical, sociological and psychological theory, and grew out of the critical intellectual movements of the 1970’s. Gender is used to examine femininity and masculinity as positions and the construction and reproduction of patriarchy. Femininity and masculinity are analysed as constructions, formed by society and its institutions (the family, school, etc.) in a given historical context.
By focusing on gender as a social, cultural and educational construction in textbooks, the emphasis is on school as an agent. Textbook research inspired by the 1970s movements are critical of ideologies in society, culture and education as agents for capitalism and patriarchy. To put it very briefly, textbooks are analysed as producing a false gender ideology in which women are victims, subordinating capitalism and patriarchy. These textbooks, the researchers claim, keep girls in a subordinate position and a traditional feminine identity. There have been some quantitative analyses, but as far as I know, most of the textbook research focusing on gender as construction has been based on qualitative analyses.

In the 1980s, the vanguard of gender research studies in the Nordic and the European Countries was inspired by the French Pierre Bourdieu’s theory on arena and competing fields and the French Michel Foucault’s discourse theory and research into power network. Analysis inspired by Pierre Bourdieu’s theories and Foucault’s theories, employing discourse theory and power methodologies, gained ground in educational research in the 1990s. However, it is still rare to encounter an analysis based on Bourdieu’s theory and on discourse theory and power methodologies in textbook research, but this could play an important role in gender research into textbooks, taking its inspiration from the range of arenas and discourse analyses (critical linguistic discourse analysis, social psychological discourse analysis, historical discourse analysis).

Finnish sociological researcher Kirsti Lempiäinen is inspired by Bourdieu’s theory on competing fields in academia. Her analysis of sociology textbooks used in Departments of Sociology at the Universities of Helsinki and Tampere in 1945-2000 on the basic and intermediate level encompass both quantitative and qualitative analyses (Lempiäinen 2003). In the quantitative analysis, she has divided her data into two categories, which she calls ”general sociology” and ”gender specific sociology”. In the first category, there were 641 textbooks, in the second 112 textbooks. In the general sociology category, gender was not explicated at all in 47 textbooks. In 141 textbooks gender was ”only” present as for example ”Mother Russia”. In 273 textbooks, gender was problematized by counting how many men and women are represented in this working place etc. In 180 textbooks plus the 112 textbooks with gender specific sociology, gender was analysed, pondered and even now and then theorized.

Kirsti Lampiäinen has been particularly interested in qualitative analysis, asking how gender was conceptualized, if it was, and, what were the contexts of in these conceptualizations, for example nature, culture and society. She sets up five different types of conceptualizations in her material: socio-biological (essentialism: female/male), functionalist (roles: husband/
wife; Talcott Parson’s analysis of society), materialist (marxist literature, build on cause: workforce/reproducer), cultural (how things are feminized or masculinized) and social (gender as a system, gender as a relation more than gender as the difference woman/man).

Another recent example of analysing gender as construction in textbooks I found in the article “Textbooks, Knowledge and Masculinity – Examining Patriarchy From Within” by Jeffrey J. Kuzmic (Kuzmic 2000). He presents four topics drawn from his history textbook research into American school textbooks: 1) The invisibility of men, masculinity, and patriarchy, 2) Hegemonic masculinity, 3) Power as power over and 4) Defining public and private spheres: Reifying patriarchy. In the following, I will provide a short introduction to these four topics and then make some suggestions for areas of further textbook research from the position of gender as construction.

The invisibility of men, masculinity and patriarchy as the first topic, Kuzmic discovers when the concepts of men and masculinity, like whiteness, are used as invisible categories. They exist neither as historical categories nor as constructions. Man, as gender, is neutral. This gender neutrality keeps masculinity and patriarchy invisible in textbooks. Paradoxically ”men – as men – have no history” in the history textbooks, Kuzmic writes (Kuzmic 2000, 109). Just by examining the indices of the history textbooks, Kuzmic notes the absence of the terms men, masculinity or patriarchy. Women were presented as a gender under separate headings, such as ”The Women’s Rights Movement” (Kuzmic 2000, 110).

Men are rendered invisible ”through the individualization of history”, specifically the history of political leaders. Writing of the history of, for example, the policies, attitudes to slavery, speeches and relationships of US presidents, the history textbooks create masculinity without calling it masculinity. By writing of ”the actions of individuals” – or in terms of gender neutrality, as I call it – ”the privileged position that men as men occupy” is maintained (Kuzmic 2000, 111). In contrast to this individualization, women in history textbooks ”bear a collective sameness and identity that serves to deny their individuality” (Kuzmic 2000, 112). The paradox of these history textbooks, as Kuzmic writes, is that ”By making women visible, men are made even less visible, but more central. It is precisely this invisibility of men and masculinity that serves to perpetuate ideological messages and perspectives that mask patriarchy.” (Kuzmic 2000, 112).

For Kuzmic as he puts his second topics, ”hegemonic masculinity” is associated with patriarchy. This is a form of analysis in which the dominant masculinity, still invisible in textbooks, is made visible in textbook research. The textbook researcher with gender awareness would look for the positive terms emphasized in textbooks, such as ”courage, leadership, the ability to
overcome adversity, vision, and commitment” – and will draw attention to "downplaying or neglecting altogether characteristics viewed as negative” such as "greed, selfishness, ruthlessness, arrogance, dependency on others, violence and control" (Kuzmic 2000, 115). Kuzmic utilizes Columbus as an example of a white man and his masculinity. Columbus is "a significant introduction to the ideological construction of masculinity". He represents, so to speak, the beginning of the history of America and "the heroification of history", being presented as "a single individual” (Kuzmic 2000, 115).

Analysis of hegemonic masculinity as a gendered construction involves an awareness of historical changes in the definition of men and masculinity. It deals with men, not just as political actors and historical figures, but also in terms of their public and private motivations. The term "hegemonic masculinity" is borrowed from the Australian researcher Robert W. Connell. In his book *Masculinities*, Connell also introduces the concept of marginalized masculinities, and he writes about masculinities in the plural. For Connell, the term masculinities encompasses diversity in masculinity, different masculinities. Connell writes: "To recognize diversity in masculinities is not enough. We must also recognize the relations between the different kinds of masculinity: relations of alliance, dominance and subordination. These relationships are constructed through practices that exclude and include, that intimidate, exploit, and so on. There is a gender politics within masculinity.” (Connell 1995, 37). The concepts of masculinities in the plural and of both hegemony, domination/subordination and marginalization/authorization might provide more inspiration for textbook research than those introduced by Kuzmic, which apply masculinity in the singular.

Power as power over is something that Kuzmic in the third topic uses to focus on patriarchy as power. For him, power is "problematic” because he associates it with hegemonic masculinity. "Power over” involves the subordination of others. Although he also mentions "power with”, and power as a positive position, he emphasizes the negative position of "power over” to be analysed in textbooks: "The naming of history of/by men carries with it a conception that to be an important historical figure (i.e., a man) is to exercise power over; to create, to change, to make happen, and to control.” (Kuzmic 2000, 119-20).

But power, I believe, should be analysed in a more complex manner. Power could be studied – as Foucault does in his late works – as a power-analytic (sic) – a network of relations in constant tension and activity. Power can also be analysed as a continuum extending from "power over”, which excludes some and includes others, to "power with”, a productive and positive factor that allows you to manage things and be an active, inclusive authority.
In defining public and private spheres: Reifying patriarchy, Kuzmic as the fourth topic analyses the binarity of man/woman in history textbooks as the binarity non-gendered/gendered, connected to the binarity public/private spheres and rational beings/maternal.

Kuzmic’s focus is on man and masculinity in history textbooks. He applies awareness to man as a gender and masculinity as something that is constructed and reproduced. Just as feminist researchers have focused on woman and femininity, he emphasizes one gender, his own. This isolation of a single gender provides, on the one hand, possibilities for gender textbook research, but problems on the other. But first, the possibilities: If I were to extrapolate on Kuzmic’s four topics, focusing on woman/women and femininity/femininities, textbook research might deal with:

1) The visibility of women as collective sameness: Visible women in textbooks:
   • text – illustration
   • table of contents – titles – narratives – tasks
   • context
   • content: what do the text and illustrations tell us about women and femininity?
   • ways of telling: how do the text and illustrations tell us about women and femininity?

2) Femininity/femininities and feminism:
   • hegemonic femininity
   • marginalized femininity
   • femininities
   • feminism as emancipation
   • matriarchy
   • motherhood and motherliness
   • female masculinity

3) Power over and power with:
   • text – illustration, etc., as 1)

4) Defining binarities as gendered:
   • women/men
   • femininity-femininities / masculinity-masculinities
   • feminism / masculinism as emancipation
   • matriarchy / patriarchy
• motherhood-motherliness / fatherhood-fatherliness
• female masculinity / masculine femininity

In analysing gender as construction, the potential is to be able to describe the historical conditions and changes of gender. Gender is analysed as created in time and space, and can be analysed as a test of new positions. In suggesting these four topics, the skill is to avoid ideological critiques in which women are analysed as victims, subordinated to hegemonic masculinity – as the tendency has been in analyses of gender as construction. And the skill is to avoid ideological critiques in which men are analysed as oppressors. However, such analysis of gender as construction has its limits. Whether the constructor is a woman or a man, there is a risk of gender-blindness. If a woman researcher focuses on the construction of woman, she analyses her own reflection. It can easily become an affirmative identification and a sympathetic analysis. When the woman analyses woman, she cannot analyse the foreign, the confrontations and the critical positions. The woman cannot analyse the man, and the man cannot analyse the woman.

Analysing relations between woman and man can also be problematic. Gender has a tendency to produce limited thinking in binarities: femininity/masculinity, nature/culture – to paraphrase the structuralism that provides the theory behind much of these analyses.

There are two paradoxes in the studies of gender as construction, namely what I will call the gender neutrality paradox and the gender awareness paradox (Knudsen 2004a). The gender neutrality paradox I find in the invisibility of men and women in most textbook research. When textbook research neutralizes gender, gender differences are not only constructed as two genders, but as gender stereotypes in a heterosexual discourse. Men and masculinity are – as Kuzmic points out in relation to the history textbooks – invisible. They are just human beings. Women, however, are gendered beings or empty spaces.

Gender awareness comes into focus when textbook researchers wish to focus on gender differences in an equality discourse. With this focus, gender differences so to speak map onto gender differences, making the gender of women positive at the expense of the gender of men, or vice versa, in a hierarchical mode of thinking. However these paradoxes could well provide a starting point for textbook analysis, as well as for meta-research into textbook research used in gender as deconstruction.

**Gender as deconstruction**

From the middle of the 1980s, gender studies began to draw inspiration from deconstruction and post-structuralism. The terms are defined as desta-
bilizing, undermining, and dissolving (de-constructing), according to the theories after structuralism (or post-structuralism). Deconstruction mostly encompasses Anglo- American theory and methodology, under the inspiration of French Jacques Derrida, while post-structuralism relates to French theories (i.e. late theories by Julia Kristeva, Roland Barthes, Michel Foucault). The very first example of gender deconstruction was research into the blindness of other gender researchers when studying gender as a category and as construction. This was an example of meta-research.

Gender as deconstruction emphasizes how gender should be studied as staged and masquerade. Gender has to be analysed SYMBOLICALLY. Gender is what wo/men interpret and negotiate it to be. The way the hair is cut, for example, is a gender-sign on the body (Søndergaard 1996, 1999). The clothes signal the gender wo/men have chosen and which is negotiated in specific situations.

In gender as deconstruction, researchers view gender as a rhetorical presentation of a range of differences. Femininities and masculinities are analysed in the plural, with the number of genders being potentially unlimited. Instead of two genders, you could perform research into several genders using, for example, female masculinity as a gender (Halberstam 1998, Knudsen 2004b). In gender as deconstruction, you break up, undermine and destabilize structures and coherence. In a coherent text, the most interesting part for some researchers inspired by deconstruction would be the point at which things get stuck and twisted. For other researchers inspired by deconstruction, the most interesting part would be the part that remains when you have analysed the structures in a text, or when, as a researcher, you have constructed a coherent text.

Gender as deconstruction was extended in the 1990s with queer theory. When you are queer, you belong to neither of the two genders. You are oblique, awry, wrong, disabled – not a woman, not a man. In queer theory, awareness is applied to heterosexual and homosexual discourses. Researchers inspired by deconstruction claim that the retention of the two genders creates a kind of invisible politics, producing a romantic heterosexuality that excludes homosexuality or other kinds of sexuality. When you deconstruct the heterosexual discourse, it produces ”gender trouble” as the American Judith Butler puts it in her book of that title (Butler 1990/1999). With inspiration from gender as deconstruction and queer theories, I would suggest some methodologies for coming textbook research, namely three steps in the research process, my work with ”wild practices”, and my work with remnant analysis.
**Three steps in a research process**

Identifying gender as a binary pair or opposition, woman/man, is merely the first step in the process of deconstruction. As we live in societies in which we tend to think in terms of binarities, it is necessary to identify the construction before we can deconstruct it. In this first step, the binarities are identified as constructed in terms in which one side is given a positive valuation at the expense of the other side’s negative position. Kuzmic, as I mentioned earlier, draws attention in his textbook research to positive terms such as "courage, leadership, the ability to overcome adversity, vision and commitment" at the expense of "greed, selfishness, ruthlessness, arrogance, dependency on others, violence and control" (Kuzmic 2000. 115).

The second step is to displace the negative position with a positive position and vice versa, e.g. courage as contempt for life and death, and authoritarian behaviour and violence as a way of saving lives, of managing with authority. In the third step, you create more fluid genders by simultaneously being both and neither of the binary terms (Lather 1992, Grotz 1989). By, for example, undermining authority and authoritarianism, you raise the question of what is power with and power over. Researching with three steps means that you use research in gender as category and gender as construction before moving into gender as deconstruction.

In mother-tongue lessons in Denmark I have observed classes who used the system *Dansk i første. Grundbog, Dansk i anden* etc. (Danish in the 1st grade. Basic Reader, Danish in the 2nd grade etc). The textbook system is published by Gyldendal, one of the main publishing house in Denmark. In the following, I would take some examples From *Dansk i fjerde. Grundbog* (Danish in the 4th grade. Basic Reader) and *Dansk i niende. Grundbog* (Danish in the 9th grade. Basic Reader) (Kokborg and Rosenberg 1987, 1993). In both textbooks, the fiction such as poems, short stories, and fairy tales dominate. There are plenty of illustrations such as reproductions from paintings, photos, drawings, and comic strips some coloured and some in black/white. Danish in the 4th grade is based on the issues "The Land of the Childhood", "Brave Gods and Old Fighters" (the Vikings), "Greenland – the Land of the Human Beings" and "The Mystery Deepens" (my translations here and in the following). There is many short stories about boys without mothers. For example, *Old Dick* by the Danish author Bent Haller is about a male whale-child losing his mother and the other whales. Other short stories and illustrations view to the nuclear family with a mother, a father, and two children – the eldest a daughter and the youngest a son. Several stories have a boy as both the narrator and the main character.

Danish in the 4th grade is dominated by traditional gender roles within the nuclear family. Even the short stories about boys without mothers un-
derscore the traditional caring mother role in the family. Also, the short stories and illustrations about the Vikings underscore the traditional divisions between boys/men in fights and girls/women in caring relations. The story about the older sister, who could take care of the younger brother show the female in the caring role. In the Basic Reader, as well as in the Teacher’s Book and the Problem Solving Book that belong to the system, the traditional gender roles are unquestioned. In the classes I observed, gender was unspoken and invisible. The first step with this textbook would be to identify the dominating gender roles and functions.

Applying the second step, awareness of the exception would displace the invisibility of the gender in the heterosexual discourse. In a short story "Copenhagen 1876", there is an illustration with a boy and girl in the same bed, which could underline the heterosexual telling about the nuclear family. But the story is about a working class family where the small apartment only has two beds, so the sister and brother have to share bed. The boy (11 years) is the narrator and main character, looking at the elder sister (12 years) sleeping after a day of tiring work in a restaurant. In the morning, the boy is the one who takes care of the third child, and he is the one dreaming about a better life in America. In the dream, there could be a deconstruction of the nuclear family, as the short story from the boy’s point of view tells that the father would probably stay in the apartment sleeping, while the mother, the sister, and maybe a woman from the factory would travel with the boy to America. A short story by Astrid Lindgren Rasmus in Move also breaks down the traditional gender in a heterosexual discourse in telling about children and especially two boys in a children’s home. The illustration shows Rasmus lovingly and sadly stroking another boy. This could be called a homosocial relation (Knudsen 2004b).

With the third step, the researcher may give inspiration to authors of fictions and author of textbooks to look for counter-stories telling about brave and fighting girls (Davies 1989). Counter-stories showing friendships between two girls and two women in relation to close friendship between two boys and two men could be shared.

In Danish in the 9th grade, the issue in the chapter "Call it Love" states the domination of traditional gender in a heterosexual discourse. Deconstructing this domination by counter-stories would e.g. be an awareness of the implicit homophobia in the hegemonic heterosexuality. Identifying, as the first step in analysing the issue "Call it Love", would be to follow the organization of the chapter while analysing it. The chapter is introduced by the reproduction of Pierre Bonnard’s painting with the title "Man and Woman". This heterosexual focus is followed by a popular Danish song "Call it Love" by Lars Lilholt, where the first narrator tells about the love for a
you. Neither the first person (I) nor the second person (you) have a gender sign in the song. But the painting by Pierre Bonnard makes the most obvious interpretation of the song to be about a man and a woman in love. The following texts are about men and women in love as well. The poem *The Eternal Three* by the Danish author Tove Ditlevsen uses the triangle motive in the literature. The first narrator is a woman with two men in her life, one man whom she loves and another who loves her. The poem is illustrated by a reproduction from a painting by the Norwegian Edvard Munch with the title ”The Dance of the Life”. The painting shows several heterosexual pairs dancing by the sea in the sunset. In contrast to the dancing pairs are, however, two women in the foreground. They are placed in waiting positions and as if they are moving towards each other. One woman is in white and moving forwards making an including gesture with her hands. The other woman is dressed in black with folded hands indicating a gesture of withdrawal and at the same time moving towards a dancing man and woman in the foreground. Clearly, the woman dressed in white and the women dressed in black are contrasted in the painting. The woman dressed in white is similar to several other dancing women in white in the background. The dancing heterosexual woman in the foreground is dressed in read.

The second step towards deconstruction of gender and sexuality could be to open up Pierre Bonnard’s painting, Lars Lilholt’s song, and Tove Ditlevsen’s poem with Edvard Munch’s painting. The woman dressed in black in Edvard Munch’s painting could meet the beloved man, who is in the first narrators dream and the dark mind from Tove Ditlevsen’s poem. The questions for the third step could be: What would happen, if the men in the paintings, poem, and song met each other? What would happen, if the women in the foreground of Edvard Munch’s painting met each other and the women in Pierre Bonard’s painting, Lars Lilholt’s song and Tove Ditlevsen’s poem?

**Work with "wild practices"**

To work with ”wild practices” is a way of gaining more than wholeness and coherence from the analysis (Lather 1999). The researcher could, for example, take the first and the last sentences in a story told in a textbook. The researcher could produce a dialogue between textbooks. Or the researcher could look for the twisted places in the textbook: Where is it difficult – too difficult – to interpret the textbook?

Danish in the 4th grade starts and ends with poems by male authors. As an entrance to the textbook is the poem ”My little Dream Boat” by Finn Jørgensen. It tells a story about a child in a boat, dreaming about being alone in the world under a blue heaven, dreaming about being a Viking, and
dreaming about what Columbus saw on his travels. The poem is written with a first narrator, which obviously would be identified as a boy with regards to the Vikings and Columbus. The last poem in the textbook ”I am afraid” by Per Borgsten has a first narrator as well, but the poem is written in a more general way with gender neutral symbols. It tells about being afraid of noises in the night such as creaking branches, clothes making shadows, and a cat that may be spitting. If the interpretation is traditional gender biased, being afraid and the use of the cat could be connected with a female first narrator.

With ”wild practice”, the researcher may connect the two poems in for example a cross-gendering reflection where the very idyllic ”My little dream boat” goes into dialog with the quiet uncanny poem ”I am afraid”. When the first poem’s first narrator tells about ”The waves beat the sides of the boat/with a silent coldly gurgle”, then the last poem’s first narrator would answer ”I wonder if there are others/who are also afraid”. If the first poem’s first narrator would be identified as a male, then he would be interpreted as a joyful boy, who tells about his future as an independent (alone), brave (the Vikings), and individual conqueror of the world (Columbus). The last poem’s first female identified narrator would answer him with a ghost story that scares the boy in the first poem, whereas the girl in the last poem jumps into the dream-boat in the first poem. This dialogue between the written texts would be destabilized even more by the illustrations where the first poem is bond up to a reproduction from a painting by Bergljot Bjørnson Okkels without title. This painting shows swimming bodies with long yellow hair while the last poem has drawings in black/white with a black tree without leaves, a ghost with a man’s body, and a black cat with aggressive eyes, tale and paws looking like a wolf.

With such ”wild practices”, it would be possible to question gender being, moving towards gender doing where values traditional linked to female and male behaviours would be problematized and reflected as constructions.

Remnant analysis

In remnant capital analysis, I am inspired by French Pierre Bourdieau’s concept of cultural capital (Knudsen 1999, 2002). In relation to the textbook research, I would suggest deconstruction looking for the meaningless, the staged, and the fragmented perspectives. The awareness of remnant capital means for the textbook researcher to raise questions to deconstruct the 'normal' meaning, reality, and coherence in the textbooks.

With the concept of the meaningless the textbook researcher may ask: What is mere chatter and rhetoric in the telling of the gender story? How is
the gendered text meaningless in relation to its context and in relation to the illustrations? How is the gendered text meaningless in relation to the students’ problem solving book and the teacher’s manual? And with an example of meta-research: How is the researcher getting stuck into the awareness of the gendered meaningless? Does the researcher want to make meaning out of the gendered meaningless?

With the analysis of the staged, the point would be that the textbooks do not picture the gender reality. They are written as gender fiction in their selections. The textbook researcher then have to analyse how the textbooks convey the different genders do – not what they say – in order to arrive at the conclusion that there is no such thing as a true gender story or a gender documentary presentation of reality in textbooks. The researcher could look at how the textbooks are gender constructed narratives, told as a fairytale, a novel with highlights, or as short story suspense (Davies 1989). The researcher could deconstruct the narrative form following the Western, Aristotelian model for constructing a gender drama. This traditional masculine drama is characterized by the use of action and suspense, building on a conflict that moves from a beginning where expectations are created, through conflict escalation, and towards a climax at the end (Knudsen 2000).

The fragmented perspective would include research across the coherence into the de-located points in the textbook. The de-located points could be portions of the text in which the stories run away with the storyteller. The narrator talks, so to speak, too much. As a receiver you might do without these explanations, sentences, words, and images? The over-telling of the story might not be necessary for the reader to understand the message? The gender researcher would analyse the de-located points in order to deconstruct the coherence of gender in the coherent textbook. In the mother-tongue textbooks the researcher could reflect e.g. on how gender is constructed in the fictions in the textbooks meeting the grammar tasks in the problem solving books. With the awareness of the fragmentations, the researcher could analyse the jumps between parts or sentences in the text: Where does the lacks of transitions indicate a gender paradox? Are these lacks of transition illogical gender stories and gender performances?

For as well the fragmented as the meaningless, and the staged perspectives, the researcher may ask, how the remnant capital train the reader’s gender gaze in looking for gender and not-looking for gender? How does the deconstruction of looking and not-looking produce ideas of where the ‘normal’ gender focus lies in the textbook?
Conclusion

The three concepts of gender as category, construction, and deconstruction would all be useful in new textbook research initiatives. They may be used independently, but even better in connection with each other. In my view, there is a progression in the three concepts moving from gender as category and gender as construction to gender as deconstruction. The three steps as a proposal of the concept of gender as deconstruction includes gender as category and gender as construction.

With gender as category the textbook researchers analyse gender roles and gender stereotypes. The research encompass both quantitative and qualitative analyses. The research deals with gender binarity, operating with traditional gender oppositions. The categorizations of gender help to make gender visible. The problem with the research in gender as category has been that gender has been fixed as unchangeable essentialism.

Gender as construction connects gender as femininity/femininities and masculinities/masculinities with social and cultural change-abilities. The historical conditions for women and men as described in textbooks would be the focus for textbook researchers in the analysis of gender as construction. The gender as construction has been analysed with inspiration from ideological critics of institutions, discourse analysis and textbooks as gender battle fields. In this research, there has been a tendency to focus on either female and femininities or male and masculinities. In such ways, the research has a risk of gender-blindness, being only aware of one gender without reflecting on the gender as relations. However, being aware of the gender relations could result in a blindness to heterosexuality as dominant in textbooks.

Gender as deconstruction implies a meta-reflection, where the textbook researcher destabilizes gender constructions and the heterosexual discourse. With this concept, the gender could be analysed as radical constructed, i.e. gender is studied as symbolically and troubled. Deconstructing the gender and heterosexuality in textbook research is still a relatively new and untried phenomenon, which limits have to be reflected on in the future research. Most productive is when the gender deconstruction comes to use, as I see it in this article, when queer questions are asked. I purpose that textbook researcher may work with three steps in the research process where gender and sexualities are pushed to move beyond the traditional gender roles and functions. Moreover, I purpose to work with wild practices and remnant capitals such as the meaningless, the staged, and the fragmented, when analysing and reflecting on how textbooks are gender constructed and narrated.
References


Bræk, L. S. (1975) "Guttene er modige – pikene er snille” (The Boys are brave – the Girls are sweet). In Dagbladet 7. september.


Gilbert, P. (1992) "The Story So Far: Gender, Literacy and Social Regulation”. In Gender and Education 4.


Heide, H. (1972) "Kjønnsroller i familie og samfunn i lærebøkene” (Gender Roles in Family and Society within textbooks). In Samfunnsfag og påvirkning (Social Science and Influence), ed. Koritzinsky, Th. Oslo: Universitetsforlaget.


Knudsen, S. V. (2000) ”Norms and niches: voices in higher education”. In NORA 3.


Marthinsen, S. A. (2000) "Kvinneliv i lærebøker" (Women’s lives in textbooks). In *Kjønn og likestilling i grunnskolen* (Gender and Equality in the primary school), ed. Imsen, G. Oslo: Gyldendal Akademisk ANS.


**Notes**

1 From the late 1970s and in the 1980s most Anglo-American women’s researchers changed the concept from ”sex” to ”gender”. In Sweden there was a change from ”køn” to ”genus”.

2 Thank you to Kirsti Lampiäinen for e-mails about her analyses, which the following informations are based on.

2. Educational Media
Veijo Meisalo

Quality of Modern Learning Materials – The Viewpoints of Authors and Designers

Introduction

It is interesting to analyse the contributions related to quality aspects of learning materials in the previous IARTEM conference proceedings. The leading article (Klep 2002) of the Second IARTEM Volume (Selander, Tholey & Lorentzen 2002) was titled “The exit of textbooks, the rise of flexible educational media.” This is an adequate analysis of the situation in 2001, but it does not actually reflect “the exit of textbooks”. Mikk (2002) emphasises the experimental method as the final test of the quality of a textbook. His conclusions do not refer to learning materials other than textbooks, but in fact his conclusions on the expense of experiments etc., are obviously valid more widely. Reints (2002) gives a framework for assessing the quality of learning materials which is based on a broad analysis of learning functions, articulating ”four types of textbooks” and ”written learning materials”, which unnecessarily limits the scope of the analysis. Tholey and Rijlaarsdam (2002) present a model for the evaluation of textbooks recommending a structural qualitative approach for the analysis including a Delphi analysis of future needs as a basis of textbook selection. It is a most interesting method, relevant to all learning materials. However, we may draw the conclusion that the above discussions are altogether rather narrowly focussed on textbook analysis, although some titles of articles indicate the purpose of striving to find approaches that could cover both textbook and multimedia evaluation, and the methods might allow a far broader interpretation.

In the Third IARTEM Volume (Mikk, Meisalo, Kukemelk & Horsley 2002), the papers reflect even more focused research, for example, on the use of textbooks in school science discourses (Knain 2002) or the role of different sources of information in Estonian schools (Vassilchenko 2002). In the keynote presentation, Horsley (2002) analyses classroom uses of learning materials, here again textbooks and (mainly copied?) handouts. Altogether, these recent volumes offer an interesting overview of the focus of learning materials research on textbooks.

In the above discussed research papers and overviews, we see an opportunity to find a new and fertile focus: The analyses have considered learn-
ning materials as fixed end products – the purpose being to select the best alternative and not to finalise a production process. There has been no direct analysis of the functions of the authors or designers of learning materials. We may note that there is a tradition of applied research in some relevant fields that could be activated even here. The design research model is based on the idea that the users’ point of view needs to be considered during the whole production process. In the *Handbook of Research for Educational Communications and Technology* (Anon. 2001) developmental research is defined as a combination of actual designing where research is related to product evaluation, process evaluation and evaluation of designing efforts. Developmental research seems to be most valuable in research and development work related to new media and subject areas like science education. Therefore we have chosen, as the main idea of the present paper, to show the wide spectrum of learning materials available to students in a modern technology-rich environment and the benefits of not limiting oneself to text analysis only, and that although it is important to see learning materials from the point of view of the (end) users, there is much benefit in analysing the whole process of producing learning materials from the authors’ point of view. We see that to develop different high quality, modern, learning materials, a research-based approach is needed to comprehend how these materials should be designed and developed.

**Types of learning materials and evaluation**

As it seems to be a challenge to subject a wider spectrum of learning materials to evaluation, it appears feasible to use a creative approach to the analysis. Creative problem-solving methods we have worked with include problem identification, overall mapping of a problem situation OMPS, creative ideation, brainstorming, the 8 x 8 method, etc. Table 1 below presents the outcome of an 8x8 analysis intended for mapping different types of learning materials relevant to science teaching. Such an output can never be a final outcome, but a glimpse of the huge variation in relevant materials. Thus, the ’new’ materials may include hypertext and multimedia, basic tools for text, numerical or graphical processing, and computer assisted learning programs, simulation and modelling systems, microcomputer-based laboratory, and/or communication applications, typically over the Internet. As cases in point we may refer to Aksela & Meisalo 2001; Juuti, Lavonen, Kallunki, & Meisalo 2003; Juuti, Lavonen & Meisalo 2001; 2003; Lavonen , Aksela, Juuti & Meisalo 2003; Lavonen & Meisalo 2000; 2002; Meisalo, Sutinen & Tarhio 2001 where we intended to assist in reaching goals in a modern learning environment, even with both a virtual and a real component (VRLE). Cases include materials for learning chemistry, computer science or physics. The intention of the analysis is to help authors and producers...
of learning materials to understand better the relations of goals, instruction, learning materials and feedback in modern contexts – and to create more user-friendly materials of high usability.

Analysis of goals and users’ needs should be the starting point of evaluation. Not only teachers, but also authors and designers, in particular, should define clear-cut goals and the goals should relate to the learning process on focus. Even users (teachers and students) should be involved in the evaluation process and their specific needs must be observed. Enhancement of reliability and validity in evaluation depends on the recognition of reliability problems by the evaluators.

Table 1. Qualities of learning materials, 8x8 analysis

<table>
<thead>
<tr>
<th>Type / Purpose</th>
<th>Level</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Textbook for schools vs. general public</td>
<td>Pre-school</td>
<td>Science vs. fiction</td>
</tr>
<tr>
<td>Teachers’ vs. pupils’ material</td>
<td>Primary school</td>
<td>Theory vs. applications</td>
</tr>
<tr>
<td>Course material vs. handbook</td>
<td>Secondary school</td>
<td>Useful vs. useless</td>
</tr>
<tr>
<td>Visualisation aid or graphics tool</td>
<td>Vocational school</td>
<td>Correct vs. wrong</td>
</tr>
<tr>
<td>Concretising aid or demonstration tool</td>
<td>Professional education</td>
<td>Up-to-date vs. outdated</td>
</tr>
<tr>
<td>Laboratory manual or worksheet</td>
<td>University education</td>
<td>Complete vs. incomplete</td>
</tr>
<tr>
<td>Software, CAL materials</td>
<td>Research</td>
<td>Rich vs. sparse</td>
</tr>
<tr>
<td>Hardware, kits, ...</td>
<td>Lifelong education,</td>
<td>Easy vs. difficult</td>
</tr>
<tr>
<td></td>
<td>general adult public</td>
<td></td>
</tr>
<tr>
<td>Presentation</td>
<td></td>
<td>Openness/Access</td>
</tr>
<tr>
<td>Concrete vs. abstract</td>
<td>Contents</td>
<td>Open vs. closed</td>
</tr>
<tr>
<td>Text-based vs. visual</td>
<td>Type / Purpose</td>
<td>Net-connected vs. isolated</td>
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<tr>
<td>Audial vs. mute</td>
<td>Level</td>
<td>Public vs. private</td>
</tr>
<tr>
<td>Digital vs. analogous</td>
<td>Presentation</td>
<td>Open-source vs. copyrighted</td>
</tr>
<tr>
<td>Still vs. video</td>
<td>Openness/Access</td>
<td>Expensive vs. free</td>
</tr>
<tr>
<td>Narrative vs. bits of information</td>
<td>Stability / Reliability</td>
<td>Bought vs. distributed</td>
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<tr>
<td>Fixed vs. flexible with alternatives</td>
<td>Cultural and moral aspects</td>
<td>Manufactured vs. one-off</td>
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<td>Cognitively vs. effectively oriented</td>
<td>Touch</td>
<td>Protected vs. vulnerable</td>
</tr>
<tr>
<td>Stability / Reliability</td>
<td>Cultural and moral aspects</td>
<td>Touch</td>
</tr>
<tr>
<td>Permanent vs. occasional</td>
<td>National vs. multicultural</td>
<td>Real vs. virtual</td>
</tr>
<tr>
<td>Updated vs. maintained</td>
<td>Equal opportunities</td>
<td>Familiar vs. strange</td>
</tr>
<tr>
<td>Fixed vs. manipulable</td>
<td>Educational vs. provocative</td>
<td>Logical vs. illogical</td>
</tr>
<tr>
<td>Professional vs. layman</td>
<td>Gifted vs. handicapped</td>
<td>Theoretical vs. practical</td>
</tr>
<tr>
<td>Designed vs. ad hoc</td>
<td>Unilingual vs. multilingual</td>
<td>Manipulable vs. do-not-touch</td>
</tr>
<tr>
<td>Authoritative vs. anonymous</td>
<td>Discussing vs. not talking</td>
<td>Pleasant vs. unpleasant</td>
</tr>
<tr>
<td>Known vs. unknown</td>
<td>Religious vs. non-religious</td>
<td>Smooth vs. rough</td>
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A holistic approach using multiple feedback channels and the use of several evaluators or evaluator groups is recommended. The quality aspects refer to effectiveness, efficiency and satisfaction in the relevant context of use. Evaluation depends on channels of feedback even more generally. International evaluation (PISA etc.) and national examinations are on a macro level compared with local written and oral examinations and tests (even psychological tests) of student performance. In the context of evaluating learning materials, it is important to study student success in different types of tasks, for example, problem solving processes, especially open problems and mathematical problems, even multiple-choice tests, but also in writing laboratory reports and other reporting of practical work and essays. The information obtainable by using the above testing may be complemented by interviews of teachers and students, systematic (video) recording and observations etc.

The challenges of creating various types of high quality materials for modern learning environments are substantially different from those of a classical textbook author. Textbooks are easy to use, while in technology-rich environments the user interface is often problematic and users need much help guidance or training. However, some parallels are of obvious interest. Evaluation is here considered to be the process for quality attainment. It is essential that it covers the whole teaching-studying-learning process and even the process of the production of learning materials, not just materials as outcomes or tools. The key idea of evaluation is feedback that carries the difference of goals and attainments as the steering signal of the cybernetic system. It means the use of feedback from all relevant sources. The quality of learning materials indicates the reaching of goals in learning processes. Evaluation methods have to be carefully selected and evaluation activities focused. A text or content analysis is just a starting point - a true multidimensional analysis seems to be needed. One may note also that often criteria given by educational systems to the quality of learning materials focus on easily definable aspects. The challenge is how to emphasise the most essential goals like the attainment of higher order thinking skills. Creativity and the support of creativity should be favoured. Enhancement of reliability and validity in evaluation is also most important. It starts from the recognition of reliability problems by the evaluators and a holistic approach using multiple feedback channels.

**Design research**

It appears useful to introduce a framework for authors of learning materials to understand the design context (Lavonen & Meisalo 2002; Meisalo, Suti-
nen & Tarhio 2001). Edelson (2002, 109) suggests a framework for design research including three stages: 1) The **problem analysis** that "characterises the goals, need, or opportunity that a design is intended to address together with the challenges, constrains, and opportunities presented by the design context"; 2) The **design procedure** specifies the processes and the people involved; 3) The **design solution** that describes the resulting design. Producing learning materials is usually a flexible and dynamic process, but authors and designers might benefit from being reminded to ask users for their opinions and to remember that prototypes are hardly ever final products. The objective for presenting the above model is also that anyone who starts a learning materials project can easily perceive the main ideas of designing. An opposite example is the **3-space design strategy** (Moonen, 2002) with three spaces, the output of the previous space being the input for the next. The significant aspect of this design strategy is that it emphasises the end user as a designer, who defines the final product. This means demanding adaptability from learning materials: Learners should be able to modify materials and, at least, to select and modify learning tasks. Another comparison can be made with Clements & Battista’s (2000) nine-phase model with the focus on a combination of design and evaluation: The first three phases focus on the initial designing (initial objectives, model of how pupils learn, draft), the next four on evaluation (testing components, confirmation of prototype and curriculum, pilot and extended testing), the eighth on combining design and evaluation and the final phase on publishing.

The standard for **Human-centred design processes for interactive systems** (ISO 13407) has been found by our research group to be quite relevant for designing learning materials. It provides a human-centred perspective that can be implemented in a variety of contexts. There are four aspects that characterise this approach: 1) An active involvement of users and a clear understanding of user and task requirements; 2) An appropriate allocation of functions between users and technology; 3) The iteration of design solutions; and 4) Multidisciplinary involvement in design. While asking the opinions of the intended users, designers gain information about the context of use, the tasks and how users are likely to work with the future product or system. It is quite obvious that when designers test educational innovations they have designed, the results may be evaluated too optimistically. The standard emphasises that a human-centred design team needs a variety of skills, such as end-user, manager of users, application domain specialist, programmer, marketer, visual designer, human factors expert and support personnel. One person can obviously cover a number of different skill areas.

The design process of learning materials can be outlined as a sequence of seven stages for a case where a preliminary test is performed in the con-
text of in-service courses for teachers (Lavonen & Meisalo 2000):

- Discussion and determination of the general aims of the materials in co-operation with experts. The aims were based on internal reasons, for example, the curriculum and the ideas of the decentralisation of school administration promoting school autonomy, as well as external reasons, such as the expectations of representatives of the industrial sector.

- The more detailed design of objectives, contents, strategies and tasks in co-operation with the members of the project group. The design process can be based on knowledge about learning from a textbook and practical work, and that of the visual information-processing theory.

- Preparation of the preliminary manuscript and prototypes to collect experiences, feedback and evidence through observations, judgements and discussion with pilot-school teachers, students and experts.

- Organising in-service training where the preliminary manuscript and prototypes are tested and evaluated to collect evidence about the quality of the materials under various conditions. Student opinions can be obtained by organising small teaching experiments.

- Collecting written feedback and comments in the preliminary manuscript by pilot-school teachers and experts and preparing those who are going to give feedback by telling what kind of feedback is needed.

- Planning and implementing the use of the learning materials in pre- and in-service teacher training and planning and implementing how other interest groups can use the new materials.

Organising quality control and improvement by organising feedback and examining changes, qualities and implementation over a number of years. This process of design research is more generally outlined in Figure 1 below:

<table>
<thead>
<tr>
<th>Progress of the design research</th>
<th>Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessing needs</td>
<td>Asking users’ opinions: interviews, essays, questionnaires...</td>
</tr>
<tr>
<td>Defining objectives</td>
<td>Observing users</td>
</tr>
<tr>
<td>Designing materials</td>
<td>Literature analysis</td>
</tr>
<tr>
<td>Iteration</td>
<td>Phases</td>
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<tr>
<td>Evaluating materials</td>
<td>Limited use of a prototype</td>
</tr>
<tr>
<td></td>
<td>Pilot testing with a few users</td>
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<tr>
<td></td>
<td>Field testing with many users</td>
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<tr>
<td></td>
<td>Continuous feedback from users</td>
</tr>
</tbody>
</table>

*Figure 1* Structure of the design research process. (cf. Juuti et al. 2003).

In planning the design process, we took advantage of our experience in creative problem-solving processes (e.g., Lavonen, Autio & Meisalo 2000;
Meisalo, Sutinen & Tarhio 1997). The design of learning materials in one of the cases (Lavonen & Meisalo 2000) was based on two components: (i) the basis for curricular dimension, which locates the learning materials in a wider context of the goals of education, and (ii) a design dimension dealing with the process of designing materials, experimenting with them and improving them according to feedback. Several interest groups can have specific roles in preparing learning materials for the complex production process.

**Discussion**

In the analysed papers, the intention has been to design very different types of learning materials, from a hypertext teacher guide for MBL and virtual-and-real learning environment for science teaching, to computer visualisation tools. The end-user’s opportunities to define at least some features of the end product are implicit in the design model. In the virtual and real learning environment developed, the teacher of a course could decide how to use the virtual component and he or she could omit or add some equipment to the real component. Since teachers need guidance and learners scaffolding, one possibility is to design learning paths for the virtual environment. Evaluation data can be collected using several methods, to assess both products and the process of research-based design work. Firstly, data can be obtained by asking users open questions in a questionnaire. Secondly, a Likert-scale instrument can be utilised to clarify users’ opinions about the learning materials designed. Furthermore, the research-based design process can be evaluated by analysing field notes written during teaching experiments and finally, by assessing the learning materials.

In summary, it has been proved possible to design and create inquiry-oriented learning materials that provide support for practical learning projects and which stand in sharp contrast to traditional textbook-oriented teaching and learning (cf., Mastropieri & Scruggs, 1994). It has been also possible to replace passive learning and paper-and-pencil activities with activities using electronic components and apparatus, and to guide students to record data and describe and explain experiments. The idea that students do practical work and experiments, as well as make summaries and conclusions in their notebooks, can be practical and productive. The intellectual processes in such work are typically of a higher level, involving observing, predicting, controlling variables and experimenting, as well as hypothesising. Such activities may lead students to actively explore phenomena and develop their own hypotheses, rather than to simply verify previous readings. As a solution to the outlined challenges, the design-research approach and intensive use of creative problem-solving methods are recommended as an outcome of the analysis.
Acknowledgements

The author is greatly indebted to all his colleagues, especially Jari Lavonen, Kalle Juuti and Maija Aksela, whose contributions have made this work possible.

References


Textbooks and electronic resources for low secondary schools

An analysis of the French situation

Introduction

Three years of research (1999-2002), coordinated by INRP (National Institute of Pedagogical Research), has been devoted to textbooks and electronic resources for lower secondary schools. The general idea was to describe and better understand the transition from paper to electronic textbooks, mainly taking into account three school subjects: History and Geography, Mathematics, and Technology. Several results, concerning offers and uses of textbooks and electronic resources, have been obtained and reported in a book (Baldner et al., 2003).

In this text, we try to summarize the main results of this study, concluding with a discussion focused on some alternative models of pedagogical resources. But first of all, we will give some insight into our research point of view.

Our research activity deals with design and use of electronic resources in education. We adopt a sort of “continuist” vision (Moeglin, 2002). To foresee the possible place and roles of electronic resources, we need to have a deeper understanding of the overall context of design and use of paper textbooks. The ecotone metaphor, proposed in the context of pedagogical resources by Mike Horsley¹, seems relevant: a new emerging situation, partially a heritage of the past, has to be described and analyzed. In the short term, there will be no substitution, no breaking, but progressive elaboration of hybrid solutions. The problem is to elaborate about the existing conditions of electronic manuals, in the context of current educational organization and structure and available instrumentation which offer both potentialities and constraints.

Paper textbooks: problems and limitations

To briefly summarize the French situation concerning textbooks for low secondary schools, there is absolutely no control from the Educational Ministry. Private companies directly propose textbooks, taking into account the prescribed national curriculum. The choice belongs only to the teachers in each school and the textbooks are lent free of charge for students. The
authors of textbooks are mainly teachers, who have set up interesting activities in their classroom and are often aware of recent results of didactical research. In this open context, we could imagine observing a great variety of innovative books. This is not really the case. The studies conducted in different school subjects give a very different landscape.

A study of 8 different history books for grade 9 shows important similarities between them (they are nearly all the same!), a low variety of proposed student activities based upon a didactical or pedagogical, not really innovative model.

In mathematics, we record an increasing complexity of textbooks. They are catalogues of descriptions of school activities and exercises, including directions for use. They are no longer reference books for students, many of who face great difficulties in reading and understanding them.

In technology, a new school subject for low secondary schools, with no tradition of textbook design, the first ones are, before all… manuals! This new subject is oriented towards projects, but not its corresponding textbooks.

We also observe a classical side-effect of the organization of the market of textbooks: as teachers select the textbooks, publisher’s strategy is oriented towards them, their real clients. Possible use by pupils is only considered at a secondary level.

Facing these results, we could think that paper textbooks are an outdated model. They have to face too many contradictory constraints: tool for teacher, book for student or parents, catalogue of classroom situations… A model that became too complex and cannot anymore support paper limitations, a sort of hypertext you have to operate by yourself! Textbooks remain important in the French educational system, but they are not books, in the sense that they cannot be read as classical books. They are undefined or ill-defined objects and one can consider that they have to become digital to fill all the requirements needed by the different stakeholders.

**Electronic resources: an abundant offer, for which uses?**

Recording the offer of electronic resources, we observe a rather abundant and hybrid offer. For example, in mathematics, some textbooks include CD-ROMs or provide an associated website. In history and geography, one can access a great deal of on-line resources. Nevertheless, a set of problems can easily be recognised.

First of all, the redundancy is very important. For example, the CD-ROM given with a mathematical manual has exactly the same content. Each screen corresponds exactly to half a page of the paper manual (some additional links are added). The intended usage is not clear: is the CD-ROM designed for homework?
The debate is, as usual, directed by technology promises. New devices such as the "cartable électronique" (digital schoolbag) would solve main educational problems. The digital schoolbag appears as a metaphor with very different examples corresponding to a portable device (Vivendi Universal) or services with Internet access: the i-m@nuel (Editronics), the schoolbag from University of Savoie, the ENT (numerical environment for work), and so on.

The first experiments show that these devices are, for the moment, not really conclusive, but many producers want to convince all the stakeholders that they really are “the future”.

For example, in the low secondary school of Moreuil, where the Vivendi digital schoolbag was trialled, its arrival gave the opportunity to organize a communication show. Korean TV was present and on the website, several pictures and videos celebrate the event. One photograph shows two students comparing the weight of the digital schoolbag with some textbooks:

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“On one pan of the balance, the digital schoolbag, on the other: the dictionary, the history book… The science book does not lie and the pan already leans…”
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Even if the question of the schoolbag weight is a recurrent problem evoked by newspapers at each beginning of the school year, it is a very weak argument in favour of electronic devices!

This short story shows that the benefit of digital devices are not so clear, and even if electronic resources can certainly offer new opportunities, notably due to their multimedia or interactive features, their real uses by students and teachers in classroom settings raise many questions.

Studies in history teaching (by questionnaires and interviews, reported in Baldner et al.) give some interesting hints. It appears that, in this subject matter, a good teacher does not teach the content of the manual. Her expertise relies on the fact that she is able to build her own discourse, not the one of the textbook. So, an important question of compatibility between resources and professional identity appears: teachers use resources in a specific way which seems legitimate according to their views of teaching, and most digital resources fit ‘old pedagogy’ not accepted by most teachers. Another point concerns the exercises associated with information and communication technologies. Too often, old fashioned exercises are proposed (for example multiple choice questionnaires). A double evolution appears then
necessary, evolution of the professional identity of teachers and evolution of the set of resources included in new digital devices, including their underlying teaching philosophy and exercises models.

Studies of on-line resources and teacher training practices in cartography give similar results: abundant offerings, but not simple direct use. Using information, geographical systems in education requires new competencies for students and for teachers as well (statistics, semiology, ICT…). But one can observe a backward movement compared to the 90’s with old cartographic systems. Advanced teachers used these tools in a great variety of ways with a more clear understanding of their scientific foundations. Nowadays, most activities (in low secondary school) remain too simplistic. The process of finding legitimate classroom activities including digital maps does not seem to be on the right track. Most proposed exercises are, as in history education, not really interesting.

Other problems have to be pointed out: how to design good electronic resources? As we have just seen, most examples are not really convincing. Have traditional publishers the necessary competencies? Who are the authors for these new resources? We observe that textbook authors are not really prepared. For school use, the question is also to create good collective activities, without any clear model for this.

Telecom operators, as in many industrialized countries, have made offers. But they are not directly interested in education and what they propose is often between games and work, these may be good for use at home, but not in school.

So, the panorama is a bit mixed, with no clear tracks to be observed. But the general context is also evolving.

**Educational system in evolution**

An on-going process of decentralization leads local authorities to take more responsibility towards resources for education and to change the underlying economic and diffusion models. But what could be a good economical model for digital resources? Except for the case of encyclopaedias, digital resources producers face great difficulties (this sector does not pay for the moment) to sell them in the educational market. The French Ministry has decided to launch a plan to help them. Taking into account the increasing use of the internet in the classroom and at home, the project of the French Ministry of Education called “Espaces numériques de travail” (numerical workspaces) raises the issue of links between classroom work and homework. But, as described below, the first experiments of electronic textbooks have not really been conclusive. Nevertheless, these initiatives will have some effects.

The process of decentralization may lead to a possible new centraliza-
tion. The choice of textbook belongs to the teacher, but can be given to the school or local authority. We observe that in many schools, digital resources are chosen by documentation teachers and many local authorities, who already paying for computers, networks and internet access, wish to be more involved in the choice of educational resources.

The success of “parascolaire” (books or booklets bought by parents for their children to do schoolwork at home, often during holidays) can be a step towards home schooling or at-home complementary education, facilitated by digital schoolbag projects. The educational conceptions grounded upon lists of elementary skills or competences and decontextualized resources can also reinforce this movement.

**Tension: books or catalogue of resources**

Three models can be roughly distinguished:

- The classical model of textbook as a book: a reference text with a real author who is an authority in the considered domain. The textbook is the “text of the knowledge”.

- The didactical model: semi-interactive manuals including a variety of activities. A book including directions for use. For many reasons, it appears as an up-dated model according to the constraints of paper, may be an intermediate model needing a new support?

- The marketplace model set of independent resources, mainly digital, and are accessible by internet, with two opposite economic models: free exchange or control by big companies.

The question arises of the co-existence of these three models and the impact of ICT on their evolution and co-existence. A possible scenario could be a harmonious combination of these models, mixing paper and digital formats. But the international interest towards pedagogical objects is quite problematic, even disquieting. International efforts to have norms for educational metadata, to produce educational documents by composition, could have a negative impact if the difference between machine communication and human and social behaviour are not taken into account. Norms are not neutral and the Meccano metaphor (building a course by automatic composition of elementary learning objects) is inoperative (see Bruillard and Passardière, 2003). The different norms LOM³, SCORM⁴… are certainly useful for systems to talk together, but have strong limitations. For example, which trace of usages in object definitions?

Does a book cut in small pieces keep a real meaning? This a classical paradox of hypertext: on the one hand, to have a lot of links between blocks
of texts is certainly useful and on the other hand, we need linear texts and even better we need the rhetoric of narrative texts.

**Concluding remarks**

An abundant and diverse offer (textbooks, CD-ROMs educational websites…) is inscribed in a segmented and indecisive market: multiplicity of publishers, diffusion circuits… Contrasted but sometimes not really convincing usages do not indicate clear directions. The waiting horizon of the different stakeholders remains undefined.

The current context requires some evolutions of the current model of textbooks. Rejecting the naive vision of continual and progressive integration of electronic resources in education, we have to question the possible ways of **scholarisation** of these resources, regarding what is called “disciplinary identity” of teachers and mode of **exercisation** in the classroom. As for other social activities, no simple answer seems possible, but a set of linked changes: professional development, evolution of teachers’ professional identity, creation of new document models…

**References**


**Notes**

2 www.ac-amiens.fr/college80/moulin_moreuil/SVT/cartable&/cartable.htm
3 Learning Object Metadata. See http://ltsc.ieee.org/wg12/
4 Sharable Content Object Reference Model. See http://www.adlnet.org/
Computer-based learning and working has become more and more common for many people. The ability to use ICT is now a prerequisite skill to be successful in modern society. At school level this makes it possible to vary the teaching process significantly and increase the usage of active teaching/learning methods as problem-solving, project work, group work and so on.

ICT has a special importance for teaching and learning geography as it provides subject-suitable multimedia tools, such as hyperimages, interactive maps, time-spatial simulations, and complete geographic information systems. Computer-based learning environments enable the creation of hundreds of different virtual worlds to be observed, examined and conceived.

In Estonia the development of ICT has been rapid. The schools are well equipped with computers due to the financial help of the Tiger Leap Foundation created in 1997 by the Ministry of Education and private sector ICT firms. As a result of the program computers were purchased for computer classes as well as for teachers, school administrations and school libraries. According to the statistics there were about 20 students and 7 teachers per computer at our schools in September 2003. Schools had more than 100 different educational software packages including 39 new original ones in Estonian. All the schools in Estonia have been connected to the Internet since 2003 (Mägi, 2003).

Today teachers as students can use some special websites with teaching materials in Estonian. Teachers’ NetGate Koolielu (www.koolielu.ee, ‘School Life’) is supposed to be the main gateway for all teachers. Thousands of study materials are organized according to the subjects. The latest news, articles, links and other information about school-life are easily available, as well as the possibility for mutual communication.

Another famous computer-based environment is the Miksike Learning Environment (www.miksike.com/) which gets 15 000–20 000 visits per each school day. It provides thousands of worksheets and teaching instructions in hypertext-format for different subjects and offers a set of virtual teacher assistant services, which are based on using these materials and make up a collaborative learning reality (Pilv, 1999). Most teaching/learning materials in the Miksike Learning Environment are intended for primary and basic school level.
The special Website of Estonian school geography (www.geo.ut.ee/kooligeo) has been set up under the international programme Herodot. Herodot was an EU funded “Open and Distance Learning” project (1998–1999), which aimed at the provision of a web-based distance learning service for geography teachers (Roosaare et al., 1999). The school geography website concentrates and systematizes information about teacher training courses, examination questions, web-based teaching materials, links to other institutions and websites close to geography teaching (Liiber, Roosaare, 2002).

Educational Software for teaching geography is not very numerous. Only two CD-s in Estonian and three in English are available for all schools (Figure 1). According to the results of widespread questioning the usage of these is not very active (Sarapuu et al., 2003). Based on the estimations of teachers the software should be in native language, corresponding to the curricula and simple to handle; it should fit to age groups, be of high-quality in content and available to all schools.

![Figure 1. The available software about geography and their usability](image)

The diverse possibilities of the Internet as well other sources of different software are used rather modestly in geography teaching for several reasons. First and most important is the language barrier for many students and most elderly teachers. Web-based materials “as they are” are not always ready for immediate use. The amount of information that can be found on various websites is huge, often not suitable for students at a basic school level. Thus, it takes a lot of time to make the right selection of Internet links and compose the special lesson plans or instructions for students.

For those reasons the support for our own original software is one of the main priorities of the Tiger Leap Foundation. One example is an electronic textbook of Estonian Geography (EGCD) for teaching geography in form 9. This project was carried out in 1997–2000 at the Institute of Geography.
of Tartu University with the support of the Open Estonia Foundation and the Tiger Leap Foundation. The authors of the present paper were the main contributors for this project.

**Electronic textbook of Estonian Geography (EGCD)**

The teaching material on the EGCD is organized according to the syllabus of geography. EGCD consists of interactive texts and images, maps, photos, lists of data, and graphical schemes. It includes a glossary, help tool, digital map data (to be used with ArcExplorer), and worksheets and tests (to be used by a novel Estonian testing software APSTest). EGCD requires Internet Explorer and its map window using layered vector graphics demands installation of an Active-X component.

The teaching material on the EGCD is organized on four different levels. The first level, called *JUKU*, is arranged for an ordinary pupil to acquire the obligatory teaching material. It’s the simplest level with short texts, important charts, maps, diagrams, graphs, photos and so on. The second level, *JUHAN*, is made up for students who are interested in acquiring profound knowledge about Estonian geography. It offers many different opportunities for studying geography in depth, providing links for locating additional material in Estonian (e.g. selected papers from popular-scientific journals) on each topic. The third level, *JOHANNES*, is designed for teachers. The learning material is organized systematically (linked indexes of texts, maps, charts, photos etc.). This level provides examples of recommended tasks for students, contour-maps and tests. The fourth level – *KAARDI-JUTS* is compiled for students who are interested in cartography. It gives an ABC of cartography and GIS, presenting an overview of different maps, principles of map design, and examples of GIS application areas. It includes user guides for handy mapmaking software (ArcExplorer and Microsoft Map) to be used with digital cartographical data of EGCD.

**The advantages of electronic textbook compared to the traditional textbook**

The computer-based learning is more interesting and attractive for most of the students than traditional lessons, and it increases the learning motivation, especially among boys. Teaching material on the CD gives more possibilities to use the learner-centred active teaching methods, such as problem solving, group work, research-based projects, case studies, mapmaking, discussions and so on. The use of active teaching methods is first of all based on multiple and various learning materials and worksheets, or instructions that encourage students’ independent activity, thinking and creativity. The learning material is more understandable for students if they
can read sufficiently long but clear (hyper) texts, see a number of illustrations (schemes, photos and maps), animations and use the additional databases to create their diagrams. Texts for additional reading and links to the Internet at the end of every topic guide more interested students to the key sources and profound knowledge. Teaching material on different levels gives more possibilities to consider the individual interests of students.

First of all the EGCD enables students’ individual and differentiated work with the learning material both in the computer class and at home. Students can fill the worksheets about every topic by the help of texts, maps and other illustrative materials. There are also tests for every topic, enabling the students to check their understanding and knowledge.

The EGCD facilitates the work of geography teachers as well. With the help of EGCD teachers can prepare lessons about Estonian geography in a faster and more flexible way by finding all the necessary materials from the EGCD. They can demonstrate the animations, charts, interactive maps or photos in the classroom or easily prepare instructions for individual work. The EGCD enables the compilation of additional tasks for more interested students and differentiates the learning process in the classroom. Teachers can check the knowledge of students with the help of composed APStests on the EGCD. The above-described CD can be regarded as an intermediate stage from traditional to Internet-based learning. Some schools are spontaneously using EGCD in the intranet already and KAARDIJUTS is available on the Internet to be used in distance education and teacher training. However, due to the limited functionality of existing map servers and huge volumes of needed data, the interactive mapmaking is simpler and more effective by means of CD-based data.

**Learning material as Hypertext**

For most students working with hypertext is more attractive than reading linear text from textbooks (Gerhard, Wiktorin, 2000). Very often the learning texts in our textbooks are too brief and lack illustration and are therefore not understandable to many students. The study texts on EGCD seem short but due to the links, different pop-up comments, callouts with remarks and other possibilities are, in fact, many times longer. Student can choose the way to move in the hypertext, what to read first and more profoundly what to see only briefly. While working with the text, students can see forgotten or unknown concepts at the same time (they open in a separate window), read additional comments about some paragraphs or choose between the shorter or longer version of texts. The possibility of “getting lost in hyperspace”, a problem very common to Internet users and stressed by teachers as one of the major pitfalls in learning with new media, is consid-
erably smaller when using EGCD due to its frames, menus and different return buttons.

The texts are illustrated with numerous photos, charts, diagrams, tables, schemes and maps. Several of them are animated, giving students the possibility to see additional explanations (e.g. horizons in soil) or dynamics (e.g. glacial recession). All links to different resources are marked with specific icons.

Everybody knows that maps are most important tools for geographers. The ideology of computer (digital) maps is quite different from paper ones. Flexibility and interactivity of digital maps is one of the considerable advantages compared to hardcopy maps, making them more attractive and learner-friendly. A digital map consists of different thematic layers (rivers, roads, land use etc.) and the user can switch those layers in or out. They provide numerous possibilities to observe phenomena separately and in mutual interactions at the same time. The possibility to zoom in or out allows the user to find the suitable map extent and the relevant scale. It is possible to make cursor inquiries on the map to get attributes of an active layer. There are also several other possibilities (e.g. to measure distance, put markers on the map, change design styles) that are made available for the user via different tools, such as buttons, the set of which differs from case to case. So, according to the study aim, every student can compile his/her own map which is unique and printable.

More interested students can always use the Internet links at the end of each topic to find the connected materials from WWW (articles from journals or newspapers, special web-sites and so on). Using those links students first get to the website of links of Estonian school geography from where he/she can choose the links to Internet. The list of links on the website of Estonian school geography is renewed from time to time and it prevents the process of “aging” of the links on EGCD.

For each topic there are worksheets that consist of different tasks: map work, problem solving, and information finding. Worksheets are presented as MS Word files that allow teachers to modify them. Students can fill in the printed worksheets or write answers directly into the file and then save their work on a disk.

Although the special study program about Estonian geography is available to every geography teacher and is compiled according to curricula, its usability is not as active as we would expect (Figures 2 and 3). The thorough research about computer usage in Estonian schools revealed that the main reasons for modest software use are technical.
The remarks of geography teachers about the limiting factors of using software are the following: no computers in the classroom, the preparation of computer-lessons and composition of instructions for students is very time consuming, few computers in the computer class or overloaded computer classes, poor practice of computer use, no possibility to use video projector and complexity to evaluate the students’ work (Sarapuu et al, 2003).

The increasing use of computers at schools and homes does not automatically improve the teaching and learning results. Though the importance of ICT and computer based teaching activities are emphasized in the new curricula, the real teaching-learning process has not yet reached the up-to-date level in most schools. The adoption of new teaching and learning ideology and application of new methods and resources is too modest. Like before, the most important result from learning seems to be the factual knowledge, not understanding or the process of development as a whole. The gap between the possibilities of computer-based learning and everyday teaching and learning process is growing, just as before.

References


An alternative process of teaching chemistry and its implementation thanks to the computer game Chicka

Who am I talking to? My reader is a person educated well above the average standard of the population, a person who studied Chemistry in school and is also aware that there is no need to use that information again; most of it is now forgotten, with no regrets.

My starting assumption however, which is actually one of my profound beliefs, is that all subjects introduced in general education must be useful in our lives as grown ups. If only one of these fails to be relevant, then the education system has failed in its mission.

Chemistry, the discipline subject of this paper, is a science to which I gave my modest contribution within the scientific research conducted as a CNR Researcher at the University of Pisa. For the last twenty years I then worked at spreading the knowledge of this science by teaching in secondary schools of many kinds, in very diverse sociological and cultural contexts.

The school of thought to which I feel I belong – together with Ben Sel-inger (AUS), John Holman (UK), Paul Jespersgaard (DK) and many others – is the one that maintains that Chemistry is a pervasive science in our society, taking therefore a giant conceptual leap from the long held belief that it should be reserved for the castes of chosen few (from the ancient Egyptian Priests, to Medieval Alchemists, to the scientists of the XVIII century, to most scientists nowadays). Man is now more than ever interacting with Chemistry, given the ever increasing exposure to chemistry-dependent and chemistry-related goods.

In a democratic society, collective general education influences political choices. From this perspective, the old saying that “information is power” acquires an increasingly reinforced value. People nowadays cannot afford anymore the luxury of not being informed about a science that rules the same technology that they use, the medicines that cure them, the foods that nourish them; because otherwise they would become the unaware instrument of any political or market law that will push them to make choices, not out of a real need, but out of induced needs.

For example, consumers are supposed to understand the information on the labels at the back of the items found in the market place, and this infor-
mation is given in the jargon of chemistry. Failing to understand the label, consumers’ choice is guided by the slogans and artful designs of the “front” label.

In this report, I am going to introduce the bare bones of a teaching method that is the result of research and development conducted over many years. Many hundreds of students (both males and females, 16-18 y.o.) have contributed to this development in a constructive, practical and committed way. This study and work with my co-developers was conducted in various Regions in Italy, and in schools very different from each other.

For many, Chemistry is a relatively unknown science. And while people are interested in subjects such as environment, food, diet, health, etc., they don’t know that all of these are chemical processes. And why is this? Because of the way Chemistry has been taught to them in their youth. Unfortunately this is very much the same way in which it is being still taught today – as proven by a comparison of chemistry textbooks published in the last 40 years.

It is therefore apparent that the whole philosophy of chemical education should be re-examined and shifted from the current highly academical model, largely irrelevant for the purpose of general education, to one tailored to the peculiar needs of the modern individual.

In order to achieve this I chose to improve the relationship between people and Chemistry right from the beginning. This approach is based on two different phases, the completion of each one being paramount to successfully achieving the overall result. The first phase consists of learning the language of chemistry; the second phase consists of applying the theory to reality, starting from familiar real-world experiences.

With my students and during the years, we proved that with this new method the perceived gap between theory and reality can be closed.

Phase 1 – Learning the language of Chemistry

1.1 The Genesis. The genesis of this approach goes back to the initial, key point of contact between the processes of teaching and learning chemistry, when the students began to “speak” the Language of Chemistry effortlessly and quickly for the very first time.

This was made possible by the introduction of the concept of the Chemistry Code, which now can be more easily learnt thanks to the new software ЧИЧКА (Code Helping In Chemical Knowledge Acquisition).

The first tool for this approach was a simple, paper made deck of cards representing the seven Groups, from IA to VIIA, of the Periodic Table, PT. After some adjustments, taking on board the feedback provided by the pace of the students’ learning process over the years, the students themselves
eventually converted it into a computer game. Although a naive software in Turbo Pascal, Dimitri (as it was its provisional name) was accepted at the 1st National Conference on Informatic Chemistry, Venice, March 1991.

In the years 1993-97 this approach was set aside because the context seemed more favourable to traditional teaching (during these years Chemistry school results were surprisingly bad notwithstanding the fact that the students had chosen Chemistry as a vocational subject and much time was spent in the labs).

In 1997 programmer Fabio Garganego, a true artist in designing game rules around a set code of rules such as those of Chemistry, wrote the Visual Basic version, and CHICKA was born. The school year 1997-98 provided the tuning data: the learning pace of fifteen-year-old students who had chosen Telecommunications as a vocational subject, not Chemistry (Chemistry school results in this case were excellent).

By 1999 CHICKA was ready to be used. CHICKA can be used worldwide given the full internationalization of the Chemistry Code, and the fact that CHICKA uses no other language.

1.2 A description of Chicka. The full program consists of two separate games: CHICKA BASIC (which provides the learning and composition of binary formulae) and CHICKA ADVANCED with which, thanks to the introduction of Stereochemistry, the learning of composition of ternary formulae is made possible.

Like every game in the world, CHICKA is structured in many levels, which must be won one by one (providing here the “reward” part of the learning process).

Like no other game though, with CHICKA the player mimics the computer moves throughout each level – up to the test sublevel. There the player becomes creative and now creates his/her own formulae, after having copied the computer moves. At the test sublevel then, the computer will stop being a tutor and will become an opponent.

The first four levels are dedicated to learning, with each of them containing sublevels that add a different (chemistry) rule each time. Students approach them as game rules, and because that knowledge will help them to win the game, they will remember them. Subsequent levels are tournaments, each designed to recap concepts from previous levels. The play element is kept with some results being achievable by chance, and not only by chemistry competency.

Chemistry is taught here using images and by exploiting the natural talent of teenagers for keen observation. The colours of the cards and the position (left, right, and centre) of the checkbox on each card are the things to observe. While playing, the student will also begin to realize that the
sequence in which the computer clicks on the cards (which is a set sequence each time that must be mimicked to obtain a formula) corresponds exactly to the position of the groups and elements in the PT. Here the left position signifies a lower electronegativity value and the right position signifies a higher electronegativity value. The position, left or right is reproduced in the formula that pops up each time a good move is confirmed. In the formula, the element on the left belongs to the group on the left of the PT and the element on the right to the group on the right.

In Chicka Advanced, where the prerequisite is to have gone through all levels of Chicka Basic (including the tournaments) students can now create formulae made out of three different elements (versus the two-element formulae they could create up to now). Interestingly enough, these three-elements formulae (ternary formulae) are created using the same game rule used in Chicka Basic: you can click only on two types of cards. This is possible thanks to Stereochemistry – introduced here again as a game rule, not as a theoretical concept.

Phase 2 – From the observation of familiar phenomena to the chemistry realm

2.1 A Linguistics approach to the Language of Chemistry. The use of Chicka, given that its purpose is to teach the language of chemistry, belongs to Phase I. In that phase we could say here that we have addressed and resolved the first problem common to any communication: we found the Message. The Message is intended here as it is in Linguistics, where Sender and Receiver require a common code, at least in part, to set up a communication, and then require a physical channel and a psychological link to establish and maintain that communication.

The Second Phase consists of developing this newly acquired knowledge of the Language of Chemistry by adding the Content: the chemical concepts of the processes. In order to do that, concepts from Linguistics and Literary studies are used for a better understanding of how Expression and Content are linked in Chemistry.

The Student Encyclopaedia is used as a key factor in the second phase. The Student Encyclopaedia indicates the preliminary knowledge (substrata knowledge) that a person has as the starting point when approaching anything new (a scientific subject or a material situation in reality).

The reality will be used as a continuous point of reference to further the student’s textual competence. This greatly contributes to the learning process in the students which is one of the main purposes of general education, whereby they will continue to use this Encyclopaedia, increasingly enhanced, as a reference point to develop other skills which, when combined, will result in their general textual competence in science.
The **Context** in Linguistics is something that is known by the Receiver of the Message and that allows for the Message transmission. Applying this concept to chemistry, we can say that for iron ore to be transformed into iron, we must put it into the context of the Blast Furnace.

Another very important concept is the one of **The Story and The Plot**. We know that the story (tale) taken in its Linguistic sense is accessible to everyone, as it uses a temporal type of approach, and the receiver is in possession of the temporal code. The use of the Plot, on the other hand, is accessible only to those who also have textual competence, for they will be able to elaborate different plots based on different codes. If we present Chemistry with a Plot close to the Story, we will be able to easily locate and exploit those **ellipses** (inherent in the way in which the plot is arranged over time) in order to develop all the wanted sub-stories. The most intriguing advantage of basing oneself on a general story, and its several ellipses, is the chance to be able to go back to the general story whenever necessary and interrupt the development of an ellipsis for the acquisition of certain basic notions which might be given by yet another ellipsis.

A low-layer comparison between Linguistics and Chemistry can be seen best when considering **Lexical Items**. In Linguistics, a lexical item can be a word which is built up out of two (or more) other words and has different semantic and often grammatical features from the words merged – e.g. *pay-master* is a name build up of the verb “pay” and the name “master”; *peace-fully* is an adverb built up of the name “peace” and the adverb “fully”. In Chemistry, the formula FeO (s), an iron oxide produced in the Blast Furnace, is a Lexical Item in its own right, as its properties are not connected to the properties of the single elements “Fe” or “O”.

### 2 Case studies

1 – **Complementarity of processes.** A chemical sentence should be built as far as possible based on the students’ background knowledge about how the world is made, so that they can make sense out of what the text deals with, based on what they would normally expect to happen (consistency between theory and reality).

A chemical sentence that describes the student’s experience in a picnic context could be: Coal (or Wood) + match $\rightarrow$ Heat (which, using chemical symbols becomes): C (or CH$_2$O)$_n$ + J$_1$ $\rightarrow$ J$_2$. However, the reaction which is usually written at the very beginning of any textbook is: C + O$_2$ $\rightarrow$ CO$_2$. This reaction, which in itself is correct, does not take into account the students’ knowledge about their world – in which for coal or wood to burn, only a match, some paper and a few twigs are necessary, and contradicts what the students know because it doesn’t mention the need for a match. On the
other hand the students know that the coal does not burn by itself in the store. When presented with the textbook reaction, students – in order to match theory to reality and to make the new concept agreeable with their existing “Encyclopaedia” – might suppose that pure Oxygen (which for them is an abstract concept) somehow makes up for the lack of a match.

This is a clear example of how the gap between theory and reality can be misleading when they are presented to chemistry students in a Plot that doesn’t match closely the Story. The textbook reaction is perceived as a writing strictly belonging to a chemical course and not as something that describes a process encountered in real life.

The picnic context gives students the knowledge of a process made by Man to produce heat for his own benefit: a Man-centred process. Here coal (or wood), the reagent, is destroyed and energy is produced. Carbon dioxide is the waste.

The importance of the Context is appreciated by looking at an example where the reverse reaction occurs in the process of photosynthesis: a Plant-centred process. Here $\text{CO}_2$ is the reagent which can be destroyed and transformed in wood as it is put in a context of steam, solar energy, and some catalysts. Oxygen is the waste.

\[
\text{CO}_2(g) + \text{H}_2\text{O}(g) + \text{sun’s radiation} \rightarrow (\text{CH}_2\text{O})_n + \text{O}_2(g).
\]

This describes exactly the reality, where we know that plants do not work on the photosynthesis process with the goal of supplying Man with Oxygen.

2 – Student Encyclopaedia, Context, Story & Plot, and Lexical Items in teaching Chemistry. Normal daily processes can be used to introduce the specific chemical reactions we want to talk about:

– The picnic process can be used as a Story to introduce chemical nomenclature, combustion processes in different environments and, gradually, all the ellipses shown in the diagram;

– The experience of frying potatoes is the Story that allows us to introduce osmosis, to demonstrate that oil doesn’t boil, and illustrate all the reasons why it doesn’t. It also shows the transformation of carbohydrates in coal – a home made reproduction of the process which thousands of years ago led to the formation of the present coal-mines …

– The experience of boiling-too-much-an-egg-in-salted-water is the Story which allows the teacher to speak of thioproteins and of gas diffusion, to demonstrate that hydrogen sulphide is a gas and that iron sulphide is a solid, that the white crystals of table salt you put in water are changed into ions …
By designing various Plots closely linked to Stories so that the Ellipses can be identified, it is possible to introduce most chemistry principles in a way that allows the students to always refer to previous knowledge, make sense of the information, and therefore retain it and add it to their "Encyclopaedia".

**Conclusion**

The conception of language as the 'key' to chemistry and as a means of access to the laws of chemistry constitutes the distinctive characteristic of the present proposal. Here the language is grasped as a particular object of knowledge, and considered capable of introducing us to all that concerns the chemical realm.

The reason for this is that scientists through the centuries deposited their knowledge in that code, and now have agreed on it internationally. Thanks to that, the chemical formula becomes a crossroad of signifiers, and its syntactic and semantic structure refers back to other different formulae that form the cultural space of the reading. One deciphers the code of the formulae by assigning to each of its elements (the figures, positions, etc.) one or several meanings that could be derived from the context evoked in the process of reading.

Each group of a limited number of letters, figures and symbols represents a scientific rule and the first mandatory step towards the study of the molecular structures whose transformation into new chemical structures is the very essence of Chemistry itself. It is indeed through the intimate knowledge of the matter and in the relationship between the matter and its environment that Chemistry gives way to Technology.

**References**

Genette, G. (1986) *Figure III. Discorso del racconto*. Einaudi, Torino.


**Notes**

1 This paper, complete of additional diagrams and CHICKA BASIC, is available for free download at [http://www.satiseditore.com](http://www.satiseditore.com). CHICKA BASIC „SatisEditore 2003.
The lack of clear and consistent terminology in the field of educational technology. Problems and solutions arising during a case study

This study analyses the problems arising from the lack of clear and consistent terminology in the field of educational technology, apparent in existing concepts and classifications regarding materials as well as in educational practice itself. In the first place, we will present the motives for our concern. Then we will deal with specific contexts where a lack of clarity exists, as well as describe a specific example of this "terminological cloudiness" and how to deal with the problem. To finish, we will present a series of recommendations and conclusions on the topic WHY THE CONCERN ABOUT UNCLEAR TERMINOLOGY?

It seems somewhat strange that one of the main difficulties encountered in preparing the article was, in fact, the choice of terms to use in presenting the problem of unclear terminology in the field of educational technology. What do the following terms really mean: educational material, didactic resources, instructional media, didactic materials, curricular materials, and didactic media. Should we use only certain terms or can we combine them? These and other terms presently coexist and it is not easy to pinpoint the reasons to use one or the other, or the theoretical justifications for the choice.

It seems logical to expect that when a definition or a text is generated, "a series of considerations be taken into account on the conditions under which it is used ...how the receiver perceives the emitter of the message, what information the receiver has on the topic, how the emitter perceives the receiver of the text" (Rodríguez Diéguez, 1988). However, in reality it does not tend to happen this way.

In this study we will initially use the generic concept of educational material, aware of the fact that any of the terms utilised could have different meanings for the reader. Nevertheless, dealing with the complexity of terminology is precisely our purpose.

Delving into unclear terminology and studying different conceptualizations offers an excellent opportunity to analyse how the role of materials is perceived and how they relate to other curricular components (e.g. objecti-
To review, contents, teaching and learning strategies, other resources) and how all of these are related in practice. Beyond the mere quantitative analysis of the existing definitions, it seems more appropriate to analyse the problem of unclear terminology, analyse experiences in the utilisation of educational materials and delve into the meanings of the various definitions used by schools and other members of the educational community.

We shall go on to some of the main examples and repercussions that lie hidden beneath unclear terminology, which make it necessary to expound on the topic further.

**Examples of the unclear terminology**

The lack of clearly defined terminology presents its most immediate repercussions when the "desired limits" of each one of the definitions and conceptualisations are blurred. Thus, it becomes difficult to identify which material a given definition alludes to. It is even more difficult to know the theoretical assumptions at the foundations of these definitions, and these make it possible to establish the epistemological differences which distinguish various proposals.

This problem is most evidently manifested when the imprecision in the concept of material is left to the interpretation of the reader, the teacher, the pupil, or the parent. An example of this is found in the experience we will describe later. In this example, the problem lies not so much in identifying the different definitions but in the specific circumstances in which these were used in the curricular context and had to be understood by the users.

Another interesting effect of unclear terminology is its presence in the very context of materials production. It is, in fact, difficult to perceive on the part of the authors, editors, publishers, and other producers of materials any clear criteria regarding the characteristics that curricular materials should reflect, or any specification of the theoretical and practical principals behind their elaboration. Faced with the lack of precision and the amalgam of different definition criteria used by publishers, it becomes difficult for teachers themselves to appreciate the real potential of materials or to be able to make an adequate selection. This perplexity and lack of definition is not surprising if we consider that materials are elaborated in a way that is alien to the context of practice. Furthermore, each designer of materials conceives their own material, with their own definition and characterisation detached from what really happens in the context where the resource is going to be used. This is yet another example of the clear break between design and implementation of the curriculum.

As if this were not enough, the situation in recent years has become more complicated because of the "boom" in new technologies, a phenomenon
that currently gets most of the attention in the field of educational technology. It is no longer uncommon to hear researchers talk about the need to refine the concept of new technologies and replace it with others such as technological media, information and communications technology, communication media, or technology networks. Other specialists advocate going back to the more generic concept of teaching material.

The terminology problem is aggravated when professional discussion and classification attempts become polarised; new technologies on the one hand, and the "rest" of materials (including printed materials) on the other. This concept of "new" reflects a view of media which has repeatedly raised problems when it comes time to allocate the functions and areas corresponding to each professional. Examples of problems which commonly arise are: which materials really underlie the concept of "new"; what is hidden behind the differentiation between "new" and "old"; what criteria should be used to evaluate the different types of media; and, which criteria should be used to select the various types of media?

This problem of specifying the difference between "old" and "new" is very well reflected in our own daily practice. It is not uncommon in educational technology classes to encounter difficulty when trying to explain the difference between concepts such as: new technologies, didactic resources, didactic media, curricular materials, etc. Needless to say, this lack of clearly defined terms usually translates into an unclear definition of the profile of the professional who should teach certain subjects in educational training programs (pedagogues, teachers and other educators).

There is also a lack of precision when specifying what each type of teaching professional can offer the field of educational technology. What contributions can be made by specialists in printed curricular materials to the field of educational technology? In what way can new technologies or their use be nourished by experience, work and study in the field of printed curricular materials? What is the profile of the "old" technology professional and that of the "new" technology professional?

Although reflecting a wealth of perspectives and evolution, the great number of definitions and blurry boundaries raises the need for a critical review and, perhaps, a systematisation of current developments in the field of media. A filtering of terms has become necessary to clarify meanings and significance.

The blurriness provoking conceptual and professional imprecision is evidence of a new crisis that is evident not only in the analysis of concepts themselves, but also when attempting to learn the principles underlying those materials and their functions. Other examples of unclear terminology are:
• In courses and training activities. A review of the training courses offered, for example, by Training and Resource Centres (Cefores), professional associations, and Pedagogic Renovation Movements (MRPS) reveals that it is quite difficult to determine the sort of media covered. That is, it is not clear if these courses focus on new technologies or if the purpose is to understand and use printed materials. Similarly, the majority of learning activities proposed which involve the media can normally be included within seminars that focus on other fields such as Natural Sciences, Special Education, and others (Rodríguez Rodríguez, 2001).

• In the publishing context. The lack of precise terminology in the resources elaborated by publishers is alarming because of the seriousness of the consequences, and because publishers produce a large part of the materials used in schools. A variety of publishers seem interested in elaborating resources, but it is customary to find publishers referring to a given material with one significant, and other publishers using the same significant to refer to different materials whose content and structure have little or nothing to do with the first.

• In the context of research. There is no doubt that one of the most evident manifestations of the lack of clear terminology can be found in educational research. It is difficult in some projects to compare or extrapolate results because the criteria used in defining and selecting media has not been clarified, and, thus, the results can not be generalised.

Reasons behind the lack of precision in terminology

Some of the motives that in our opinion can explain the lack of precision in terminology are the following:

• The crisis in the teaching function. It is possible that a large part of the crisis in terminology is related to the broader crisis in the teaching function. It is sometimes difficult to specify the role of teachers with respect to other education professionals. The difficulty in specifying teacher functions is compounded by globalisation and the widening of demands placed on teachers.

• The crisis in the teaching function is most evident in the lack of teacher training in general, and training in the topic of materials in particular.

• Scant concern for the subject matter. Attention has basically been focused on efficiency criteria and on attempting to produce materials with an attractive format. What is lacking is a greater attention to producing quality materials with contents, activities and models that address the principles espoused in the current education reform, and which clearly define the rationale behind characteristics.
• Lack of a database to help systematise materials. Though it is true that countless efforts have been made to classify materials, from a practical perspective a database is necessary to inform teachers on what sort of materials are currently available and to facilitate the process of conceptualisation and classification.

• The appearance of new professionals and fields of study. Society is currently demanding a type of education that goes beyond the purely scholastic. This means that other institutions are interested not only in participating in the educational process, but also in proposing their own materials for use in schools and in other contexts: associations, parents, etc… Many educational contexts are as yet undefined and the material elaborated in these contexts is difficult to classify. That is, it is not always clear what context the materials address.

• A greater attention to other sort of needs in schools. Decisions regarding curricular materials in school do not seem to be at the top of the list of teachers’ priorities. Teacher attention only seems to focus on textbooks (Area, 1991b; Area and Correa, 1992, Paredes, 2000; Rodríguez Rodríguez, 2001).

How we dealt with a case of unclear terminology

To this point we have tried to present some problems caused by unclear terminology. However, what remains is the difficult matter of proposing alternatives and solutions to this problem. As was already stated in the summary, here we present a practical example of how we dealt with unclear terminology when carrying out the empirical research for a study. In our opinion, the terminology problem presented one of the principal hurdles to be overcome in order to guarantee the scientific rigour of our work. To put the experience into context, we will begin by presenting some general characteristics of the study and then delve into the terminology imprecision encountered during the investigation.

Characteristic of the study to put the problem in context

The purpose of our study was to explore the perception of primary school teachers regarding the printed curricular materials published as a result of the educational reform, in order to facilitate teaching practice. We carried out a descriptive study in the province of A Coruña (Spain) through the application of questionnaires to a sample of 383 Primary Education teachers in public schools, private schools, Concertado schools and Unitary Schools.

One of the problems that presented the greatest complication during this study was the lack of clarity and specificity that we found both when reviewing the scientific literature, and when contacting the schools where, we
assumed, the materials were being used. These difficulties became apparent at different points in the investigation. Firstly, when attempting to systematise the types of materials that existed or should exist in schools; then, when attempting to classify the existing materials; and also, when trying to list the proposals presented by the government administration and other organisations.

It was precisely when dealing with daily practice that "unclear terminology" emerged with all its intensity through the opinions and comments of teachers, and their responses to our questions about materials. Also, while attempting to validate our questionnaire we perceived that teachers and professionals were unaware of the meaning and sense of many of the materials that we were asking about. We will go on to analyse the theoretical and practical areas in which the lack of clear terminology was apparent.

One of the most important purposes of our study was to describe the conceptions and classifications that are used in the various contexts. We started by analysing the "administrative context". We found a lack of precision in dealing with the concept of materials itself on the part of the very institutions where a certain terminological coherence should have been expected. We found that it was difficult to establish any conceptual difference between concepts such as didactic material, curricular material, or educational material. These terms appeared interchangeably in curricular documents prepared by the administration, in information on government aid and subsidies for curricular material, and in information booklets.

The inspection agency was one of the first government institutions we visited to learn which materials were supposed to be used in schools. When we were trying to learn the inspectors’ opinion on curricular materials, some inspectors thought we were referring to textbooks and others thought that we were referring to the "red cases" (materials elaborated by the administration to help teachers develop the curriculum). There was not the least bit of consensus about what was meant by curricular materials and which were supposed to be used in schools.

After analysing documents in the Reform, materials provided by the government, texts prepared by publishers, and the opinions of inspectors and counsellors in Cefocops (teacher continuing education centres) which deal with curricular materials, no common criteria were found on the use of a given concept.

We came up against another problem when we investigated the situation in schools. The terminology problem arose when we were gathering teachers’ first impressions in order to prepare our questionnaire, but especially when we carried out the pilot test. We found that teachers did not distinguish between concepts such as resources, materials, media, and so on. It
was similarly apparent that teachers were not knowledgeable about terms and classifications appearing in publications on curricular materials.

In fact, when we mentioned curricular materials, most teachers understood us to mean textbooks, didactic guides, and didactic units but not other materials such as didactic folders, didactic pack, and curricular support material and so on.

Another of the main problems encountered in our experience was the fact that the existing proposals for the conceptualisation or classification of materials were out of touch with the reality of daily practice. Furthermore, even among teachers there appears to be no clear agreement in significants and meanings for coherent use of terms. Teachers use terms interchangeably such as curricular materials and didactic units, new media and curricular materials, or printed media and textbooks. Testifying to this fact, some teachers asked us, “What do you mean by didactic materials?” “Oh, you mean those materials that come with videos!” “Are you referring to those materials sent by the government?” These and other doubts were frequently present in our conversations with teachers.

Consequences of the lack of precision in Terminology

After realising the lack of precision and the difficulty in finding agreement between the definitions used in theoretical work and those used by teachers, we decided to clarify which materials were being addressed in our study. Considering that the purpose of the investigation was to analyse the teachers’ perception of curricular materials, it was necessary for us to closely examine how materials were really used on a daily basis. We needed, in fact, to establish a negotiation of meanings between the existing theoretical concepts and the concepts that we found in practice. It seems obvious that we could not delve into the practice of teachers and ask them questions about materials if the teachers themselves were “unclear” about the sort of material in question. Without resolving the terminology problem it would be more difficult for us to interpret the results.

The essence of the problem was that we had to find the necessary elements “in our own theory” to permit us to approach, connect and delve into the subject of daily practice. It was necessary for us to confront the terminology anomic!

How we dealt with the problem

After realising that we had to confront the terminology problem in order to adequately interpret the results of our investigation, we decided to enter into a constant “dialogue” between the existing theory on the topic (definitions, conceptions, classifications) and practice as reflected by the opinions
of teachers and other education professionals. We needed to find meanings that would allow us to interpret our results in a reliable manner.

In order to understand the theory of materials, we carried out an analysis of the following aspects: the theory of materials itself, the review of models and evaluation guides, and the conception of materials in the educational Reform.

With respect to a deeper understanding of practice, we decided to analyse the opinion of teachers and other professionals to learn which materials were more likely to be known in the schools. We consulted the following sources to get opinions: Primary school teachers, Counsellors in Cefocops (teacher continuing education centers), Public administration officials, Inspection agency personnel, Professors from the Department of Education Sciences, University of Santiago de Compostela (Spain), Reports, documents and catalogues provided by the Administration and other institutions reflecting the diverse types of materials sent to the schools, The various studies discussing the importance these materials have in teaching practice carried out in classrooms (See for example Area, 1991b, 1994 and Gimeno, 1995).

Other criteria for the selection of materials were the extent of there distribution, use and awareness on the part of teachers, and the importance given to them by the Public Administration in the application of the Educational Reform.

The following classification was used in the course of our study as a coherent synthesis of the various definitions found in the theory and perceived in practice. They are, in fact, materials that rarely caused misunderstanding in the context of our research and in the experience of teachers because the significants presented have common meanings that are shared by practically all the professionals in the sample. Our classification centred on basically two groups of materials: ”Normative documents” provided by the Administration, and ”printed curricular materials” addressed to teachers in the exercise of their educational function.

Within the group of normative documents we included the following: the LOGSE\(^1\) itself, the Curricular Design Base\(^2\), the Curricular Framework\(^3\), the Curricular Development\(^4\), the Didactic Demonstrations\(^5\) published by the Xunta of Galicia (autonomous regional government of Galicia, Spain) and the Decree 245/ 1992, of 30 July (DOG 14 August 1992) on minimum instruction. Within the second group of materials we included text books, didactic guides, publisher projects and didactic units.

Afterwards, in order to reduce the risk of misunderstanding even further, we explained the definition of each one of the materials to the teachers in a meeting held at the time of applying the questionnaire or, otherwise, to the
school directors (when it was impossible to meet teachers directly). On the other hand, we considered it important in certain of the questionnaire items to allow teachers the possibility of indicating other materials that they might be using in their work at school.

This was the way in which we attempted to deal with a terminology problem in a specific space, time and context where we had clearly perceived a degree of discordance between the definitions outlined in the theory and those customarily used in practice by teachers. Moreover, we have been able to analyse the variety of significants circulating in the field of educational technology which make it difficult to know the meaning that is behind each significant. The desire to guarantee the scientific rigour of our results has “forced” us to clarify the definition of the materials in question and, thus, put theory and practice in consonance. There is no doubt this is but a grain of sand in the analysis of unclear terminology and the search for possible solutions. Below we present some general considerations on the problem of unclear terminology based, fundamentally, on our experience. We think these considerations might provide some clues for a deeper understanding of the topic.

Conclusions

In conclusion, we would first like to mention that the attempt to clarify this terminological blurriness is necessary in terms of research, theoretical conceptualization, and taking action to address the needs of education professionals (pedagogues, teachers and other educators).

We would even venture to say that, beyond the “obsession” about clarifying materials quantitatively or qualitatively, the need exists to explicitly describe the theoretical assumptions which support each of the significants used in the field of educational technology, and in the broader field of Didactics. This would make it possible to know with the greatest possible precision what each concept refers to and the space-time coordinates of each definition. There is no doubt that this clarification must avoid fragmented interpretations by considering the contributions of both printed curricular materials and new technologies to the field of technology. There is currently greater concern over understanding the role of new technologies, their effects when used by students, and the differences among the various media. However, we must not overlook the contribution made by research in the field of printed curricular materials.

This is a reflection that must be further developed by theoreticians, the teachers that make use of the existing definitions and that possess their own, and other professionals currently producing material (for example pedagogues). These professionals implicitly or explicitly present their own
definitions; sometimes those definitions are related to what can be found in the formal context, and other times those definitions have yet to be systematised and analysed.

References


Rodríguez Rodríguez, J. and Montero Mesa, M™ L. (2002). Un estudio de las perspectivas y valoraciones del profesorado sobre los materiales curriculares de la LOGSE. *Enseñanza*, 20, 127-156.


**Notes**

1 Logse: Ley de Ordenación General del Sistema Educativo (The General Education System Law), DCB etc…

2 Curricular Design Base: (*Diseño Curricular Base*) a list of minimum requirements for all students specified by Educational Authorities

3 Curricular framework (*Marco Curricular*) a document elaborated by Regional authorities that covers issue regarding adaptation of materials to regional context.

4 Curricular Development: (*Desarrollo Curricular*) this document attempts to aid in the planning task by offering models of objective and content sequences.

5 Didactic Demonstration: (*Ejemplificaciones Didácticas*) practical teaching examples prepared by the Galician Education Department and sent to all the schools in Galicia.
3. Breaking the Borders of Otherness
Nationalism and postmodern ethics

Preface

At the IARTEM conference in 2001 in Tartu I presented on how nationalism is daily being produced and reproduced as an important meaning-making context in textbooks used in a Copenhagen public school. This meaning-making context is so ‘natural’ or ‘banal’ that it is drawn upon in a way that is often overlooked, and it is also present in textbooks used in disciplines one should not expect to have a national perspective (see Milner 2002). ’Banal’ nationalism in textbooks, then, is to be seen as the precondition for the following more ethical discourse.

Introduction

The researcher who is working with nationalism and textbooks soon finds out how politically infested this field of nationalism is in insisting on the exclusion of otherness. Since politics is but ethics applied on society (Berlin 1990), the question has emerged for me: how could an ethico-political foundation of otherness be described, a foundation that could challenge a homogeneity imposed by the objective imperative that appears on the surface of modern societies in the form of nationalism? In answering this question tentatively, I have turned to the sociologist Zygmunt Bauman. His ’Postmodern Ethics’ (1993) offers exactly such a foundation for an ethics, which could be labelled an ethics of otherness.

One of Bauman’s main points is that otherness is always already a basic condition of being a moral being – an otherness that modernity inherently has been trying to suppress in various ways. This condition of otherness he names ‘the moral party of two’. This article, condensed, argues that one has to be for the Other before one can be with the Other. It will further point out some factors that counterwork human morality when the Third enters the moral party of two; that is, when the social appears.

An insight into an ethics such as Bauman’s post modern ethics, I will argue, constitutes a strong foundation in criticising, for instance, viewpoints and arguments put forward by modern ’nation-makers’ who have gained political influence during the last decades in Europe. ’Nation-makers’ who insist on a high level of exclusion mechanisms, in the sense that if ’they’ do
not want to be like ‘us’, ‘they’ should basically leave ‘our’ soil. And, I would like to add, this ethical discourse may be of inspiration to textbook analysts and writers too.

**Past the nation?**

The imagination of the nation is still an meaning-making context, or to put it in Foucaultian term: a discursive formation, that is actively being drawn upon to produce and reproduce a certain social identity; that is, national identity. This, in spite of the fact that the nation-state itself has ceased to exist as it has been known in modernity. The nation-state has been, metaphorically speaking, a container sealing off its territory to other nation-states, equally sealing off their territory to others. Each state had a ‘tre-mendous power of colonization and coercive regulation of daily life’ which ‘derived from [a] combined sovereignty over all crucial dimensions of individual and collective survival. For the greater part of modern history the state had to be a ‘viable’ totality’ (Bauman 1993: 138). That is, it had to be able to: 1) contemplate a degree of economic solvency, 2) offer a more or less complete list of cultural services, and 3) defend its boarders militarily. ‘Perched securely on the economic-cultural-military tripod, each nation-state was in a better position than any political unit before or after to take in, enlist, supervise and directly administrate the resources subjected to its power, including the moral resources of the population’ (Bauman 1993: 139).

This tripod, however, has fallen apart in the sense that national economy is today little more than a myth kept alive for electoral reasons; cultural sovereignty is denied even the posthumous existence of the myth, as the culture industry and culture creators have been first to break through the confinement of the state borders; and the global reach and exorbitant costs of weapons have put paid to national armies as guarantors of peace and security. In virtually every field, monopoly of power over their respective populations is falling from the weakening hands of the state – and this, to be more explicit, due to globalisation in the broad sense of this term. Exit the nation-state.

Yet still in the minds of people the nation is daily imagined (Billig, Milner), still nationalism is a strong homogenising force leaving out the Other, or at least keeping the Other at a faraway distance (as Edward Said has described it). If this Other comes to us, s/he has to be assimilated, has to be like us. If this is refused, we will certainly make laws that punish and regulate behaviour so that homogenising processes can take place – pre-ferably, as can be seen with the rise of what I would call neo-nationalistic political forces, the borders should be sealed off to any kind of otherness. Neo-nationalism, then, could be seen as rising out of the flammable combination of nationalism and globalisation (squeezing the vulnerable).
And nationalism, in spite of the death of the nation (-state), is active in producing and reproducing national identity, as previously mentioned. This leads me to a former IARTEM presentation: At the IARTEM conference in 2001 in Tartu I presented on how nationalism daily is being produced and reproduced as an important meaning-making context in textbooks used in a Copenhagen public school. This meaning-making context is so 'natural' or 'banal' that it is drawn upon in a way that is often overlooked, and it is also present in textbooks used in disciplines one should not expect to have a national perspective (see Milner 2002 and 2003). 'Banal' nationalism, then, is to be seen as the precondition for the following more ethical discourse.

**Politics of social identities**

What I have entered is the field of 'politics of social identities' which includes (here too) the battle over categorisation, or to put it more in poststructuralist terms – a battle over discourses. To put it in the anthropologist Arjun Appadurai’s words: 'This vicious circle [of nationalism] can only be escaped when a language is found to capture complex, nonterritorial, postnational forms of allegiance.' (Appadurai 1996:166).

Now, since the researcher who is working with nationalism soon finds out how politically infested this field of nationalism is in insisting on exclusion of otherness, and since politics is but ethics applied on society, as philosopher Isaiah Berlin wrote: "Ethical thought consists of the systematic examination of the relations of human beings to each other, the conceptions, interests and ideals from which human ways of treating one another spring, and the systems of value on which such ends of life are based. These beliefs about how life should be lived, what men and women should be and do, are objects of moral inquiry; and when applied to groups and nations, and, indeed, mankind as a whole, are called political philosophy, which is but ethics applied to society.” (Berlin 1990: 1 f.). – "Out of this came the following question: how could an ethico-political foundation of otherness be described, a foundation that challenges a homogeneity imposed by an objective imperative that appears on the surface of modern societies in the form of nationalism” (see Gellner 1983)?

In trying to work with, and to partly answer this question, I have turned to the sociologist Zygmunt Bauman who in his 'Postmodern Ethics' (1993) offers an outlaying for a foundation for an ethics, which could be labelled an ethics of otherness.

A starting point in Bauman’s book is that pre-modern societies had a God-given order that, in connection with tradition, secured a moral order. But with the rising of modernity, and the de-traditionalised and secular society resulting from this—a society we are so familiar with—morality became a problem. A problem not only to the individual who has/had no moral
foundation when “God is dead”, as Nietzsche put it, but also to the philosophers and law-makers, which were to be much more fatal.

These last two groups of people commenced on a grand project: the philosophers through their rational thinking to create universal ethical systems, such as Kantian rule-ethics; systems that through the law-makers law-making could be injected into all the individuals of a given society, and, hence, secure the perfect rationally ordered society. As Bauman writes: ‘In other words, the moral thought and practice of modernity was animated by the belief in the possibility of a non-ambivalent, non-aporetic ethical code. Perhaps such a code has not been found yet. But it surely waits round the next corner. Or the corner after next.’ (Bauman 1993: 9). What then happened on this road of modernity, transferring ethical systems to law and injecting these laws into the citizens of society, was the opposite of the intended – it de-moralised people.

Instead of being moral actors, people became rule-following actors which – in combination with the enormous, and potentially destructive, forces of the ever increasing amount of technology and with the increasing efficiency of managing – led to the possibility of self-inflicted human catastrophes characterising the 20th century. And not to forget, this is also due to the domineering means-end-discourse exemplified by utilitarian thinking.

In spite of this, morality did linger on. Even in the darkest of hours moral acts were conducted, acts that in the light of cynical-rational means-end-schemes potentially created for the actor a situation of everything to lose and nothing to gain, acts that downright broke the law and brought the actor great (even mortal) risk. But exactly by breaking the law, such acts were moral.

What is characteristic of humans, Bauman argues, are have moral impulses, and what is characteristic of morality is that it is always ambivalent and aporetic. In his ethical thinking Bauman is drawing in particular on the phenomenologist Emmanuel Lévinas who, by some, has been said to be the greatest ethical thinker of the 20th century.

What differentiates Lévinas’ ethics from almost all other secular ethical thinking is that it is not built on the concept of reciprocity. This can be exemplified through the following quotes taken from a chapter in Bauman’s Postmodern Ethics carrying the title ‘The Moral Party of Two’: ‘Ambivalence lies in the heart of morality: I am free as far as I am a hostage. I am I as far as I am for the Other.’ (Bauman 1993: 78). And again: ‘Being-for-the-Other means listening to the Other’s command; that command is unspoken (that is precisely why my responsibility is unlimited), but my being-for means acting for the Other’s sake, for the Other’s weal and woe that frame my responsibility, give content to ‘being responsible’. … It is the
Other who commands me, but it is I who must give voice to that command.’ (Bauman 1993: 90).

But this pre-social ‘Moral Party of Two’, which is characterised by proximity, ends with the arriving of ‘the Third’, who brings with him/her the social. With the arriving of the social starts objectifying tendencies and distance that complicates, and even counterwork, morality. Social organisations assure distance rather than proximity. They exempt some others as ‘faces’, that is as Others, and they functionalise certain traits and actions (see Bauman 1993: 125).

Concerning distance, which is a fact of modern social organisation and society, it can be said that the individuals in these organisations become rather agents living in ‘the agentic state’ than maintaining their status as moral individuals. ”‘Agentic state’ … refers to the situation when responsibility is shifted away from the actor, the actor acting out of someone else’s wishes.’ (Bauman 1993: 125). Agents in the agentic state are separated from responsibility and from facing consequences of action; and their own job is perceived as not morally relevant.

This organisation keeps moral responsibility afloat in the sense that ‘we are but a piece of the machine’. Instead the agents become responsible for his/her ‘own’ group – e.g. ‘brothers in arms’. Moral scruples concern then only the group – not any faraway possible effects. This is a process of de-humanization in the sense that it is effacing the ’face’ – the objects of action are made ’faceless’. Examples can be ’the enemy’, or, as it is normal in modern Western societies, by removing ’the old’, ’the ill’ and ’the mad’. All this (and much more) concern socialization, of which textbooks are a part, in that socialization tends to make ”that vast world out there habitable through norms and rules to be memorized and obeyed.’ (Bauman 1993: 132). Socialization, which can be seen as a structuring element of human behaviour, creates obedience and conventions, but leaves little space for morality; which, in other words, can be described as the responsibility for the other even when the other is the third. This is a responsibility that cannot demand reciprocity.

Conclusion – programme

What struck me in working with textbooks and (banal) nationalism, at least the textbooks I saw, is the high level of taken-for-granted ness. This comes about not only in, for instance, how textbooks are structured, and the themes chosen, but even down to little semiotic details that presuppose a high level of pre-knowledge of ’our’ nation. This pre-knowledge is so ’natural’ that it doesn’t even have to be mentioned. But the question then appeared, in the post nation era should this taken-for-granted pre-knowledge be challenged, or even criticised?
Knowing how infested and high-pitched the current public debate on nationalism (and textbooks) is, I did not want to critically enter it before I was sure about which ethico-political standpoint to take. So, this article is to be seen as a paper in progress concerning the clarification of an ethics which has a foundation of otherness, and which, later on, could be a foundation from which to criticise the homogenising effects of nationalism.

The following bullet points are to be seen more as discussion points than fixed conclusions. In that spirit it can be claimed that what we lack, then, to make the world at least a little more moral are:

• To see morality also through distance
• To give the faceless other a ’face’
• To counterwork the homogenising effect of modernity – and to being aware of language’s role in this (the eternal battle of categories)
• To see morality as not mindless following of rules and norms (heteronomy), but rather the opposite: we have moral impulses
• To see that morality is generosity, not gain and profit. And that morality is without reciprocity

This ethical project is not easy, but it is necessary!

References


Notes

1 ‘Aporia: a contradiction that cannot be overcome, one that results in a conflict that cannot be resolved.

2 Bauman particularly mentions Hiroshima, Gulag and Holocaust, see e.g. Bauman 1989: 208 ff.
Machiavellianism in history textbooks: investigating the hidden curriculum

The construct of Machiavellianism reflects manipulative and managing strategies of behaviour, and cunning and untrue behaviour. The first solid and comprehensive report on empirical studies of Machiavellianism, “Studies in Machiavellianism” appeared thirty years ago (Christie and Geis, 1970). Here Machiavellianism is described as a lack of concern with conventional morality; a relative lack of affect in interpersonal relationships; low ideological commitment, and also a lack of idealistic confidence, comprising a cynical, negative and pessimistic attitude towards peoples’ natures.

A relative lack of affect in interpersonal relationships means that Machiavellian personalities are not empathically inclined: it is possible to impel others to behave according to one’s own intentions only if these people can be manipulated, but not those people with whom you sympathize. The feature of Machiavellianism, denying the principles of conventional morality, is endorsed by the concept that an activity of a man who manipulates others is more utilitarian and pragmatic than those based on the principles of conventional morality. A cynical and negatively pessimistic attitude towards the nature of human beings is related with the Machiavellian assumption that human beings in their nature are weak, gullible and sinful. That’s precisely what allows “the clever person” (Machiavellian) to reach their aims with success.

Machiavellianism, as the desire for authority and ambitions for personal benefit, individualism, preparation for constant change, and manipulating other people while reaching personal aims, is not strange in the society of the modern economy market. Leaders of different rank (starting with a small administrative subdivision and finishing with a big enterprise) are to find the main principles of ruling and to acquire rules of social activity that would help to overcome social chaos and maintain their authority. “A market person” having personal ambitions and concerns is ruled by an instrumental mind, seeks out real benefit, and is ready for any changes and any activity in an immense, uncontrolled, disintegrated and alienated social space. Such a Machiavellian syndrome; instrumental and pragmatic mind, the strategy of nature and activity, the variety of moral and political attitudes, and the ability to become and be whoever, is very often treated as common immorality, anomie and absence of norms.
Though Machiavellianism is valuated negatively in the open society context, it is still considered to be a peculiar order of different economic and bureaucratic-administrative public structures. This is because in the world of business profit, personal and company concerns take priority, and Machiavellianism appears as the secrecy of concerns and purposes, the instrumentalism of activity. Therefore the inconsistency of Machiavellianism’s functioning and public estimation, and controversy processes supporting and repressing Machiavellianism, motivate Machiavellianism’s dynamics and expression in the educational process to turn to the object of scientific discussions.

This article describes two different Machiavellianism researches. The first is empiric research that measures Machiavellian attitudes of students and youth in Lithuania. In this research validity of Machiavellianism theories and cross-cultural instruments is being checked, and transferability to the Lithuanian socio-cultural context is set. The second is the analysis of the potential impact of history books’ material on developing Machiavellian attitudes.

In 1998-2000, after forming different samples of studying youth from 15 to 24 years old (N=800) in Lithuania, we applied a Machiavellianism Scale developed in other cultures (Mazeikiene, 2001, Mazeikiene and Merkys, 2001). The aim of the research was to find out whether Machiavellian constructs described in other cultures and the measurement instruments based on its grounds were suitable for investigating and measuring the phenomenon of Machiavellianism and youth’s Machiavellian attitudes in the Lithuanian socio-cultural context.

While checking the construct validity of the Machiavellianism Scale (Christie and Geis, 1970) we attempted to reveal the feature dynamics measured by the Machiavellianism Scale and its relation to the expression of other constructs (features). In this case the meaningful methods of construct validity were used in applying instruments that measure different constructs and comparing the factual statistical link between these constructs with theoretically predictable links. We researched how Machiavellian and Authoritarian youth’s attitudes are related: while measuring authoritarianism by the scale of Authoritarian Family Structure (Lederer, 1982) and the scale of Right-Wing Authoritarianism (Altemeyer, 1981), it was set to the absence of statistical relation between Machiavellianism and authoritarianism, what corresponded to the hypotheses of Machiavellianism theoreticians and the results of their empirical research (Christie and Geis, 1970) about relations between mentioned constructs.

Test-retest reliability and factor analyses disclosed that Machiavellianism is the stable behavioural feature that has a latent structure (dimensiona-
lity) distinctive to Lithuanian socio-cultural conditions, which can be interpreted on the basis of Machiavellian theory formed in other cultures.

While checking the construct validity we compared the Machiavellianism test results with the results gained by applying other methods of Machiavellianism research (N=203). This other method included four stories describing life situations. The heroes of the stories faced a moral dilemma, and they could choose one decision from two showing Machiavellian or not Machiavellian models of behaviour. The respondents had to evaluate all factors and potentials, and to foresee the heroes’ behaviour, to think of the ending of the stories, and justify the chosen situations. The attitudes of the respondents were then measured according to the Machiavellianism Scale.

The results of the research reveal some peculiarities of Machiavellian expression. It was seen that Machiavellian attitudes depend on gender (men’s Machiavellianism is stronger than women’s). It came out that stronger Machiavellian expression is typical to pupils and students whose parents were divorced; people who grew up together with other children (brothers, sisters) in the family had weaker Machiavellian expression.

The appliance of this Machiavellian measurement instrument showed that the theoretic construct of Machiavellianism and the measurement instruments formed on the basis are useful for studying the phenomenon of Machiavellianism, and youth’s Machiavellian attitudes in the Lithuanian socio-cultural context.

**Hidden lessons of Machiavellianism in studying history at school**

How is manipulative Machiavellian behaviour developed? Besides the family, mass media, and communication, schooling influences this behaviour. Therefore I made a first step in the research of Machiavellianism development in the context of education. I have studied history textbooks and additional material for 11-12th forms in Lithuanian comprehensive schools (Kamuntavicius, et al, 2000; Bakonis and Janusas, 2001; Gecas, et al, 2001; Jovaisa, 2002), where I found the description of Machiavellian behaviour. Thus it seems that history studies also give lessons of Machiavellianism, suggest models of behaviour and give an explanation of present events.

The conception of history as the school of life (Historia est magistra vitae) is very popular. History is often seen as practical and involved in teaching life norms, while accumulating experience that is outside the horizon of separate life. The presentment of history helps to obtain prudence, and helps to organize life experience under common rules accumulated from history’s experience. N. Machiavelli thought that history is the best monarch’s teacher in learning the art of ruling.

The History textbook corresponds to certain models of history narration
and historiography, which is one of historical consciousness’ forms. “Historical consciousness includes the mental operations (emotional and cognitive, conscious and unconscious), through which experienced time in the form of memory is used as a means of orientation in everyday life” (Ruesen, 2001, p. 2). “Historical consciousness moves from the present to the past to return to the present satisfied with experiences to disclose the future as a vantage point of action” (Ruesen, 2001, p. 3). Historical consciousness is an understanding of the present and the hopes of the future, expressed through interpretation of the past.

The importance of history in the explanation of present events is pointed out and indicated by Lithuanian pupils themselves. In 1992, after Lithuania was involved in European research “Youth and History” and after carrying out the research of pupils’ historical consciousness in Lithuania, it emerged that the common interest of Lithuanian pupils in history exceeded the European average. Lithuanian pupils also have a tendency to emphasize the importance of history for understanding of the present as well as in heading for the future (Poviliunas, 1998). In both above-mentioned cases Lithuanian pupils emphasized this more than foreign pupils.

While talking about the development of Machiavellianism during the history course the role of diplomacy, conspiracy, hidden agreements and deceptive promises in historical events, marked out in the above mentioned textbooks, should be singled out. The above mentioned textbooks point out and differentiate between Lithuanian rulers (mostly dukes) who used to reach their goals by the means of war and those who did it by the means of conspiracy and diplomacy. These different means of political action (diplomacy and open hostility) are clearly named in the text. Pupils are then asked to analyze them using special tasks.

**The emphasis of instrumentalism and consequentialism in hidden Machiavellianism lessons**

Machiavellianism is usually called consequentialism – the theory of consequences, of how to reach the desirable consequences and estimate behaviour or actions according to their consequences. Therefore, while teaching Machiavellianism by didactic means in hidden curriculum, high emphasis is placed on revealing the link between reasons and consequences. In the above given textbooks texts are usually concluded by the questions (tasks) to establish the reasons that resulted in the consequences described in the historical text. The tasks are meant to distinguish the real reasons for events and the actions of historic figures from assumed, demonstrative, and openly claimed reasons and pretexts. Usually Machiavellianism is related to instrumentalism and pragmatism, therefore, mentioned textbooks give the
tasks that are related to distinguishing desirable goals and means by which these goals can be reached.

I would assign the interaction between the texts and questions (tasks) for those texts to specific didactic methods that emphasize the Machiavellian construct. Questions (tasks) after texts not only test how the pupils have mastered the material but also point out the thoughts and meaning of the text. The tasks are meant to point out the tactics of particular historical figures (usually rulers), indicate the reasons for actions and events, and explain the efficiency or inefficiency of historical figures’ chosen political tactics and means.

While analyzing these textbooks from the point of view of Machiavellianism construct representation and description, it could be noted that there is a difference in how the Machiavellian behaviour is evaluated regarding goals (matching the interests of the nation) to be reached and actions pointed against the interests of the nation. Machiavellian actions of Lithuanian rulers directed to strengthening the state and increasing of stability and welfare are positively evaluated. Positive evaluation of Machiavellianism is also consolidated by the fact that intentions and action goals are well known and are not secret, and therefore are not considered as dangerous. Meanwhile, Machiavellian actions against the Lithuanian state and nation are considered as negative. For example, such Machiavellian behavior as trying to conceal a guileful and secret treaty between the Soviet Union and German rulers regarding Lithuania (Molotov-Ribentrop treaty, 1939; secret protocols of the treaty defined the territorial spheres of influence Soviet Union and Germany would have in Eastern Europe) is unambiguously condemned.

**Machiavellianism of national ‘heroes’ during ‘the golden age’**

Having analyzed the above-mentioned textbooks I have found that the features of Machiavellian behaviour are clearly singled out, especially in describing the behaviour of outstanding Lithuanian figures (heroes, great men). These textbooks in particular give some details of biographies of outstanding historical figures (heroes), government methods, and life and death circumstances. The creation of such psychological characters suits Machiavellian behaviour description. The textbook meant for Lithuanian history (Kamuntavicius, 2000) is full of Machiavellian behaviour descriptions while speaking about great Lithuanian Dukes’ activities. Clear and outstanding Machiavellian behaviour descriptions can be found in the textbooks while reading about Gediminas (years of reign 1316-1341), Jogaila – the Great Duke of Lithuania (1377-1381, 1382-1392) the King of Poland (1386-1434), and Vytautas the Great (1392-1430).
As an example of Machiavellian behaviour emphasis through didactic methods, I could present a link between the text about the rejection of Lithuanian Great Duke Gediminas of his christening, and questions after the text. The textbook (Kamuntavicius, et.al., 2000) gives the text describing how and why Gediminas refused to be christened, after sending letters to the Pope in 1323 stating that he wanted to be christened. Immediately after this messengers arrived, and in 1324 discovered the real Great Duke’s intentions (p. 42). Gediminas refused to be christened after pointing out Christian crusaders’ violence, greediness and dishonesty. The following questions are given to the pupils at the end of the text: ’1) How did Gediminas explain to the Pope’s messengers his will not to be christened and the statement in letters about his readiness to be christened? Do you think the crusaders believed his explanation?’ ’2) How did Gediminas describe the Christians, especially crusaders, and justify his wish not to be christened?’ This text shows that the behaviour of rulers themselves is not presented as Machiavellian, but pupils are taught to distinguish the real thoughts and intentions from announced and expressed ones. This text also shows how retraction of promises can be based on and justified by rhetoric abilities. It also shows the complexity of relationship between people due to the different interests of figures and states. The same situation with Gediminas refusal to be christened is emphasized in additional material (Jovaisa, 2002) in the following way: ’on one hand Gediminas could really manipulate the question of christening (as did Vytenis [another Great Duke]), on the other hand he understood the necessity of christening and was afraid of possible order invasion and its influence strengthening’ (p. 19).

In the textbook (Kamuntavicius, et.al., 2000) Gediminas is ascribed to the dukes who used diplomatic actions. It is indicated that he was notable for being successful in keeping the peace in Lithuania for some time and avoiding the political isolation of Lithuania for several years. Alongside the factual material letters, recollections that may reveal motives, secret thoughts and intentions are given. At the same time pupils can compare these intentions and secret thoughts with real actions.

What is the influence of the dukes and outstanding Lithuanian rulers’ Machiavellian behaviour on pupils, considering that these descriptions are not thorough within a large volume of textbook material?

I would state that the influence of the description of Machiavellian behaviour in dukes and outstanding Lithuanian rulers textbooks on pupils is significant, and its symbolic value is also important, because the Machiavellian behaviour described took place at the period, which is considered to be the golden age of Lithuanian history and is performed by cultural figures who are considered as Lithuanian heroes.
Collective recalling of the past and interpretation of the past is a selective process in respect of group values and targets; to recall means assigning a consciousness of the past with the deepest and the most fundamental values of the group. Images of heroes of history are important elements of historical consciousness and part of the myths of national history. According to A. Smith (1999), ethno-history implies ‘a Myth of the Heroic Age, or How We Were Freed and Became Glorious’ (p. 65). History is thus an internal and external synthesis, of the real and the fictional, of the objective and the intentional, of the empirical and the normative.

According to the empirical research on modern Lithuanian historical consciousness of pupils and non-pupils (Poviliunas, 1998; Sutiniene, 1996), Lithuanians next to the golden age and brightest periods of Lithuanian history put the living period of the mentioned monarchs, they tend to romanticize and glorify the Middle Ages, with the years of Grand Duchy of Lithuania flourishing. The role of the rhetorical figures of romantic nationalism rulers (romantic figures of Lithuanian Dukes and heroes of national revival) is quite significant. Dukes Vytautas the Great, Mindaugas, Gediminas, Kęstutis, Jogaila are called “heroes of history”. The Hierarchy of values, expressed in the criteria for marking out the heroes include 1) value of self-dependence is predominating (both aspects of it – creation of a strong stable state, merits to independence of the state and patriotism); 2) efficient (good politician, diplomatist, etc.) and personal (e.g., courage) features of heroes play an important role; this is to show that historical heroes are important to people as examples of behaviour and symbols of personal identity. The results of our empirical Machiavellianism research (measuring Machiavellian attitudes of youth and pupils’) show that the determined stronger Machiavellianism of men can be related to Machiavellian manifestation of great men – national heroes observed by pupils in public space i.e. policy, management and historical processes (in our case – history textbooks). It is possible that male pupils express Machiavellianism more clearly and not accidentally as they, forming their identity identify themselves with great men, thus learning the Machiavellian behaviour of great men, but not “great women”.

According to the role of historical consciousness in identifying the collective identity of groups, the question is: what is the role of the Machiavellian behaviour description of Lithuanian heroes in “the Golden ages” forming the collective identity and character of Lithuania? How many Machiavellian features does it take? There are no comparative cross-cultural studies of Machiavellianism carried out in Lithuania. Thus it is difficult to declare that Lithuanians have the features of Machiavellianism. Excepting ordinary manifestations of Machiavellianism in Lithuania we find that the
representatives of other nations stereotypically ascribe to Lithuanians features that are components of Machiavellianism. While analyzing and describing the negative features of Lithuanian stereotypes that Polish people have (Okinszyc, 1995) it is pointed out that Lithuanians hide their true aims and intentions and change their behaviour in unexpected directions. “It happens very often that a Lithuanian hides his true aims and intentions from people around him, he acts in a way contrary to his declared goals, he passes over inconvenient matters in silence… Another negative feature of the Lithuanian stereotype is hypocrisy. I consider hypocrisy to be a new feature of the Lithuanian stereotype which is just being drawn” (Okinszyc, 1995, p. 90).

In an open society, in which Lithuania also can be included, the interaction and the presented material difference between history texts and discursive fields in public sphere (e.g. discussions of different orientation and oppositional parties) are important. Such difference of attitudes prevents Machiavellianism based on manipulation, peradventure, and lack of information. During the period of political changes, people in such countries as Lithuania managed to construct completely different and even opposite versions of history, and live in different ideology systems. At school they studied a soviet and “Russian-centric” version of history, and later mastered the national history formed and restored by Lithuanian revival. Publicity, openness, discussions in open society and the competitiveness of different attitudes form a very promising notion of present events, which develops independent and critical thinking and does not let other people manipulate them.

I investigated only one communication component between the message of didactic material and potential its perception. I did not study pupils’ consciousness as the reference point of didactic material, so it is unknown yet what its educational value is. It is not known yet how the communication between history narrator and listener happens, or how the transference from past to present and later to future happens. Also it is not disclosed in how the material is presented by the teacher and interpreted by pupils, in what present event it appears in the class, and how the potential interpretations of material correlate with pupils’ Machiavellian attitudes (the scale of Machiavellianism approved in Lithuania may help to find it out). These questions are the objects of further research.
References


Towards a Trialogue in Curricula

The aim of this project is to investigate what constitutes a future European’s historic and cultural heritage. Its focus is the three monotheistic religions and their contribution to the creation of a European identity. This investigation has been done in nine European countries and in 20 schools in each country under supervision from University of Birmingham, U.K.

My part of the project has been to examine textbooks for Swedish and for history from given criteria. This task was heavily structured, bound to specific criteria and limited to specific textbooks given by teachers, who are part of an on-going inquiry. The intention is to use the results of the project as a basis to form a plan of action or a curriculum on how to create a European identity. The question is how teachers can help pupils to create a European identity based on the three monotheistic religions as a cultural heritage. This is one way to break the border of otherness.

Do Swedish textbooks break the border of otherness? No, certainly not. They are very focused on Swedish identity. It is very common to write words like: “we Swedes, we from Sweden, in Sweden we do…” The words are even written in italics. When we talk about the other in books, we often use quotation marks, telling that the other really is another one. Sometimes it even means that the other is something funny or stupid. Then, the quotation marks are signs of irony.

What did I find in my study concerning the three monotheistic religions? Well, the textbooks are certainly written from a Swedish and a Christian perspective, sometimes even from a European perspective. I will discuss each religion separately and I will start with Judaism.

Judaism

Judaism and Jewish culture is described through the birth of Jesus Christ and the Holocaust. Nothing else exists between those two events. I was quite astonished to find this result. The Holocaust is emphasized in textbooks for Swedish, emphasized from a universal point of view. It is discussed more as an existential question and not really related to Judaism or Jewish culture. The birth of Jesus Christ is of course more related to Christianity than anything else. It is described through different Christmas traditions, and through this is connected to Swedish identity and everyday life in Sweden.
The same way to describe Judaism appears in textbooks for history. The textbooks tell us about the Roman Empire and the birth of Jesus, and then the Jews disappear. Suddenly there is a Holocaust and Nazi Genocide. The cause for the Holocaust and the Genocide is described almost as a personal vendetta

Hitler’s goal was to clean Europe from Jews, a people he considered enemies of the German people (*Levande Historia* 7-9, p 317)

In his propaganda, Hitler drew three lines as one. It was “Jewish capitalism” which had caused the unfair conditions of the Versailles Treaty. (*Levande Historia* 7-9, p 293)

The three lines were the stabbing in the back – the unfair Versailles Treaty, Communism, and the world power of the inferior Jewish race.

The Holocaust then, and the final solution, is in this way treated as a private concern for Hitler himself. How Germans generally stood concerning the Holocaust remains unclear. The final solution has two pages, text and pictures, and Hitler’s propaganda has one page. Thus no profound analysis or discussion is carried out about the Holocaust.

Facts about the state of Israel are only given as a premium in the textbook *Levande Historia*. The premium is a course pupils will only read if there is time left. This course is not considered to contain the kind of important knowledge, all pupils need. This mean, pupils will not have to read anything about the foundation of the state of Israel, nor about the conflicts between Israel and Palestine. Thus, the pupils not reading the premium are not offered the chance to understand one of today’s dominating world conflicts.

The absence of facts about Judaism in textbooks for history and Swedish prevents pupils from getting an understanding of Jews and a Jewish way of life. This absence might in itself give a negative view of Jews. They become aliens, the others. How can we break that border?

**Islam**

Islam is not represented at all in textbooks for Swedish. A reason for this is probably that Islam and the Arabic world is not considered part of the European world (in textbooks). The Persian collection of tales, the *Thousand and one nights*, is almost the only thing mentioned.

In textbooks for history, the text gives a fairly good picture of the Arabs and their contribution to the development of European culture. But the text gives very little information about Islam, and the culture of Islam, and that makes it hard for pupils to understand and appreciate Islam as a religious phenomenon. Besides, the whole part is a premium. The part is even set in
smaller type, which further indicates the premium’s function: a course of lesser significance.

You can also find some stereotyped images in the text. The text claims that women earlier in history played a more active role in society.

During the 8th and 9th centuries women did not live the confined life; they later came to do. Then, there were women authors and composers (*Levande Historia* 7-9, p 117)

The text also speaks about the veil being a Persian custom, primarily for the women of the upper class. A perspective of past time is immanent. At the same time, the pictures accompanying the text all show highly veiled women. The pictures have a present-day perspective. Thus an image of weak and veiled women is presented through the pictures and text. Text in textbooks for religion speaks of Muslim youths and say that the Muslim youths do not go to dance clubs, and that they do not drink beer. This is probably to some degree the truth. But what is unsaid?

Yet another prejudice is presented through a text about Arabs and their views of Europeans: in a column of normal types, and on a page not belonging to the premium, it is stated that the Arabs looked upon themselves as superior to all other human beings. Most inferior of all were black people, but also people from western and northern Europe.

They seem more like animals, than humans. The enormous distance from the sun makes the air cold and the sky hazy. They therefore lack warmth in their skin, they are coarse, big bellied, pale, and with long hair, slow-minded, ignorant, and silly (*Levande Historia* 7-9, p 112)

This page concludes the chapter about the Arabs and the Arabic world. One has to ask oneself: why is this considered so important, it has to be in the compulsory part of the textbooks? Is this a way to break or create a border of otherness?

**Christianity**

Overall, textbooks and educational media for Swedish have themes not easily connected to religions. The themes are primarily about everyday life, but also about the class-based society and existential questions. Poverty, suffering and death are fairly common themes. They may indirectly be connected to a religious perspective. Many stories are about the supernatural, popular belief, and fear. Security may then take form of belief in God. A Christian perspective comes in a natural way, in that the textbooks describe the role of the Church in the development of a written Swedish language in general, and as decisive for an official written Swedish, through the translation of the Bible into Swedish.
The most common Christian theme is that of Christmas and Christmas tradition. Christianity is described as a natural tradition, as a living tradition in pupils’ own homes, through a connection to songs, games, nursery rhymes etc. These are all tied up with childhood and adolescence. Life is interwoven with questions of existence and identity, and Christianity, with its perspectives on life, is seen as the normal alternative, the one we can feel safe within.

The textbooks for history have a primarily socio-economical perspective. Discussions of valuations are non-existing, but hidden. Implicitly given valuations are abundant. Nevertheless, there is a Christian perspective dominating the texts. This Christian perspective is made clear, both through the absence of things said, and through references to the Church, to God, and to the Virgin Mary. The most important theme is the birth of Jesus Christ and Christianity, and it is connected to Christmas and Christmas tradition. Another important theme is the Reformation and The Thirty Years’ War. There is an overwhelmingly Swedish perspective on the Reformation. It is described as an event of the utmost importance for Sweden, and Sweden is given a great role in the protection of Protestantism.

Sweden soon became the most important country, when it came to defending the Protestant belief (Historia, Globen, p 20)

The military efforts of Gustavus Adolphus II are primarily described as a war in defence of Protestantism. The king praying introduces the battle of Lützen: “Jesus, be my aid today, to fight for the honour of Thy name”. By such quotations, one highlights the Christian perspective.

Conclusions

First of all, I want to point out that this examination does not give a totally fair picture of the contents of textbooks and educational media used in Sweden. This investigation has been limited to the choice of textbooks and educational media provided by teachers participating in the inquiry. Further, the criteria have not been applicable for the subjects of history and Swedish. These curricula have a design, which to a certain degree rule out the three religions. The religions are directed to the subject of religion.

The only religion contributing to a European identity and culture is Christianity. The perspective must be characterized as a western one, and the spirit of community arising, is primarily a western one. This perspective and this community stand out because non-western perspective and community are excluded.

The most surprising fact is the silence around Judaism, in history as well as in Swedish. Even religion as a subject tends to leave out Jewish history,
and to regard Jews as an alien group. The Holocaust is given much space, which might be a result of the Swedish Government’s direct demands.

A Christian perspective dominating the texts must be seen as the result of the connection to Swedish culture. Christianity is interwoven with the identity of the origin of being Swedish, and provides an answer to the question of who we are. The Christian perspective is predominant in the texts, often in an implicit way, through connections to traditions, and the celebrations of festivals.

If the history subject shall provide pupils with an understanding of history, helping them to understand the times they are living in – then we must ask ourselves why certain parts are given only as premiums. Why is the founding of the state of Israel, and the on-going conflict between Israel and the Arabic states, given as a premium? Why is Arabic and Muslim history a premium? Why is the history of China a premium? Is it a well-defined choice, in accordance with the curricula, or is it an expression of implicit evaluations?

Guidelines for examination of content of cited textbooks

Examination of materials on Jewish themes
1. What are the most common Jewish themes taught? Please examine whether these themes are presented in a objective fashion
2. Please evaluate whether these textbooks and educational materials would enhance a child’s understanding of Jews or Jewish life
3. Please evaluate whether these textbooks and educational materials Ôre-inforce’ or Ôenforce’ a negative perception of Jews
4. Please evaluate whether these educational materials and textbooks allow students to appreciate Judaism as a religious phenomenon spanning the ages?
5. Please evaluate whether these educational materials and textbooks give students some sense of the richness of Jewish history, especially as it relates to their own history
6. How is the Nazi genocide treated and taught?
7. Please evaluate whether and the manner in which these materials acquaint students with the history of modern Israel and contemporary Jewry
8. Please evaluate whether the materials highlight the cultural diversity of Jews?
9. Please evaluate whether the materials presents Jews as an alien group.
Examination of material on Islamic themes
1. What are the most common Islamic themes taught? Please examine whether these themes are presented in an objective fashion
2. How do these texts and materials deal with the teaching of the Crusades?
3. How do these texts and educational materials present European imperial history with respect to the Muslim world?
4. How do these texts and materials deal with the historical Ottoman presence in Europe?
5. Please evaluate whether these textbooks and educational materials give students some sense of the richness of Islamic history, especially as it relates to their own history?
6. Please evaluate whether these textbooks and educational materials allow students to appreciate Islam as a religious phenomenon spanning the ages?
7. Please evaluate whether the materials highlight the cultural diversity of Muslims?
8. Please evaluate whether the materials present Muslims as an alien group.

Examination of material on Christian themes
1. What are the most common themes taught? Please examine whether these themes are presented in an objective fashion
2. How do the texts deal with the issue of the Christianization of Europe?
3. How is the Reformation presented? Are questions surrounding Jews and Muslims dealt with?
4. Is the impact of Judaism and Islam on the late medieval church dealt with?
5. Please evaluate whether these educational materials ‘reinforce’ or ‘enforce’ a negative perception of Christians
6. Please evaluate whether these educational materials give students some sense of the richness of Christian history, especially as it relates to their own history?
7. Please evaluate whether these educational materials and textbooks allow students to appreciate Christianity as a religious phenomenon spanning the ages?
Interconnection/other
1. Please evaluate whether the material helps students appreciate the contribution made by the three faith tradition to European/national history and culture?
2. Please evaluate whether the materials helps students see the contribution made by any faith tradition to European/national history and culture?
3. Please examine whether 'progress' is made through the years with regard to knowledge on the interconnections between the three faith traditions and cultures and their contributions to Europe.

(Department of Theology, University of Birmingham, U.K.)

References


Examined textbooks and educational materials
Öhman, Ch. (1992) Sesam 1, Historia. Stockholm: Almqvist & Wiksell
Reinforcing the border of ’otherness’:
Socialisation to gender roles through social studies textbooks

Social and human studies have great potential in socialising pupils to gender roles. Firstly, school subjects such as civic education, family education, health education, and human studies are practically the only subjects which transmit knowledge about gender relations and gender roles as a part of the official curriculum. In those subjects, topics of gender may form chapters or paragraphs in textbooks, and knowledge of gender roles may be tested and graded. The latter aspect adds to the role that social and human studies play in socialising young people to gender roles: textbooks present usually only one version of reality (Sleeter & Grant, 1991, p. 97) that is regarded as factual knowledge to be learned, examined and marked. This turns school textbooks into closed texts and pupils into institutionally defined readers (Selander, 1995, p. 160-161) who have few opportunities for alternative interpretations.

Secondly, socialisation to gender roles may take place through the hidden curriculum of social and human studies textbooks, that is, through illustrations, examples, narratives, language use, tacit assumptions, etc. Such textual components transmit taken-for-granted norms and values that textbook authors, teachers and pupils do not generally make conscious. Hidden messages work, as a rule, more effectively as they pass through the route of peripheral cognitive processing (Petty et al., 1981) and, thus, may escape the attention of the interpreter’s critical consciousness.

Pupils can, however, resist the socialising power of the curricula. Despite their institutionally defined role, pupils can be resistant readers (Gilbert, 1992) able to see other possibilities than those offered by the text, or simply reject the official and hidden curricula (Apple, 1982, p. 96). Without complex empirical studies focusing on both textbooks and pupils we must neither underestimate nor overestimate the socialising potential of social and human studies textbooks.

As a part of our research projects, “Gender roles in school textbooks”¹, we carried out qualitative content analysis of three contemporary Estonian social studies textbooks: a human studies textbook for form 6 (Kärner, 1995).

¹ The research project was financed by the Open Estonia Foundation.
1998), a civic education textbook for forms 8-9 (Möldre & Toots, 1997), and a family education textbook for form 11 (Annuk, 1999). Also, we conducted a panel questionnaire survey with 135 ninth-formers of an Estonian-language school and a Russian-language school in Tartu at the beginning and at the end of the school year 2000/2001, when the pupils took a course in civic education and used the civics textbook in our sample (see Kalmus, 2002; Kukner, 2002; Säälik, 2001; Toom, 2002 for more details).

**Gender roles in the textbooks**

In generalising all results of qualitative content analysis, I have to say that all three social studies textbooks bear the impress of gender stereotyping and patriarchy.

Similarly to American social studies textbooks published in the 1980s that were analysed in a well-known study by Christine E. Sleeter and Carl A. Grant (1991), Estonian social studies textbooks also tend to depict traditional gender roles and misrepresent reality. Men and boys are represented more frequently and/or are foregrounded on illustrations. Non-traditional gender roles are rarely depicted. The problem of gender inequality is excluded. Regarding a possibility for more egalitarian gender roles, the family education textbook tells explicitly that 'one should not demand equality where equality can not exist' (Annuk, 1999, p. 18). That textbook idealises the primeval patriarchal family model by teaching that 'Men’s home is the world, women’s world is home’ (Annuk, 1999, p. 69).

We did not find excessive use of masculine subsuming language in two textbooks out of the three. However, the civics textbook, which seemed to be the least gender-biased at the first sight, contained many subsuming terms such as 'businessman', 'watchman', 'master' (instead of 'owner'), 'husbandman' (instead of 'farmer'), 'housewife', etc. In the context of contemporary democratic society it is especially problematical that the civics textbook often uses the terms 'statesman' and 'man in power' instead of the gender-neutral term 'politician'. Moreover, the civics textbook does not depict women in political roles. The only exception to this pattern is a picture of Her Majesty Queen Elizabeth II who is born into that role, not elected. Estonian female politicians, let alone the ladies who preside in our neighbouring countries, Finland and Latvia, are ignored.

We may conclude that alert pupils, relying on their personal experiences and observations, can interpret such misrepresentations critically. However, textbooks of that kind do not contribute to the formation of egalitarian attitudes.
**Pupils’ knowledge of gender equality**

We measured pupils’ awareness of men’s and women’s equal rights with two questions: ‘Do female citizens have a right to serve in Estonian armed forces?’ and ‘Do Estonian laws grant equal rights to men and women?’ (The correct answer to both questions is ‘Yes’.)

The civics textbook used by the pupils covers these questions rather vaguely and superficially. The textbook says: ‘Only citizens of this state have a right to serve in the state’s armed forces’ (Möldre & Toots, 1997, p. 79). Accompanying illustrations depict only men in the role of the military. Men’s and women’s equal rights are mentioned three times in passing, among other principles of equality. Without previous knowledge or teacher’s explanations it is difficult for pupils to understand from this textbook whether and to what extent principles of gender equality hold in the Estonian Republic.

The level of our pupils’ previous knowledge was relatively high (see Table 1). At the beginning of the school year, almost 70 per cent of the pupils knew the correct answer to both questions. There was a significant difference between boys and girls, and the Estonian and the Russian schools regarding the question about armed forces: Russian boys, in particular, were less aware of women’s right to serve in the Estonian army.

The pupils’ knowledge of gender equality increased during the school year to a considerable extent. Russian pupils, however, remained more sceptical about women’s right to serve in the armed forces. Regarding the second question, a significant difference between boys and girls came about: 12 per cent of the girls were not convinced of men’s and women’s equal rights by the end of the school year.

**Table 1.** Pupils’ knowledge of gender equality (percentage of correct answers).

<table>
<thead>
<tr>
<th></th>
<th>Autumn</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T</td>
<td>B</td>
</tr>
<tr>
<td>Do female citizens</td>
<td>6.0</td>
<td>9.2</td>
</tr>
<tr>
<td>have a right to</td>
<td></td>
<td></td>
</tr>
<tr>
<td>serve in Estonian</td>
<td></td>
<td></td>
</tr>
<tr>
<td>armed forces?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do Estonian laws</td>
<td>7.7</td>
<td>9.4</td>
</tr>
<tr>
<td>grant equal rights</td>
<td></td>
<td></td>
</tr>
<tr>
<td>to men and women?</td>
<td></td>
<td></td>
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</tbody>
</table>

* The difference between comparable groups (total in autumn vs. total in spring; boys vs. girls; Estonian school vs. Russian school) is statistically significant (p<.05).
We were interested in what role the civics textbook might have played in the overall increase of the pupils’ knowledge of gender equality. The data about the relevance of the textbook as a source of that kind of information for pupils are somewhat inconsistent. As a source of political knowledge for pupils, school textbooks are neither relevant nor reliable compared with the media, family members, peers, and teachers. Nevertheless, 35 per cent of the pupils alleged that they had read from the civics textbook what gender equality means; in addition, 35 per cent declared that they had learned about it from the textbook as well as from other sources. We have to consider, however, a matter of fact that the textbook discusses those questions very slightly. Also, a number of pupils held that they had read from the civics textbook how to protect the environment; that topic is, however, missing from the textbook. Hence, the pupils probably overestimated the importance of the civics textbook as a source of concrete political knowledge.

We also observed statistical relations between the awareness of gender equality and other variables. There was a strong negative correlation between the awareness of gender equality and religiousness: religious pupils (71 per cent of them being Russians) were, on the average, less aware of men’s and women’s equal rights both at the beginning and at the end of the school year. The previous knowledge of gender equality depended also on the habits of media consumption: the initial awareness was higher among those pupils who spent more time on reading books, newspapers and magazines, and less time on watching TV. Moreover, those pupils who observed Estonian political news more frequently tended to know more about men’s and women’s equal rights already in the autumn. We can state that the course in civics fulfilled a compensatory function for pupils studying in the Russian school, for religious pupils, and for pupils being less aware of Estonian political life, as those pupils gained most in knowledge about men’s and women’s equal rights by the end of the school year. We can, however, neither confirm nor disprove the importance of the civics textbook in the increase of knowledge of gender equality.

**Gender-stereotypical attitudes**

We measured pupils’ conceptions of gender roles and related attitudes with four statements: ‘There should be more women in important positions in economy and politics’; ‘I would not want to have a female boss’; ‘A man’s business is to earn money, a woman’s business is to take care of home and family’; ‘Men and women should do housework equally’. A five-point scale was used to measure agreement with the statements.

As a matter of fact, ninth-formers’ attitudes towards gender equality are not yet clearly formed. It is indicated, for instance, by the great share of
answers 'Hard to say’ (ranging from 16 per cent to 45 per cent to individual statements in the whole sample). By the end of the school year, the pupils’ conceptions of gender roles became more clearly formed.

To get a better overview of pupils’ attitudes, I made up the index of gender egalitarianism, which comprises answers to all four questions. The central point on the scale of this index, point 7, corresponds to a neutral or balanced summarised attitude (see Figure 1). Lower values on the scale indicate a more patriarchal attitude; higher values mark a more egalitarian mind-set.

We can see that both at the beginning and at the end of the school year there was an equally great share of pupils whose summarised attitude was neutral. In the autumn the summarised attitude was somewhat tilted towards gender egalitarianism, while in the spring the picture was closer to a normal distribution. The mean value of the index reduced from 8.1 to 7.7, which is not a statistically significant difference (see Table 2). Thus, in the whole sample, the pupils’ attitudes did not change to a considerable extent.

![Figure 1. Index of gender egalitarianism](image)

However, it makes sense to analyse Estonian and Russian sub-samples separately. At the beginning of the school year, there was no significant difference between the mean values of Estonian and Russian pupils’ summarised attitudes. By the end of the school year, Estonian pupils’ attitudes remained nearly unchanged while Russian pupils’ mind-set became significantly more patriarchal.
Table 2. Index of gender egalitarianism (mean value).

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>Estonian school</th>
<th>Russian school</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autumn</td>
<td>8.1</td>
<td>8.3</td>
<td>7.8*</td>
</tr>
<tr>
<td>Spring</td>
<td>7.7</td>
<td>8.5</td>
<td>6.8*</td>
</tr>
</tbody>
</table>

*The difference between groups is statistically significant (p<.02).

The data revealed a significant relation between the annual gain in gender-related knowledge and gender-stereotypical attitudes at the end of the school year: the less the pupils knew about gender equality in the autumn and the more they gained in knowledge by the spring, the more patriarchal their views became. We can conclude that the one-year process of political socialisation, including the course in civics, was relatively successful in terms of improving the pupils’ knowledge of gender equality. The process did not, however, contribute to internalisation of egalitarian attitudes. This holds, in particular, in case of pupils studying in the Russian school. It is difficult to interpret this phenomenon on the grounds of the data at hand. It is possible that Russian pupils’ attitude change resulted from the intrusion of unfamiliar but unacceptable school knowledge into their cognitive schemata. Russian pupils had to acquire the knowledge about men’s and women’s equal rights in Estonia as school knowledge. They could, however, reject the sense and legitimacy of the corresponding laws as Russian pupils tend to be rather critical of Estonian state politics. In order to deny the legitimacy of the laws concerning gender equality, pupils probably had to review their conceptions of men’s and women’s ‘right’ place in society and family, and, if necessary, to ‘correct’ the conceptions reinforcing greater patriarchy. We cannot, however, exclude the influence of a teacher’s explanation.

Conclusions

School subjects such as civics and human studies can be used to widen pupils’ conceptions of gender roles and to dilute the border of ‘otherness’. It is, however, not sufficient to pass on merely knowledge about men’s and women’s lawful equal rights. In addition to that, pupils need proficient analysis and discussion of the problems of gender equality.
References


Gender gap in Lithuanian students’ computer literacy: Present and future research

Introduction

Nowadays males as well as females are occupied in various spheres of activities – industry, services, education, management, health care etc. Computer literacy has become one of the main factors facilitating career advancement for the representatives of both genders. Thus gender equality in computer literacy is exceptionally important in the context of the development of information technology. However, research studies (Dorman, 1998; Harrison et al, 1997) prove that differences between men and women as users of information technologies do exist (women being at disadvantage) and cause discussions in contemporary society. Debates focus on the concept of whether these differences are associated with the gender peculiarities of natural-biological character or whether they are the consequence of the socialisation processes and are of socio-cultural character. The studies conducted by many researchers (Linn & Hyde, 1985; Rocheleau, 1995) demonstrate that gender differences related to cognitive abilities are not of great importance. M.C.Lynn and J.S.Hyde stress the impact of social context on gender differences and the necessity of studies and exposure of situations, which could minimize those differences in information technology.

Empirical research conducted by Lithuanian researchers (Merkys et al., 2001) testified that relics of gender stereotypes, which have developed in the agrarian patriarchal society, rather than cognitive (real or presumed) differences between men and women, act as main negative factors. It may be stated that gender stereotypes potentially restrict possibilities for women to develop their computer literacy potential. The process of destruction of gender stereotypes in computer literacy is a complicated one. Though competence in technology remains to be a culturally prevailing ideal for males, their interaction with the computer is neither basic nor inherent. Thus, there is potential for change.

Scientific studies in international practice prove that women’s lower level of computer literacy is related to their inner motivation to work on the computer and attitudes towards it (Kirkpatrick& Cuban, 1998; Mitra, 1998). Traditionally women are less interested in computers, use them rarely as a pastime, whereas men work more on the computer, and spend more of their pastime using it.
Children tend to develop their interest in information technologies at home and at school. However, comprehensive school is the main place where young people get to know the computer and their attitudes towards the computer are formed there. Preschool children’s (age 1-5), boys and girls’, attitudes towards the computer and their computer skills do not differ (Armitage, 1993). Gender differences may be distinguished in primary classes and this pattern continues in higher schools and further activities. Gender differences in education are the result not only of what is being taught at school but an educational institution is one of the main institutions of personality socialisation where gender differences reveal themselves firstly. Among other factors educational media play a significant role formulating learners’ positive attitude towards IT and minimizing gender differences in computer literacy achievements.

It should be noted that studies conducted in developed countries signify a gradually declining gender difference in computer technologies. The analysis of scientific literature and the review of the situation in our country have proved that gender aspects in computer literacy in the context of our culture have not been sufficiently studied. The lack of both empirical studies and theoretical works, which analyse gender specificity in computer literacy and attitudes towards computer technologies at the higher institution, is evident.

**Scientific problem**

The scientific problem of the article presented is associated with a hypothetical assumption about gender impact on computer literacy peculiarities.

**Research methodology and characteristics of empirical basis.**

The article deals with the study of students’ computer literacy, one of the aims being a demonstration of gender specificity in the context of computer literacy.

The **research object** is students’ computer literacy from the aspect of gender specificity.

**Empirical basis** of the research. The empirical-experimental part of the present study is based on a series of diagnostic studies with a total number of 1004 surveyed students. They represented 4 Lithuanian universities and 5 high schools and colleges. 84.7% of the sample were university students, 15.3% – students from high schools and colleges. The major portion of the sample – 73.1% (N=733) consisted of students from management and economics study programmes. The rest of the respondents (22.9%, N=271) included students from other areas: education, philology, informatics, physics, mathematics, technical, agricultural and health sciences. The study was based on voluntary participation and anonymity.
Study instruments. A test (theoretical and practical) on computer literacy (CL) and 2 anonymous closed type questionnaires “Student and computer” and “Student and studies”, which were comprised of a series of questions on computer literacy and studies, were designed by D. Saparniene (2002)

The presented article analyses the most significant empirical research findings, which demonstrate gender specificity in the context of computer literacy. For this reason the respondents’ answers to the questions in the questionnaire “Student and computer” are being analysed, namely: 1) socio-demographic parameters; 2) emotional – motivational relationship with computer; 3) gender stereotypes with the aim to define statistical links between the aspects noted above and the results of the test on computer literacy.

Research results

The Kolmogorov-Smirnov Z criteria has been used to check the hypothesis on the normality of the test distributions. The score distributions of the theoretical and practical parts of the test are normal (correspondingly Z =1.29, p=0.07; Z =1.22, p=0.10), for this reason for the assessment of interactions among gender and computer literacy parametric hypothesis checking procedures have been used: ANOVA, t-test, F-test. The results of the test are presented in the standardized z scale.

The hypothesis on the equality between male and female computer literacy test results variances and means has been tested. Variance on the female and male test results (both of the theoretical and practical parts1) is equal (correspondingly F=1.2; p=0.30; F=1.6; p=0.20), but the means are different (T_Theor: M_Male =0.79, M_Female =-0.27; t=7.3; T_Pract: M_Male =0.68, M_Female =-0.23; t=5.9). The difference is statistically significant (p<0.001).

Figure 1. Evaluation of the test on computer literacy by gender

The average difference between male and female group students is big, close to the standard divergence. This fact is illustrated by Figure 1. It is evident that about 60% of the surveyed women and only about 17% of the men’s test results evaluation are below the group average, which cor-

1 The theoretical part of the test marked T_Theor, practical - T_Pract.
respects to 0 on the abscissa axes. The conclusion was made that factual difference in computer literacy quality does exist between male and female students (to women’s disadvantage).

Thus it is evident that although men and women have equal rights (they were raised in families, attended the same schools, had equal rights to work on the computer at school) their factual computer literacy differs. Why are men’s test results on computer literacy better than women’s? Our research material points out several reasons.

1) **Computer literacy and some socio-demographic parameters.**

One of the factors that have impact on computer literacy quality is *contacts of the surveyed with the computer*. The research showed that men get familiar with the computer and start constantly working with it at an earlier age. Meanwhile women normally have episodic or regular contacts with computer when they are between 15 and 18 years old, i.e. when the informatics discipline is taught at school. After graduation from secondary school, about 40% of the male students and only 17% of female students use a computer regularly. The study data indicate that gender-based discrimination and the violation of equal rights continue to university from comprehensive school. Thus, *comprehensive school* has a crucial role to play in developing boys and girls’ positive attitude towards computers and emotional-motivational satisfaction from using them, as well as in destroying the gender stereotypes and the actual differences in knowledge in the area of computer competence.

The *possibility to work with the computer at home* has a great impact on computer literacy quality. Statistical data reveal that 14% of Lithuanian families have a PC at home. In the case of our research only 45% of students have a PC (59.9% of them are men and only 38.8% - women). The hypothesis about the dependence of students’ computer literacy level on the possibility to use a PC at home has been proved. It can be stated that the computer environment is being expanded by constant work with a computer at home. The statistical analysis clearly demonstrates that those students who have a PC at home perform much better in the computer test, both in the theoretical and practical parts. We can state a statistically significant difference where in both cases $p<0.001$ ($T_{\text{Ther}}: F=30.0$, $T_{\text{Pract}}: F=32.2$).

2) **Computer literacy and attitudes towards a computer.**

One of the factors that impact computer literacy quality is the *emotional-motivational* relationship of the surveyed with the computer. The study data revealed that students who formed a positive contact with the computer usually demonstrate a higher computer literacy level, whereas persons expressing a negative attitude are of a lower computer literacy level.
Firstly, cluster analysis was used to divide the respondents into groups according to their emotional – motivational relationship with the computer. As the number of the surveyed and of the objects to be classified was considerably big, k-means cluster analysis was chosen. The surveyed were typologised by 5 scales (“Computer as a hobby and an object of admiration”, “Computer as a source of fatigue, stress and dissatisfaction”, “Indifference to a computer”, “Dissociation from computer enthusiasts and fanatics” and “Computer as a factor of improvement and education”) of their emotional-motivational relationship with the computer. The most informative and liable for interpretation by dynamics is the respondents’ (N=1004) division into 3 clusters. 46.5% of the surveyed were included into group 1 – functionalists; 33.5% - into group 2 – computer fans and enthusiasts; 20.1% - into group 3 – computerphobes. There were relatively more women in cluster 1 (N\text{Male} – 39.6%, N\text{Female} – 49.4%) and cluster 3 (N\text{Male} – 15.8%, N\text{Female} – 21.9%) and men dominant in cluster 2 (N\text{Male} – 44.7%, N\text{Female} – 28.7%). Statistically significant differences were obtained in the separate clusters (ANOVA F=7.65; p=0.001).

![Figure 2. Ratings of computer literacy test by emotional-motivational relationship with computer and gender specificity](image-url)

Figure 2. Ratings of computer literacy test by emotional-motivational relationship with computer and gender specificity

In the course of the study a statistical correlation between the emotional – motivational relationship clusters and computer literacy levels has been tested. For the data analysis it has been worth studying how the gender aspect is intervening into the statistical interaction of the two variables discussed above. The graphic analysis (Figure 2) evidently reveals that the best results were achieved by the group 2 respondents (both male and female) or
computer fans, and the worst ones – by the group 3 respondents, possessing an entirely negative attitude towards the computer. It also demonstrates that there are statistically significant differences between male and female attitudes in groups 1 and 2 (cluster 1 – $t = 4.1$, $p<0.001$; cluster 2 – $t = 3.2$, $p<0.001$), in group 3 – $t = 2.1$, $p = 0.05$. The latter group involves a small number of male respondents having done the computer literacy test. Figure 2 witnesses gender effect being stunningly strong and unacceptable both socially and educationally.

3) Computer literacy and gender stereotypes.

The study showed very strong computer literacy related gender stereotypes discriminating against women that exist in the students’ population. Students were asked to give their opinion on gender stereotypes. In general the tendency of gender stereotypes, which is evident and very asymmetric, was surprising. It is symptomatic that almost equally men and women tend to attribute ‘serious’ computer competence to men (Saparniene et al., 2002). The fact that both female and male students are equally conservative regarding the issue of gender stereotypes suggests that the latter have deep cultural roots.

It is worth noting that individual stereotypes predetermine other attitudes, motivations and factual behavior. Many researchers have stressed that positive experiences working on the computer in various spheres contribute to the formation of positive attitudes and motivations (Levine, Donitsa-Schmidt, 1998). The authors recommend the following strategies in declining gender stereotypes: 1) to involve more women into activities related to computers; 2) to form positive study experience in women, designing educational media and textbooks which meet their interests; 3) to disseminate information counter stereotypes.

The huge contrast between the levels of computer literacy in male and female student populations of the 'national origin' partly contradicts the results of other similar studies conducted in developed countries. The latter do not deny that differences between men and women’s computer literacy levels exist but emphasize the increasing convergence tendencies in relation to this aspect. Hence, it is worth initiating studies to find answers to some questions, which are of crucial importance not only for national education and research, but also for the social and economic development and overall modernization of the country. These questions could be as follows:

Is the stunning contrast between relatively high men’s computer literacy and relatively low women’s computer literacy a trans-cultural phenomenon (at least among East and Central European and other post-communist countries), or is it more culturally specific to Lithuania?

Are the highly strong gender effects in the area of computer literacy
characteristic only to students’ population or can they be generalised to other populations (social groups): senior pre-school children; schoolchildren of different ages; employable adults with high education level versus employable adults without high level education; individuals with and without social adaptation difficulties; retired people versus pre-retirement age people?

What measures of educational impact, as well as educational and social policy, could be used for eliminating and emancipating the discrimination and unacceptable equal rights violation? What realistic and effective measures for initiating changes could be used?

The search for answers to these questions could be the focus of an international, collective and long-term research project.

**Conclusions**

The study provided the ground for developing the hypothesis about the existence of the big difference between the levels of computer literacy for male and female students. Male students’ actual computer literacy level is higher than female students’. The former achieved much better results both in theoretical and practical parts of the computer literacy test.

The study data indicate that gender-based discrimination and the violation of equal rights come to university from comprehensive school. Thus, comprehensive school has a crucial role in developing boys and girls’ positive attitudes towards the computer and giving emotional-motivational satisfaction from using it, as well as in destroying gender stereotypes and the factual difference in knowledge in the area of computer competence. Among other factors, educational media play a significant role in formulating learners’ positive attitude towards IT and minimizing gender differences in computer literacy achievements.

The hypothesis about the dependence of students’ computer literacy level on the possibility of using a PC at home has been proved. Better results were demonstrated by students (both male and female), possessing a PC at home.

The study showed a very strong link between computer literacy and gender stereotypes discriminating against women that exist among university students. The fact that both female and male students are equally conservative regarding the issue of gender stereotypes suggests that the latter have deep cultural roots. In relation to computer literacy and gender stereotypes the study data suggest a paradoxical situation. The stereotype that women have much less knowledge about computers than men, unfortunately, fully corresponds to reality. Of course, this fact does not deny social harm and the unacceptability of gender stereotypes, especially those discriminating
against women, in a democratic society. Based on the theory of Social Psychology and Women’s Gender Studies, it can be argued that conservative gender stereotypes alongside with other factors contribute to projecting and actually creating a discriminating psychosocial reality, which violates equal gender rights.

Out of psychological constructs analysed in this study, students’ computer literacy is relatively most strongly affected by the emotional-motivational relationship with the computer. The study data revealed that students who formed a positive contact with the computer (both male and female) usually demonstrated a higher computer literacy level, whereas persons expressing a negative attitude are of a lower computer literacy level.

References


The gender effect on the evaluations of multimedia textbooks

Introduction

Both boys and girls use educational software in schools, but they have different preferences about the characteristics and content of educational software (Caftori, 1994; Joiner, 1998).

Previous studies (Kliman, 1999; Passig & Levin, 2000) have revealed that educational software is often designed for boys and not for girls. This kind of software does not motivate girls and it may explain why girls do not perform as well on educational software as boys. Therefore, a question arises about which programs are preferred by boys and which ones by girls, and which programs are easier to navigate by boys and which ones by girls.

This research focuses on the students’ evaluations of manipulation and computerised assessment. These two fields were chosen because manipulation, instead of turning the pages, and computerised assessment are two of the most important differences between the traditional and multimedia textbooks.

Literature review

Different researchers have studied the attitudes of boys and girls towards computers (McGrath & Thurston, 1992; Rattanapian & Gibbs, 1995; Teh & Fraser, 1995; Young, 2000). There are some studies about the preferences of educational software (Caftori, 1994; Kliman, 1999) and preferences about design of educational software (Joiner, 1998; Passig & Levin, 2000).

Some research found that boys have greater interest in computers than girls both at home and at school (Rattanapian & Gibbs, 1995). The other researchers have declared that there are no significant gender differences in boys’ and girls’ attitudes towards computers (Teh & Fraser, 1995). Kay (1992) has claimed that there are fewer differences in computer attitudes and use among preschoolers and primary school students than older students. One piece of research (McGrath & Thurston, 1992) found out that girls like computers more than boys. Maybe one reason is educational software, which is not developed according to girls’ needs and preferences.

Caftori (1994) investigated which educational software is preferred by boys and which by girls. She found that boys choose more difficult programs than girls. The author considered the programs difficult, when a great
deal of trivia had to be memorized. Also boys liked more aggressive programs. Kliman (1999) analysed the educational software. She asserted that many computer games are stereotypically for male audiences. These programs are violent, aggressive, with primarily male characters, and focused on competition.

Joiner (1998) compared the preferences of boys and girls in four educational programs: Pirates (all characters are men), Princesses (all characters are women), Honeybeards (neutral by gender) and Blocksworld (abstract program). All these four programs were different versions of one of the educational programs. It became evident that boys preferred the program named Pirates and girls preferred the program named Princess.

Passig and Levin (2000) have found that compared to girls, boys gave attention to navigational support. They wanted to know how to continue, how to go backwards, they preferred variety of choices. Girls paid attention to learning interface and dealing with colour and appearance.

Method

Fifty-four students (21 boys and 33 girls) from four schools in Estonia participated in the experiment. Their ages were between 15 and 16. All the groups were of mixed ability.

Six multimedia textbooks were chosen for the study: mathematics, chemistry, geography, Estonian language and 2 textbooks of history. Six units of each textbook (except mathematics, in which 5 units were taken) were used in the experiment. These units of the multimedia textbooks were quite different in their structure and features.

The study took place during a period of over 8 months. All these 35 units of the multimedia textbooks were presented to the students. Students worked with computers independently with every unit. After learning each unit, we asked the students to evaluate the ease of the manipulation and fitness of assessment in a 10-point scale.

At the same time, we analysed the units of multimedia textbooks. Forty-six characteristics were about the multimedia textbook manipulation, such as number of menus, percentage of terms in menus and submenus, search capability, navigation possibilities, number of commands, buttons and icons etc. Twenty-five characteristics specified questions and responses in the unit such as the modes of questions, replying, feedback and hints.

The values of the characteristics of each unit were found by using strictly fixed rules. Some of the characteristics were on alternative scales, and expert opinions in a 5-point scale (-2 to +2) were used for evaluating the three characteristics of the manipulating and one characteristic of the assessment.
Table 1 Correlation coefficients between the evaluations of plainness of manipulating and the characteristics of program units.

<table>
<thead>
<tr>
<th>Characteristic No</th>
<th>Characteristic Name</th>
<th>Mean value</th>
<th>Standard deviation</th>
<th>Correlation with boys’ evaluation</th>
<th>Correlation with girls’ evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>109</td>
<td>Guidelines on the title page</td>
<td>38</td>
<td>.49</td>
<td>.03</td>
<td>.52**</td>
</tr>
<tr>
<td>131</td>
<td>Number of the levels in the menus</td>
<td>.51</td>
<td>.51</td>
<td>-.22</td>
<td>-.41*</td>
</tr>
<tr>
<td>138</td>
<td>Number of key-combinations</td>
<td>6.17</td>
<td>3.19</td>
<td>-.05</td>
<td>-.42*</td>
</tr>
<tr>
<td>141</td>
<td>Percentage of terms in the words of sub-menus</td>
<td>44%</td>
<td>26%</td>
<td>-.30</td>
<td>-.42*</td>
</tr>
<tr>
<td>143</td>
<td>Search capabilities</td>
<td>34</td>
<td>.48</td>
<td>-.29</td>
<td>-.57**</td>
</tr>
<tr>
<td>148</td>
<td>Number of commands (icons, buttons, key-combinations etc)</td>
<td>22.29</td>
<td>12.82</td>
<td>-.08</td>
<td>-.36*</td>
</tr>
<tr>
<td>149</td>
<td>Percentage of familiar commands</td>
<td>56%</td>
<td>38%</td>
<td>.27</td>
<td>.42*</td>
</tr>
<tr>
<td>151</td>
<td>Percentage of familiar icons</td>
<td>64%</td>
<td>39%</td>
<td>.32</td>
<td>.40*</td>
</tr>
<tr>
<td>158</td>
<td>Percentage of hyper-links with marking</td>
<td>59%</td>
<td>40%</td>
<td>.12</td>
<td>.53**</td>
</tr>
<tr>
<td>162</td>
<td>Number of possibilities for navigation</td>
<td>1.8</td>
<td>.68</td>
<td>-.29</td>
<td>-.49**</td>
</tr>
<tr>
<td>167</td>
<td>Attractiveness of the realization</td>
<td>.20</td>
<td>.60</td>
<td>-.32</td>
<td>-.37*</td>
</tr>
<tr>
<td>202</td>
<td>Percentage of screen area for text</td>
<td>58%</td>
<td>26%</td>
<td>.33</td>
<td>.37*</td>
</tr>
<tr>
<td>203</td>
<td>Percentage of screen area for information</td>
<td>67%</td>
<td>22%</td>
<td>.38*</td>
<td>.48**</td>
</tr>
<tr>
<td>215</td>
<td>Keys PgUp PgDn</td>
<td>.66</td>
<td>.49</td>
<td>.29</td>
<td>.57**</td>
</tr>
<tr>
<td>319</td>
<td>Responding in the assessment with keyboard</td>
<td>.39</td>
<td>.50</td>
<td>.03</td>
<td>.41*</td>
</tr>
<tr>
<td>322</td>
<td>Guidelines for responding in the assessment</td>
<td>.57</td>
<td>.50</td>
<td>.23</td>
<td>.55**</td>
</tr>
<tr>
<td>325</td>
<td>Maximal number of the keystrokes for responding in the assessment</td>
<td>26.86</td>
<td>43.61</td>
<td>.33</td>
<td>.61**</td>
</tr>
</tbody>
</table>

* Statistically significant at the 0.05 level, ** Statistically significant at the 0.01 level.
In the bold are given the correlation coefficients of boys’ and girls’ evaluations, which are different from each other at the 0.05 level.
Table 2 Correlation coefficients between the evaluations of fitness of assessment and the characteristics of program units.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Mean value</th>
<th>Standard deviation</th>
<th>Correlation with boys’ evaluation</th>
<th>Correlation with girls’ evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name No 300 Questions about solely unit in the assessment</td>
<td>.36</td>
<td>.49</td>
<td>.51**</td>
<td>.39*</td>
</tr>
<tr>
<td>Essential questions in the assessment No 318</td>
<td>.76</td>
<td>.43</td>
<td>.60**</td>
<td>.56**</td>
</tr>
<tr>
<td>Responding in the assessment with keyboard No 319</td>
<td>.39</td>
<td>.50</td>
<td>.17</td>
<td>.48**</td>
</tr>
<tr>
<td>Guidelines for responding in the assessment No 322</td>
<td>.57</td>
<td>.50</td>
<td>.19</td>
<td>.47*</td>
</tr>
<tr>
<td>Maximal number of the keystrokes for responding in the assessment No 325</td>
<td>26.86</td>
<td>43.61</td>
<td>.03</td>
<td>.55**</td>
</tr>
<tr>
<td>Announcement of the percentage of right answers No 338</td>
<td>.57</td>
<td>.50</td>
<td>.21</td>
<td>.65**</td>
</tr>
<tr>
<td>Announcement of the responding time No 340</td>
<td>.36</td>
<td>.49</td>
<td>-.39*</td>
<td>.06</td>
</tr>
<tr>
<td>New trial after the wrong answer in the assessment No 342</td>
<td>.27</td>
<td>.46</td>
<td>.79</td>
<td>.30</td>
</tr>
<tr>
<td>Commendation after the right answer in the assessment No 346</td>
<td>.27</td>
<td>.46</td>
<td>.79</td>
<td>.30</td>
</tr>
</tbody>
</table>

* Statistically significant at the 0.05 level, ** Statistically significant at the 0.01 level.

In the bold are given the correlation coefficients of boys’ and girls’ evaluations, which are different from each other at the 0.05 level.

Results

The statistical package SPSS 11.5 for Windows was used for data analysis. We calculated coefficients of Sperman rank correlation between the evaluations of boys and girls and the units’ characteristics to find out the characteristics of multimedia textbooks, which make the manipulation simpler for boys and for girls and assessment also more suitable for both sexes. The most important Spearman correlation coefficients are given in Table 1 and
in Table 2. We also used ANOVA for comparing different programs and Mann-Whitney U-test for comparing boys and girls.

**Discussion**

The girls’ evaluations of the plainness of the manipulating were correlated with the 17 characteristics of the manipulation of the program. The boys’ evaluations of the plainness of the manipulation however were correlated only with the one characteristic. The reason for this result would be the fact that boys in our study had significantly higher computer skills and less computer anxiety than girls before the experiment (Mann-Whitney U-test p<.05) according to the questionnaires. The higher computer skills and lesser anxiety of boys ensure that boys can handle different programs’ manipulation.

We found that the girls preferred more guidelines for the manipulation of the program. Units of the multimedia textbooks which had guidelines about how to continue on the title page, and how to input answers in assessment, were rated more highly by the girls.

Also, the girls preferred a simpler program interface. A smaller number of key-combinations helps to reduce the navigational difficulty. Key-combinations are more difficult to remember than different buttons and icons. Also, the number of navigation possibilities and number of commands (icons, buttons, key-combinations etc) were negatively correlated with the girls’ evaluations. If students can navigate with a mouse, with keys, with buttons and with menus, it is deceptive for learners and they do not know how to manipulate the program. Also Alessi and Trollip (2001, 173) recommend avoiding a greater number of navigation possibilities. Our research showed that the girls preferred the familiar icons and commands. We considered the commands and the buttons in the units which were the same as in MS Office programs and Internet Explorer as the familiar ones. The latter programs are taught in Estonian schools. Higher computer skills and lesser anxiety of boys ensured that boys could handle the more difficult program manipulation and were able to navigate with the program even when they did not know exactly what the command or icon meant. Boling et al. (1998) wrote that novice users should interpret more icons than experienced users, who recognize familiar buttons quickly and easily. Amber (2000) recommended taking over standards from IBM and Microsoft. Users are used to these buttons and icons and these corporations have defined about 95-99% of the icons, buttons, menus etc, which are needed in the user’s interface.

The better computer skills of boys insure also that they do not get lost in the multimedia materials. The girls in our experiment needed more help for orientation. They preferred less numbers of levels in the menus and hyper-
links with marking, but the search capability and terms in the words of sub-
menus were not preferred by the girls. All these four characteristics are
connected somehow with the orientation. Levels in the hierarchical menus
hinder the information and less experienced users do not find the necessary
material. Alessi and Trollip (2001) recommend keeping the levels of the
hierarchical menus few in number. Also the terms in the sub-menus hinder
the information. When the user does not know the meaning of the choice in
the menus or in the sub-menus he/she does not choose it. Hyperlinks with
markings mean that the hyperlink changes colour if once selected. This
kind of feature prevents going in circles when the user is lost in hyperspace.
Search capability is useful when the information seeking is needed, but
when the goal is obtaining the textual material, inexperienced users may
get lost because they do not know how they got to the concrete page and
how they can go back.

An interesting result was that the girls’ evaluations of the plainness of
the manipulation of the program unit were negatively correlated with the
attractiveness of realization, evaluated by the experts. The reason for that
result might be again the fact that the girls in our study had less computer
experience. Mayer and Moreno (2002) and Najjar (2001) point out that the
effects of the multimedia presentation have more influence on inexperienced
users and lead their attention away from the learning goal. Therefore the
great attractiveness of the realization might lead the girls’ attention away
from the manipulation too.

Manipulation was simpler for the girls with the keys. The girls preferred
to navigate in the material with the keys Page Up and Page Down and they
preferred also to input answers in the assessment with the keyboard. Also,
the maximal number of keystrokes for responding in the assessment posi-
tively related to the girls’ evaluations of the plainness of the manipulation.

The percentage of the screen area for text and the percentage of the screen
area for the information are not exactly the manipulation characters but
they have an influence on navigation. When the program window covers
only a half area of the screen, all the other programs’ icons and the office
toolbar are still visible and may distract attention. Also the inexperienced
user may unintentionally click on other icons and he/she gets frustrated
when another program opens. Therefore the percentage of the screen area
for information was positively correlated with both the boys’ and girls’
evaluations of the manipulation. The percentage of the screen area for the
text was positively correlated with the girls’ evaluations.

But there was not any evidence that concrete structure of the unit (linear,
hierarchical or unstructured) is easier to navigate for the boys than for the
girls (with ANOVA p>.05).
About the fitness of the assessment as boys, so girls need the questions to be about single unit, which they have just studied and questions had to be essential. Replying is simpler for the girls with the keys. Responding with the keyboard in the assessment and maximal number of keystrokes for responding were positively correlated with the girls’ evaluations of the fitness of assessment. And as we have repeatedly mentioned, the girls in our study had less computer skills, so they needed guidelines for assessment.

There were statistically significant differences in students’ evaluations of the fitness of assessment by the features of assessment (with ANOVA p<.01). Tukey’s HSD indicated that the boys’ evaluations were significantly higher if the assessment was a part of the unit (p<.001). It became evident from the girls’ evaluations that their evaluations for assessment as a part of the unit were significantly higher than for assessment without feedback. The reason for that result might be that the girls need more feedback than boys as was suggested by Chanlin (1999).

The most important differences were found in the boys’ and girls’ evaluations about feedback. The boys preferred new trials when the answer was wrong, and feedback after the right answer with commendation. Announcement of the responding time was negatively correlated with the boys’ evaluations. The girls preferred feedback which could inform them about the percentage of right answers.

**Conclusion**

The lists of preferred characteristics were different for girls and boys. The girls need simpler manipulation of the programs than boys do. To design educational software which motivates girls, the complexity of navigation and guidelines for orientation must be carefully controlled. As the assessment is evaluated more highly if it is a part of a learning unit, it is more rational not to program the assessment as a separate module or piece of software. When designing the assessment, preferences of feedback for both boys and girls should be taken into consideration.

**References**


4. Content and Quality in Textbooks
Canonicity – opportunity or strait jacket?
Reflections on students’ reception of canonical texts

What makes teachers believe that students have the same preferences for factual and fictional texts as themselves? This is a simple, almost naive, question, which requires a prompt answer in the present-day sixth form college. Last year I carried out an extensive study of available text books for the subject Norwegian, in which I made a survey of almost all the books that are or have been used since the last Norwegian school reform in upper secondary education (1994) (Aamotsbakken 2003). Before that I did some historical research which was supposed to serve as a comparative and reflective basis for the above-mentioned study (Aamotsbakken 2002). In total I examined some 30 large anthologies to decide what sort of literary texts had been in use from the 1960s until the present day. To some extent I also focused on factual texts. However these are somewhat more marginal since the”Norwegian literature” is and will be fiction (Berg Eriksen 1995).

Norwegian society, like the other Scandinavian societies, has undergone a very rapid and fascinating development over the past 30 – 40 years. It is sufficient to point out that these societies have become multicultural, more mobile, more urbane and more international. One area that has gone through great changes is the communication and information technology (Kress & van Leeuwen 1996, 2001, Kress 2003, Ottes & Schwebs 2001). In the wake of this development the schools, both primary and secondary education, have been facing great challenges and changes. The pedagogical structural hierarchy which used to dominate most classrooms and most of the teaching has today been largely changed, because the students master the information technology far better than their teachers. In addition, views on teaching have undergone many changes (von Wright 2000, Säljö 2001, Wertsch 1985 og 1998). From the traditional stimulus-oriented and reproductive view on teaching, we have presently adopted a more processual view. The students are co-producers and directors to a greater extent than in the past. The teacher is still seen as important, but his role has changed. The teacher’s function as a tutor and partner in discussions is central in the school today.

Another vital aspect of our society today is the growing amount of texts.
This is both fascinating and a little scary. It’s no longer possible to have a complete view of text cultures. It must be admitted, though, that this was virtually impossible in the last century, too. Today, however, the new technology has given such opportunity for production of texts, combinations of texts and recreation of texts that the total amount of texts is beyond any control. This is the reason why the selection of texts has become increasingly important. This is a question we who work in schools and educational systems have not dealt with very much, and the reason is obviously that the reading of texts was decided by canon. A canon is the basis of the contents of the students’ anthologies and this canon has been established through a slow, unstoppable process. Accordingly, a canon is both product and process (Bürger 1991, Harris 1991). The product is the recurring, repetitive texts in the school anthologies and school editions of whole works. The process is the invisible movement lying behind any selection of texts, either inside the head of the teacher, in statements from consultants, in the editorial staff of the publisher or at didactical conferences.

My studies of canons are, both qualitative and quantitative. However, it is the qualitative aspects of both studies that were of the greatest and most particular interest. The quantitative components were, however, necessary basic elements for drawing conclusions and for reasoning on the question of canonicity, both regarding culture in general and more specifically regarding our educational system. In this perspective this is about what constitutes a canon and also about the question of representativeness. In order to reflect more extensively on the canon’s real impact in our schools I conducted, prior to the study, some interviews with both teachers and students in the sixth form college. The teachers were teachers in Norwegian and in addition English teachers (two of them). The reason why I also asked questions about canonized literature in a subject like English was based on the conception that the canons in these two subjects were quite similar. This is an assumption on my part and the expectation that the canon was of equal importance in both languages was honoured. The three schools I visited are situated in two different Norwegian regions, two of them in urban areas and one of them in a sparsely populated rural district. Of course, it is not possible to find conclusive answers to all questions on the basis of the scarce material I am referring. Still, both types of interviews brought to light some material that deserves some degree of reflection. Initially, however, I shall make some reflections of a more general nature on the phenomenon canon, ways of reading and literary preferences.
**What constitutes a canon?**

The canon in school is the most important canon of our time – this was the conclusion of my two canon studies (Aamotsbakken 2002, 2003). This is an axiom since the school canon is more extensive than the general literary canon. The school canon is for everybody and the canonical texts in school are the starting point for all later literary preferences. Although the school canon is limited and selective it constitutes the basis of literary taste in our society. This is also emphasized by Pierre Bourdieu, even though he to a great extent focuses on the importance of the domestic environment and states that the impact of the school is of secondary significance (Bourdieu 1993, 1995, 2000)

The school canon is shaped from the secular canon which is different from the theological. Even though the secular canon has its heritage from theology, the literary canon, according to Peter Bürger, emerged very early as an independent institution separated from church, politics and other institutions (Bürger 1991). The differences between the religious canon and the literary canon lie in the fact that the literary canon does not offer any closed universe. Accordingly it is less authoritative and fixed than for instance the biblical canon – cp the apocryptical writings that were excluded at an early state in history. In the field of literature the texts have to be institutionalized to be adopted into a canon, whereas the same texts can later be excluded from the same canon. The decisive elements are temporal factors.

What is common for both the theological and the secular or literary canon is, however, a criterion based on assessment of quality. However, this is an area which is difficult to make operationa. If we consider the idea historically, we will discover that the canonized texts are founded in a sociocultural context which has its origin in a layer of society with a high educational level. That is why there is reason to underline that the constitution of a canon has taken place in the highest economic and social levels of society. For this reason the canon has become elitist and exclusive. However, such a clear-cut statement is at odds with the fact that the literary school canon of today is meant to be equalizing and homogenizing. It is ”everyman’s property” in the sense that it offers a common supply of texts which are supposed to form a literary platform for most students.

The Norwegian canon, either the school canon or the society’s canon, is synonymous with certain decades towards the end of the 19th century in addition to certain literary texts from the 20th century. Other literary periods can also offer canonized texts, such as Old-Norse saga texts, medieval ballads, fairy tales and myths. However, in amount and extent it is undoubted-ly the 19th century canon that is the focal point. This means that two or
three literary periods are in focus; the realist, the naturalist and neo-romantic epochs in Norwegian literature. That canonized epochs at the same time belong to distant eras is, however, a common feature in Nordic literature, a feature that Scandinavia has in common with a number of European nations (Steinfeld, 2002, Aarnes, 1983, 1994, 1995).

For young people who grew up in the 1970s and 1980s these epochs and text cultures are an unfamiliar notion. For many teachers and writers of text books, however, texts from the realist period have a particular aura. Teachers and authors have often regarded the texts from the realist period as well suited to building the students’ competence because they are regarded as simple, due to their alleged closeness to reality. The concept seems today based on a slightly outdated idea of mimesis which seems simplistic to students in secondary education. The texts from realism have no more connection with contemporary reality nor the students’ own reality than texts from other –ism or epochs (Sørbø 2002). Admittedly the writers within the tradition of realism emphasized their faithfulness to reality to distance themselves from their predecessors, but at the era of the day it is difficult to discover more detailed discussion of, for instance, the relation between language and reality in this period than others. On the contrary it is common in the epistemological tradition to look upon realistic fiction as re-presentation, ie that the texts are an expression of repetition, copying, similis. This concept of representation is based on the platonic view that involves a vacillation between original and copy, ie a mimetic view. For this reason the somewhat naive question "Does it resemble?" is often raised in the classroom. What lies behind such questions in textbooks is the implicit idea that the students prefer texts that have relevance to their own ‘reality’. Even beyond this lies the assumption that the texts from the realist period are easily transformative, which may be ascribed to the mimetic idea of ”Nachahmung” (Auerbach 1953 [1946]). However, the students would, in my view, have been better off with the emphasis on post-structuralism ideas of textual meaning as contextually conditioned, and not fixed once and for all. This would have offered a more flexible and fascinating basis for reflection for our students, and perhaps such an approach to the texts would have sharpened their sense of criticism and led to a greater consciousness in their reading. I will complete these observations with a quotation from Jan Inge Sørbø, who gives a conclusion to the above discussion. He says that

It takes a lot of time and energy to convince young people that realistic literature is not necessarily closer to the truth than for instance modernistic or romantic literature. This is about a different way of writing, where you want to reveal the truth by concealing the act of writing (Sørbø 2002: 102) (my translation)
What did the students and the teachers say?

Before I visited the schools in question I made some brief guidelines for the interviews. This was meant as an incitement and a tool to compare the different answers. I wanted semistructured interviews and didn’t expect to have answers to all the questions. When it came to the teachers I focused on three principal questions.

Which epochs in Norwegian and Nordic literature do you think have attracted the attention of the students?

What sort of reading is going on in your classes?

Are there any texts you think are less suited for teaching in your classes?

The students were asked some of the same questions, but he questions were slightly differently put:

Which literary texts do you think were the most interesting this year?

Can you say something about the way you read the texts?

Can you point out some texts that didn’t function particularly well in the class?

These were the principal questions, but I had also made several additional questions. The classes in question had worked with older literary periods, but they had also been through recent and modern literature. Therefore they got the opportunity to mention all literary preferences they might have beyond the periods they had dealt with in the classroom.

The teachers underlined that all the texts from the realist period were easy to work with. I especially emphasized that they could take advantage of other subjects such as history, social science and other related subjects. In this way the text could be put into a wider context. Some teachers pointed at the advantage of going to the theatre and for instance seeing plays by Ibsen, or they could show videos of the plays.

The students gave quite different answers within the same field, with the answers pointed in quite different directions. Several groups of students said that they thought the literary periods on the curriculum were heavy, distant and outdated. The texts were not easily accessible regarding the language and they claimed that too much time was spent on explaining words and phrases. Just a few of the students experienced any relevant connection between the literary themes and the trends of contemporary social development. In particular there were questions about female emancipation in connection with Henrik Ibsen’s A Doll House, but the answers were vague and hesitant. The students were of the opinion that the last decades of the 19th century were quite irrelevant to their own lives. That was the essence of this sequence of the interviews.
When it came to the reading of the texts in the classroom and possible teaching techniques the teachers’ answers were not very specific. “No, we read, we discuss, we watch a little video and we do exercises,” was one of the answers which turned out to be quite representative for the answers as a whole. A striking feature was that there was little discussion of a critical way of reading texts. None had any remarks beyond giving the students a glimpse of typical features of certain literary epochs. The textbook literature is important in this context. You can really speak about a canon.

The students were quite indifferent to this part of the session. “Teaching methods?” “Special approaches to reading?” “Is there really more than one way of reading?” “We read, we do project work, we discuss a little.” This was a common denominator of the answers. When answering the question about whether they were inspired to read the rest of the text when reading an excerpt, only two students said they had read the rest of Ibsen’s *Peer Gynt*. Whether they thought the text had any relevance to their own lives? “Yes, perhaps because Peer was such a seasoned liar – many people lie today, too.” But: “No, everything was distant and fairytale-like.” However, there was one exception in a class that had done a lot of dramatizing. Here the answers varied. More students regarded the themes in Ibsen’s plays as relevant and universal. However, it was pointed out that the language was quaint. In particular, they claimed that Garborg was difficult to read and not very rewarding. Bjørnson was outdated and quite boring. Hamsun – the fellow that starved, was quite unfamiliar to the students.

In the last part of the interviews the students became quite lively, but the teachers claimed that texts with little accessible language shouldn’t be used. Consequently the texts should be normalized, which is already the case in many textbooks today. The themes should be modern and of current interest. Ibsen was selected as the writer that was easiest to work with. Strindberg, too, not least because of the fact that he could be presented on film.

When it came to the students, however, it soon became quite clear, whether they lived in the countryside or in urban areas, that they didn’t like 19th century literature. As expected, the class in which dramatization had been used was one exception. Otherwise the students also expressed other literary preferences, such as science fiction, magical realism, and Tolkien. They also read musical magazines, fashion magazines and daily newspapers.

*Is there any justification for canons?*

As I pointed out above, I don’t claim that this little study based on interviews says everything about reading of texts in schools, ways of reading texts and uses of texts available in textbooks. It is likely that the study just reveals a little about the students and the teachers I interviewed. Still the
study confirms something I sensed myself when I was working, a sense that there was so little space within the framework of the curriculum to experiment with reading foreign literature, newly published or fresh literature instead of focusing on the canonized literature. Like several of my colleagues, I was of the opinion that the students benefited from reading fictional classics and having some knowledge of essaywriting from "The golden age of literature". However, we were uncertain about the way we could create interest. The literature we were "bottle-fed" with through our years at schools and further studies simply had to be presented and made appetizing in other ways that those we were used to. The question was which method and which way of reading could engange the students.

In mid-September Aftenposten, the largest Norwegian daily paper, published a survey investigating what teachers demanded of libraries. This survey dealt with teachers in lower secondary education, but the trend of the investigation shows beyond doubt that the canon is an institution that is not such an unassailable fortress as we assumed in the past. In the article it was pointed out that the teachers took the students’ reading of serial literature seriously and they are therefore prepared to start reading projects more in keeping with young people’s preferences. It is a fact, however, that a couple of Ibsen’s dramas, more specifically A Doll’s House and The Wild Duck are still going strong, whereas there is little demand for works by eg. Kielland. Erlend Loe, a young contemporary writer, is heavily in demand by young people, and it is quite interesting to note that in this context a lot of teachers have evidently left the principle of communicating literature and instead adopted the principle of reading for enjoyment. This will probably be contagious to upper secondary education. Therefore it will be exciting to see what changes the curricular framework may adopt in this respect.

Why texts of realism?

The history of literature has in many countries’ writing culture been the primary representative of the mimetic view on realism we have questioned. Simple histories of literature for school use have especially presented texts of realism as true to life. This is an oversimplification which has been widely criticized within the field of literary criticism and literary theory. As early as the 1960s Roman Jakobson claimed that scholars of literary history often made the error of confusing ideas and presenting their lectures in the form of talks. Jakobson thinks that the mixture of subjective reception and the view of work-imminent realism was fatal. Jakobson thought that the danger was that the subjective element would carry the day. If we apply this skepticism to the situation in our schools today, it is easy to see that it is justified (Jacobson 1974 [1960]). It very often happens that in school a
subjective, almost private reception of realism and texts from other epochs get the upper hand. A restricted number of lessons and many themes to be dealt with within one lesson, in other words a time trap, result in the presentation of simplified solutions and representations to the students. In addition to this, often the students` analytical activities have a touch of subjectivity. We are then faced with a double subjectivity in our dealings with the literary texts in school. This is why the literature of realism may seem one-dimensional, simple and true to life.

It is natural to absorb literary texts in the context of one’s own situation and then relate notions such as realism, naturalism etc. to what one considers realistic or close to one’s own social reality. The students have this in common with a more mature reader. Both parties have difficulties aiming at a critical understanding of the historical and an esthetical potential just because the texts are so one-sided and applied to the time in which the texts are read. On the basis of the horizon of expectation (Erwartungshorizont) (Jauss 1974, 1997 [1991]) created by the selection in school and the way of dealing with texts, the students will be better served by a less subjective method. This is my conclusive statement, after reading through the different answers made by the students interviewed.

References


In one of the most important documents of the Lithuanian educational reform “The Conception of Education in Lithuania”, (1992) humaneness is treated as one of the basic principles of school reform and is understood as assertion of a person’s worth, his right to make choices and to be a responsible human being. In “General Programmes”, a document that makes the ideas of the above mentioned document more concrete, this phenomenon is revealed in terms of educational goals for personality development, facing the school of today. This requires not only fostering the fundamentals of a general culture of pupils, creating the necessary setting for developing personal learning and working skills, but also reinforcing a personal values system based on democratic and humanistic national and universal values and building up a morally strong, independent and critical personality. Therefore, in the documents on Lithuanian school reform, a special emphasis is made on the urgency of moral development with the focus on instilling humaneness in young people.

Naturally, such attitudes to the development of humanistic values stems from modern philosophical works, and from achievements in the fields of psychology and education. The urgency to instil humanistic values is addressed in the works of both Lithuanian and foreign philosophers. Humaneness is brought to a special focus also because of the changing personality concept which J.Morknien calls “a new anthropocentrism,” which means that the most burning problem of today is being aware of how a person has to behave in order to preserve humaneness, not only in himself but also in his immediate environment.

In psychological sources tackling the ideas of the meaning of life and self-expression (C. Rogers, A. Maslow, V. Frankl, Z. Pluel, G. Butkien, A. Kepalait, R. ukauskien and others), representatives of existential, humanistic, cognitive, psychoanalytical, and behaviouristic, trends reveal the common prerequisites for the appearance of humaneness. They also point out that teachers and parents should bring their main focus to instilling humaneness in pupils of junior forms, as pupils of this age group start giving priority to spiritual values over material ones. Besides, pupils’ cognitive abilities expand at this age, their emotional world gets richer and the formation of their ability to empathize can be clearly observed. Therefore, junior schoolchildren take control over their behaviour to an increasingly greater extent.
The urgency to instil humaneness is even more heightened in the works of Lithuanian educators. While discussing basic theoretical problems about moral education (M. Pekauskait, J. Vabalas-Gudaitis, L. Jovas-Gudaitis, L. Jovis, L. Jovis, Jovis, and others) and while undertaking concrete experiments with pre-school children (L. Mondeikien, L. Litvinien, teenagers (S. Dze, L. Litvinien, teenagers (S. Dze, teenagers (S. Dze. Dze u A. Tamulaitien and others) they put special emphasis on the role of the family and school in instilling humaneness. The argument they provide is as follows: humaneness is the core of a wholesome and mature personality, the basis of its spirituality and morality. On the other hand, while researching moral ideals, moral-professional orientations and a moral standpoint and its separate aspects (moral knowledge, moral evaluation, moral behaviour, etc.) both former and current authors prove that humaneness has not reached the necessary level of maturity. Most often educators are blamed for the fact, however; on the other hand, no research has been done to prove that teachers are able to give enough attention to making humaneness more mature. It is a possibility that teachers in the process of rendering the content of teaching to the pupils are unable to do so, because humanistic values are not clearly stated and brought to the necessary focus in the teaching content itself, and especially in the teaching aids of the native language.

Such research would allow establishing another important point; namely, whether the textbooks on the Lithuanian language correspond to one of the fundamental aims of the reform under way in the country to bring up a humane personality. It is important to note that research of such character has not been observed in Lithuania. The need to comprehend the conditions of instilling humaneness prompted to choose the peculiarities of humaneness of 2nd-4th form pupils as the object of research.

This study attempts to clear up the basic preconditions of instilling humaneness in 2nd-4th form pupils. In order to reach the set objective it was considered important to define the content of humaneness of the pupils of these forms, to determine the peculiarities of humanistic maturity and to single out the basic sociopedagogical prerequisites of humanistic upbringing.

This article aims to determine whether national language textbooks for primary schools are realistically grounded, whether they are related to the humaneness of 2nd-4th formers and to the priorities of the educational reform, and to reveal ways to perfect textbooks in terms of their humanization.

The following methods have been used: descriptions of a child’s behaviour, tests, partially standardized conversations with children and their teachers, questionnaires of three types for teachers and questionnaires of two types for parents, and content analysis of 12 native language textbooks for
the 2nd-4th forms (two textbooks the second form and four textbooks each for third and fourth forms).

**Peculiarities of humanistic maturity of primary school pupils**

In order to achieve the above-mentioned aim of this article, it is essential to reveal some important results of the state of humaneness of 2nd-4th form pupils. The research on humanistic maturity has revealed that the content of pupils’ humaneness is best reflected in the feelings of sensitivity, openness, dignity and responsibility. The factorial and correlative analysis and experts’ opinions prove that these phenomena perform a different role in a child’s association with the people around him. It was revealed that the humaneness of the 2nd-4th form pupils under research is most evident in their relationships with classmates where the following qualities were noted: attentiveness (hear them out), sympathy (console, do not bully), assistance (help, protect), sincerity (share, are not hypocritical), straightforwardness (do not cheat), respect (do not humiliate), and forgiveness (do not take revenge). With parents the relationship is based on attentiveness (hear them out), sympathy (console), sincerity (sharing), straightforwardness (do not cheat, tell the truth), respect (do not humiliate), forgiveness (do not take revenge), self respect (do not fawn), and honesty (keep their promises) With teachers the relationship is based on sincerity (are not hypocritical), straightforwardness (do not cheat, tell the truth), and respect (do not humiliate).

A child’s behaviour is the essential expression of his humaneness. The research has revealed that the pupils of 2nd-4th forms under research behave towards their teachers and parents in a sufficiently humane manner. But it is also noteworthy that some of the pupils lack responsibility in their relationships with the said persons, while the researched were much less humane in their behaviour towards their classmates. Thus, humanizing relationships of junior pupils with their peers remains a sore problem.

The studies of humaneness in 2nd-4th form pupils on the cognitive level have revealed that children were quite positive in appraising fundamental manifestations of humaneness, and in most cases had deep insight into their meaning (that of help, sharing, not taking revenge). However, it was difficult for them to define the essence of the concepts of humaneness.

It is noteworthy that in the level of internalisation of humaneness very little depends on gender. In this respect only a few statistically important differences have been observed, i.e. girls behaved in a slightly more humane way than boys and had a more favourable attitude towards humaneness.

Few differences were recorded in researching humaneness among 2nd-4th form pupils. It was revealed that pupils of 4th forms had a deeper insight into the essence of humaneness and its meaning in a person’s life. It is also
noteworthy that 3rd formers are less humane in their behaviour than 2nd or 4th formers, especially towards adults.

**Humanistic values found in textbooks**

With the results gained, it was considered important to find out the following: what humanistic values are found and how often one can come across them in the above mentioned textbooks; whether girls or boys’ behaviour is more humane in the texts; in which relationships humanistic values are more often stressed - in those with adults or in the relationships with peers; in which forms certain values are mentioned more often and whether these values are sufficiently reinforced by means of questions and tasks provided below the texts; whether they are explained and revealed through positive examples.

The following results were obtained in determining which humanistic values dominate in national language textbooks for primary schools (Picture 1).

![Picture 1. Most common humanistic values to be found in textbooks for II-IV form pupils](image-url)

According to the data obtained, such humanistic values as care or protection, support, harmless rather than humiliating behaviour and a wish to share ideas and things with other people and help them, can be found in national language textbooks for primary schools. It is thus obvious that even though sensitivity is lacking in the behaviour of primary school pupils, mani-
festations of sensitivity abound in the texts themselves. However, it is still too early to make conclusions. Psychologists maintain that children are best at following a positive example. In the case when values are fostered while following a negative example, one cannot expect positive results of humane behaviour. Therefore, it was considered an important factor to determine whether a positive or a negative example prevails in the texts. The following results have been achieved (Picture 2).

Picture 2. Discovery of humanistic values in textbooks through positive and negative examples

They prove that the wish to help, to share ideas, toys and other things and care or protection is most often revealed through a positive example in the textbooks under research. Thus, it could be concluded that primary school pupils would be preconditioned to behave in a particularly sensitive and sincere way (especially to help, to care or protect and to share ideas and things with others) and yet, the fact that they often bully others can be justified, as the heroes in the textbooks behave very often in this way. However, as was mentioned before, it is sensitivity (especially caring for and protecting their peers) that they lack in their behaviour. Consequently, it is not enough to emphasize a humanistic value in the content of the national language and to reveal it through a positive example; it is essential to provide questions and tasks to stress it, to make children aware of its essence. During the course of research we tried to find out how often certain values were explained and how often the children were made aware of a certain value by means of questions and tasks. It was established that not even of a
single humanistic value’s essence was revealed in textbooks. Only the explanations of rare international and dialectal words as well as some sayings could be found there, and only seldom was the attention focused on the manifestation of one or another humanistic value in heroes’ behaviour by means of questions and tasks. Only 79 questions and tasks in total were found with reference to one or another humanistic value. This would amount to 19-20 questions or tasks on the average in each form. It is clear that due to such an insignificant number of tasks and questions, children are not capable of comprehending the essence of humaneness and of becoming aware of the humaneness of their behaviour.

On the other hand, it was interesting to find out how the gender of heroes of stories and poems determines humane and especially sensitive behaviour. It has been established through research that boys are less sensitive than girls. The results of this research also make it clear that girls more often behave in a more humane way than boys ($p<0.01$). Girls especially tend to be helpful, caring and protective in comparison to boys. Consequently, even though humanitarian values are not emphasized enough in textbooks, children tend to unconsciously accept them depending on their gender; i.e. boys follow the pattern of behaviour of boys and males in general described in textbooks, and girls follow the pattern of behaviour of women characters described by writers and in folk tales. It is also a possibility that educators while at least superficially assessing the behaviour of characters, relate this behavior to as typical to a certain gender.

The research also aimed at establishing in at what form in the textbooks certain values were emphasized. The following tendency came into focus: in the textbooks of the third form sensitive behaviour with the surrounding people is emphasized, but less attention is paid to the necessity of behaving in a straightforward way (telling the truth and not cheating), honesty (keeping one’s promises) and sincerity (sharing). So, one might think that in reality children adopt the humanistic values that the authors of textbooks provide without putting enough emphasis on them.

Indeed, pupils are likely to adopt these values because teachers take the initiative to expose children to the humanistic actions of the heroes and in such a way are able to compensate in a way for the lack of understanding of the essence and meaning of humaneness, and for the textbooks’ failure to foster determination to behave in a humane way.

Besides, it was considered important to determine how these values reveal themselves in terms of relationships. The following tendencies have been established (table 1).
Table 1. Humanistic values in human relationships revealed in textbooks

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<tr>
<th>Relationships</th>
<th>Child and adult people (parents, teacher, strangers)</th>
<th>Child and peers</th>
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<td>Hear people out</td>
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<tr>
<td>Console</td>
<td>1</td>
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<td>Do not bully</td>
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<td>Help</td>
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<td>Protect</td>
<td>12</td>
<td>8</td>
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<tr>
<td>Share</td>
<td>6</td>
<td>7</td>
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<tr>
<td>Tell the truth</td>
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<td>2</td>
</tr>
<tr>
<td>Do not cheat</td>
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<td>1</td>
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<tr>
<td>Not hypocritical</td>
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<tr>
<td>Do not humiliate</td>
<td>3</td>
<td>11</td>
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<tr>
<td>Do not take revenge</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Keep promises</td>
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It can be clearly seen that in most cases the pupils behave humanely both with their parents and with their peers. However, the case of non-humiliation is an exception. This example shows that non-humiliation is stressed in textbooks as more important between a child and his peers than between a child and adults. Such evidence suggests that more examples of humane behaviour between a child and his peers should be given in textbooks.

Conclusions

Instilling humaneness is one of the fundamental tasks of the current educational reform in Lithuania. However, the national language textbooks for primary school do not put sufficient emphasis on instilling humanistic values (they are seldom found in texts, not highlighted sufficiently in questions and tasks, and therefore have poor influence on children’s humaneness. Accordingly, they do not comply with the priorities of educational reform.

In attempting to make national language textbooks for primary school a source for fostering humanistic values, it is essential not only to expose children to certain values in all forms and as frequently as possible, but also to ensure that these values are reflected in boys and girls’ relationships with their peers. Another significant focus is to ensure that in the textbooks there should be more examples of humane rather than anti-humane behaviour, especially in those cases when the children are to be exposed to the importance of non-humiliation and anti-bullying.
Textbooks


References


Ragnhild Lund

English – a school subject or a language for communication? – A study of textbooks for the teaching of English in Norway

Introduction

English is an international language that can be used in a number of different arenas, and the need for Norwegians to learn English is obvious. It seems natural to motivate Norwegian learners for work with English by focusing on the role that English plays in international communication, and by pointing out and linking up with the ways in which knowledge of English is important in the students’ own lives. At the same time, English is a subject in Norwegian schools, and work with the language can easily be justified simply with reference to the school context.

This paper aims to investigate the ways in which these two perspectives, English as a school subject and English as a language for communication, are maintained and communicated to the students in the textbooks. Based on an analysis of four textbook series for the teaching of English at lower secondary level, the paper argues that clearer signals could be given about the relevance of English in the world outside the classroom, and suggests some ways in which this can be done.

The importance of textbooks

No thorough investigation of time spent on textbooks has been done in Norway. In Iceland, however, Sigurdgeirsson (1992) found that in the English lessons, 96% of the time was spent working directly with the material in the textbooks. The figures were considerably lower for textbook-related work in other subjects.

There is reason to believe that this description applies to Norwegian classrooms as well (Heyerdahl-Larsen 2000). Vestre (1980) and Johnsen (1989) argue that textbooks are very central in the teaching of foreign languages in Norway. The usual situation is that all students have their own copy of the same textbook, and the class works its way through this book, page by page. Most classrooms provide little extra material. Whatever is in the textbook, then, determines both the texts and topics that are covered, as well as the ways in which students work with the material. This, in itself, may indicate to the students that the teaching of English in school is both defined by and restricted to the school context.
English outside the classroom

At the same time, Norwegian learners have ample opportunity to meet English in a number of different arenas outside the classroom. Many youngsters travel abroad, and they meet foreigners who come to our country. More important, however, in terms of language learning, is probably the popularity of American and British movies and TV shows. Since such movies are not dubbed, but only have subtitles in Norwegian, viewers get used to hearing – and probably understanding – a lot of English. Norwegian youngsters also listen to British and American music, and even Norwegian artists often sing in English. Last, but not least, the popularity and wide spread use of computer-based activities, which often involve English language use, need to be mentioned.

My material

I have investigated the four textbook series that are in use at the lower secondary level (grades 8-10) in the Norwegian ten-year compulsory school. These textbook series have all been certified by the authorities for use in Norwegian schools. The textbook series are called ‘Flight’, ‘New People’, ‘New Places’, ‘Search’ and ‘Catch’.

The topics presented in the textbooks

The present national curriculum requires that students meet a number of fictional texts by well-known British and American authors. The textbooks meet this requirement by including fictional texts – or rather excerpts of texts – by Roald Dahl, Ernest Hemingway, John Steinbeck and William Shakespeare, to mention only a few. There is a clear intention of making the students familiar with parts of British and American literary canons.

Most of the texts in the textbooks, however, are non-fictional, and present factual information about British and American history and cultural heritage. Students learn about a variety of different topics, such as kings and queens in the United Kingdom, the conflict in Northern Ireland and the American Civil War. Quite a few texts deal with other countries in the English-speaking world, and Australia, India and Ireland all get extensive coverage. Once again, the primary focus is on national heritage.

These are, of course, important things for Norwegian youngsters to know about, and it may seem natural that students learn about issues related to the English-speaking world as part of their English studies. However, the heavy emphasis on high quality fiction and historical information certainly signals to the students that large parts of their English studies are related to a content that does not match their own experiences with the language outside the classroom.
At the same time, the textbooks also contain texts that deal with typical teenage issues such as school experiences, personal relationships and spare time activities. The protagonists of these texts most often live somewhere in the English-speaking world (they all have English names) and come across as representing the 'general Western teenager'. Obviously, these texts attempt to link up with the students' own interests and to provide students with the language skills they need in order to talk about things that concern them.

Still, there is reason to wonder whether or not students will actually be able to identify with the rather limited – and simplified – view of teenage life that these texts present. It could also be argued that, in preparing students for encounters with people from a variety of cultures and backgrounds, it is hardly appropriate to suggest that the Western middle-class teenage experience is universally valid.

One way in which textbooks can establish links with the outside world is to model possible situations in which the foreign language can be used. Sercu (1998) argues that textbooks can describe encounters between people from different cultures, for example relating to tourism, visiting friends and family, and student exchange. If this is done, she says, it will be easier for students to identify the language that they will need, and they will be more motivated to learn it.

Very few texts in the four textbook series show situations in which English is used for communication purposes, and hardly any of the people involved are Norwegians. Whenever Norwegians are portrayed in the texts, they either speak English to one another (sic) or write letters or diary entries in English. One of the textbooks, however, includes the type of text that Sercu talks about. It is about four youngsters from different countries who meet at a summer camp in Norway; they use English as a lingua franca as they chat around the campfire (New People, New Places 3: 10-11).

**The text types**

It can be argued that the types of texts included in a textbook also send signals to the students about the nature and the objectives of the course. Most of the texts in the four textbook series can be classified as *ostensive* texts. Such texts provide information in a very direct way and tell the students: 'Look here; this is how it is'. They provide a content that students are supposed to accept and learn, and they do not encourage any personal involvement (Selander 1995).

However, the heavy emphasis on high quality fiction by British and American authors indicates that the textbooks also include a good number of *narrative* texts. Narrative texts invite the readers to follow a course of action,
and to reflect and interpret on an individual basis as they do so. Narrative texts therefore seem to open the students’ own meaning-making to a much larger degree than ostensive texts do.

Discursive texts are the ones that, in Selander’s terminology, truly engage the readers. Discursive texts present an issue in such a way that the readers are invited to look at it from different perspectives, to reflect, to discuss and to develop their own opinions.

In the textbooks, there are some examples of such texts. One text, for example, deals with capital punishment in the United States. The story is told from five different people’s point of view: the young man who has committed a murder and is sentenced to death for the crime, his mother, his lawyer, the victim’s wife, and a concerned citizen (who is against capital punishment). In this text, and the following exercises, the students are expected to think for themselves and to use the foreign language actively to formulate their own views and opinions.

The exercises

The exercises in a textbook play an important role in defining the course for the students. Some exercises address the language learner and initiate language practice rather than language use. Here, the classroom is established as the natural context for work with English. Other types of exercises, however, help establish the students as users of the language. They point to contexts outside the classroom and encourage the students to use the language for their own purposes, in situations that involve meaningful communication.

The majority of exercises in the four textbook series belong to the first category, as they focus on repetitive practice of grammar points and vocabulary. Example [1] illustrates the many drill-like activities that are included: [1] Combine the owner and what is owned, and write it down as a full sentence. Examples:

Larry – bike _ Larry’s bike is quite new.
The girls – bags _ The girls’ bags are heavy.

McDonald – hamburgers
My brothers – room
Charles – girlfriend
My sister – baby
The twins – birthday (Flight 8 workbook: 180)

Comprehension questions constitute another large part of the exercise material in the textbooks. These questions are, of course, meant to initiate language production, but also to check that the students have read the text and
understood it. Examples [1] and [2] are both linked to an excerpt from Jonathan Swift’s *Gulliver’s Travels*.

[2] 1. How long did Gulliver stay with his wife and children?  
Why did Gulliver and the other men look for water?  
Where did Gulliver hide?  
How old was the big man’s daughter?  
Why did the people in the hotel laugh?  
What did Gulliver kill the wasps with? (*New People, New Places 1: 65*)

The strategy of using high quality fictional texts as the basis for grammar exercises and comprehension questions is fairly common in the textbooks. It seems quite a paradox when texts of this calibre are not used as door-openers to the outside world, but rather as starting points for activities that make sense only within a classroom context.

One of the textbook series, *Search*, uses a different approach. Here, both fictional and non-fictional texts are most often followed by open exercises and questions, which focus on the students’ personal reactions to and appreciation of the texts. In these books, students are not only encouraged, but rather expected to interpret and react independently to the texts they read, and to talk about issues that the texts raise. Students are, for example, asked to discuss what they think about Chaucer’s *Canterbury Tales* and Martin Luther King Jr.’s famous speech ‘I Have a Dream’. In this way, the texts are made relevant not only to the students as language learners, but also to the students as individual human beings and to their independent and personal use of the foreign language.

Compared to the other textbook series, *Search* includes a remarkable number of open questions and exercises (Lia 2001). Often, students are asked to talk about their own experiences, such as movies that they have seen, sports that that they participate in or relationships with friends and family. In exercises like these, students get the opportunity to explore and experience how English can be used to communicate about their own lives.

*Search* also signals that it is important for the students to take a stand – and to learn how to express their points of view in English – on issues that are discussed in today’s world. There are exercises related, for example, to pollution, drugs, cultural diversity, human rights and the hunting of whales:

[3] As a Norwegian, you might need to have an opinion on whale hunting when you travel abroad. Write a list of arguments for and against the hunting of whales. Discuss in groups or in class (*Search 10: 236*).
Possibilities for students’ choice of topics and texts

Some texts come in different versions, at different levels of difficulty. Students are encouraged to choose the version they want to read, in accordance with their language proficiency and their learning strategies. This choice, then, is linked to the students’ role as language learners and it is limited to the range of texts that the textbooks provide.

At the end of a topic, the textbooks often suggest projects that students can do as follow-up work. Students are sometimes asked to find texts themselves, and they are also occasionally invited to spend time on a topic that they find particularly interesting. None of the textbook series, however, make references to the experiences that students have with English in their free time and point out the possibilities for language learning that lie here.

Justification for learning English

It is a striking feature in the textbooks that work with English is often justified with reference to the school context only. Students are, for example, advised to emphasize oral work because they have to take both a written and an oral exam at the end of their studies (ref). In *New People, New Places* students are encouraged to follow the news and learn about English speaking countries not because these are worthwhile endeavours in themselves, but rather because it will help them perform better when they do project work.

Most often, however, no comments are given as to why students should read the texts and do the exercises that they are offered. In this way, the textbook materials certainly signal that they represent the curriculum of a school subject, and that references to the world outside the classroom are largely irrelevant.

Conclusion

On the basis of an analysis of four textbook series, this paper has identified some ways in which textbooks communicate to the students that English is a school subject on the one hand, and a language for communication on the other. The notion of English as a school subject is maintained, for example, when the textbooks define the body of knowledge (both linguistic and non-linguistic) that students are supposed to learn. The exercise materials limit work with English to the classroom, the focus is on language practice rather than language use, and on the students as language learners rather than as language users. Students are given few opportunities to select their own learning materials and to work with topics of their own choice. Textbook materials are explained and justified with reference to curricular requirements and student assessment.
On the other hand, English as a language of communication comes into focus when textbook texts exemplify the different arenas in which English can be used. The exercise material encourages students to adopt other roles than that of the language learner and links up with arenas of language use outside the classroom. Students are encouraged to talk about their own experiences, and to voice their own concerns and opinions. Students are given the opportunity to choose materials and strategies according to their own needs and interests.

The four textbook series analyzed give the impression that English is, first and foremost, a school subject. This could, of course, well be the result of school traditions rather than a deliberate strategy in the teaching of English. In the development of future textbooks, then, one could wish for greater awareness of the need to include texts, activities and approaches that show the relevance of the language as a means of communication also in the world outside the classroom. It seems a fair assumption that, if students are able to see English not only as an academic discipline, but rather as a tool that they can use for their own communicative purposes, this will result in higher student motivation and better learning.

References

Primary sources

Secondary sources


**Notes**

1 Norway is one of the few countries in the world that has had a system of official certification of textbooks (Johnsen 1993). The system has been in effect since 1860, but was abolished by the Norwegian Parliament in June, 2000.

2 For a discussion of ‘closed’ and ‘open’ questions, see for example Fenner (2001).
Comparative lingua statistical analysis of the words in educational textbooks

Introduction

This article deals with the proportion of the vocabulary of teaching texts and the frequency of words’ occurrences in educational texts, and their role in developing learners’ active lexicon. The data of the lingua statistical analysis on the occurrence of common language words and subject related words, or terminology words in the textbooks for primary, basic and secondary school, as well as in textbooks for supplementary education, are systematised and analysed in relation to the general proportion of the lexicon acquired and used reproductively by learners.

The role of words in educational texts in general, and as a stimulus for the development of learners’ reproductive lexicon, has been analysed by a number of scholars worldwide from many aspects (lingua didactics including.) However, since new aspects on which successful development of an individual lexicon depends have been recently exposed in the teaching / learning paradigm, research studies of this issue still continue. Computerised studies on active lexicon building provide one such example. So far comparative studies on the interaction between the vocabulary of educational texts and a word-stock building by a particular learner, and their peculiarities in analytical, agglutinative, inflectional languages, has been insufficient.

The paper aims at discussing the constituents and peculiarities of educational texts and analysing the frequency of occurrences of words in school textbooks of inflectional languages. The study results are presented with reference to the learners’ age phase.

Lingua statistically all words, which occur in educational texts, were segmented into three frequency groups, by the intensity of their occurrence: a) 1-4; b) 5-9 and c) 10-n.

The most seldom used words, the recurrence of which in such texts is 1, 2, 3 or 4 times, are ascribed to a low frequency group. Words from a medium frequency group number the recurrence of 5-9 times. Words from the highest frequency group recur 10-n times in educational texts. From the lingua didactic aspect for the assessment of the complexity or simplicity of a text a frequency index of each word (term in particular), occurring in the
texts of a textbook, has been determined, presuming that a more frequent occurrence of a word in texts contributes to its better memorisation. Less frequent occurrence of a certain word calls for greater lingua didactic efforts to be memorised, particularly in the case where it has been unknown to a learner. Thus, vocabulary differentiation into frequency groups contributes to a more precise assessment of educational texts.

The lingua didactic aspect discussed above has received some concern and has been theoretically analysed. However, practical input into the studies has been far from sufficient. The total number of words in educational texts is quite sizeable and special tools are necessary for the processing of lingua statistical data. This is particularly characteristic for texts produced in inflective languages.

With the aim of revealing the interaction between the total number of entries in the vocabulary of different textbooks, and frequency indices of words in them, the study has been carried out comparing the obtained data on the lexical parameters of the texts in the selected textbooks, and the total number of entries in the vocabulary of educational textbooks.

The first study carried out on the statistical composition of the vocabulary of the textbook *Religious Instruction*, for primary school, is presented in Table 1.

*Table 1* Statistical composition of the textbook “Religious Instruction” for Primary School

<table>
<thead>
<tr>
<th>Rank of frequency group</th>
<th>Frequency group</th>
<th>Total No of words by their frequency group in the vocabulary of the textbook</th>
<th>Relative No of words by their frequency group in the vocabulary of the textbook</th>
<th>Total No of words by their frequency group used in the texts</th>
<th>Relative No of words by their frequency group used in the texts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 – 4</td>
<td>995</td>
<td>0.6914524</td>
<td>1748</td>
<td>0.146129</td>
</tr>
<tr>
<td>2</td>
<td>5 – 9</td>
<td>202</td>
<td>0.14037526</td>
<td>1326</td>
<td>0.110850</td>
</tr>
<tr>
<td>3</td>
<td>10 – 100</td>
<td>231</td>
<td>0.16052814</td>
<td>6378</td>
<td>0.533188</td>
</tr>
<tr>
<td>4</td>
<td>101 – 1000</td>
<td>11</td>
<td>0.0076442</td>
<td>2510</td>
<td>0.209831</td>
</tr>
</tbody>
</table>

The data in the table evidences that a majority of words – nearly 70% – fall into a low frequency group. They constitute about 15% of all words in this textbook. From the lingua didactic aspect they need special attention by the educator and a learner – consolidation practice is necessary so they are used reproductively. It is advisable to include such words, especially subject related terms, which occur in texts only occasionally, into supplementary educational resources where they would occur at least 5-9 times. However, the
most reliable frequency occurrence is no less than 10. The table illustrates the proportion of the total number of the words in the texts and the total number of entries into the vocabulary of the textbook. Words from Group 4, which is the largest one, are marked with the highest (2-digit) frequency indices. The ratio between the number of Group 4 words and the total number of entries in the vocabulary of the textbook is just the opposite: although their occurrence in the texts is relatively the highest, the number of words with the highest frequency indices is the lowest. In other words, the following regularity has been fixed: the higher the occurrence of particular words in texts, the smaller the number of entries of such words in the vocabulary of textbooks.

From the lingua didactic aspect it means that a learner puts less effort into memorising words used in texts more frequently, as such words are easier consolidated and acquired by a learner in the teaching/learning process. For greater evidence, the statistical data on the vocabulary of the textbook *Religious Instruction* was systemized, and those words (nouns, adjectives and verbs), which occur in the textbook up to 100 times and their frequency indices were presented:

1) **nouns**: God-381, person-192, sky-128, sin-118, order-84, angel-82, Lord-69, sacrament-68, soul-62, confession-55, priest-54, apostle-50, prayer-47, Saviour-41, cross-41, christening-23, blood-20, purgatory-19, penance-17, wafer-16, paradise-16, charity-16, sanctuary-14, nail-17, ask-16, fulfil-15, regret-14, forbid-14, render-12, celebrate-12, hem-11, chant-10, resurrect-10, etc.

2) **adjectives**: saint-89, big-31, kind-30, sound-25, evil-28, important-18, alien-15, lovely-13, small-13, eternal-12, etc.

3) **verbs**: need (to)-75, pray (for)-67, called-54, walk-53, enjoy-48, make-39, say-37, adopt-36, give-32, pronounce-32, forgive-31, die-31, glorify-30, love-30, believe-28, transgress-26, exist-24, laud-18, suffer-18, create-17, nail-17, ask-16, fulfil-15, repent(for)-14, forbid-14, render-12, celebrate-12, send-11, chant-10, rise-10, etc.

The examples of the words with the frequency indices of 2-3 digits prove that this part of the vocabulary is marked with statistically reliable frequency indices (10-n). They form the core of the vocabulary of the textbook and are more easily comprehended and acquired. This means that the occurrence of words with statistically reliable high frequency indices contributes to success in the teaching/learning process.

However, a bigger number of words in the textbook *Religious Instruction* fall into a low frequency index group. Mainly they are key words and subject related terms not easily comprehended by a learner. Their function
in the language lexical system varies from a very intense to a rare one. Such statistical characteristic of the functioning of words is observed by comparing their frequency indices in the textbook under discussion with their frequency indices in the language lexical system. Digits in brackets (…) stand for a frequency index of a word in the frequency dictionary; words with low frequency indices in the vocabulary of the textbook and the language lexical system in general are marked by the asterisk*): doubt-1(69), eye-1(1053), blind-1(42), *cherub-1(5), crowned-1(2), arrive-1(10), honourable-1(1373), shepp-1(42), shamelles-1(4), celestial-1(7), enliven-1(15), successor-1(28), *Testament-1(21), *Saviour-1(4), *catechism-1(8), clown-1(18), *kneel-1(9), *christen-1(2), *christener-1(1), prayer-1(0), learn-1(147), sin (against), (the) skies(pl)-1(25), *pious-1(2), *parishioner-1(8), blessing-1(15), calling-1(27), pabulum-1(1), cross-1(2), *prayers-1(0), birch-1(4), pierce-1(3), *churchyard-1(8), poor devil-1(37), twings-1(8), *bishopric-1(4), lightning-1(20), covered with wounds-1(1), grassy-1(11), torture-1(7)… etc.

The comparative analysis proves that common language words are mainly marked by statistically reliable high frequency indices (starting from 10) in the language lexical system, while subject related terms in educational texts are marked by low frequency indices.

Thus, the lingua statistical method applied in the vocabulary of educational texts’ differentiation by frequency indices presents practical aspects applicable in lingua didactics: key words and subject related terms occurring comparatively seldom in educational texts need more serious attention and consolidation, i.e. extra explanation or context, to be comprehended and memorised by a learner.

For further lingua statistical analysis the textbook “Native Language” (Part 1, 2, 3, 4) for primary school has been chosen. It has been determined that during four years of studies 64.738 words and their forms occur in all parts of the textbook under discussion. 6.795 different words are included in the vocabulary of the textbook. Their frequency composition is presented in Table 2.
Table 2. Statistical composition of the vocabulary of the textbook Native Language (Lithuanian) for Primary School

<table>
<thead>
<tr>
<th>Rank of Frequency Group</th>
<th>Frequency Group</th>
<th>Total No of Words by their Frequency Group in the Vocabulary of the Textbook</th>
<th>Relative No of Words by their Frequency Group in the Vocabulary of the Textbook</th>
<th>Total No of Words by their Frequency Group Used in the Texts</th>
<th>Relative No of Words by their Frequency Group Used in the Texts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1–4</td>
<td>5021</td>
<td>0.73892568</td>
<td>8604</td>
<td>0.132905</td>
</tr>
<tr>
<td>2</td>
<td>5–9</td>
<td>811</td>
<td>0.11935247</td>
<td>5358</td>
<td>0.082764</td>
</tr>
<tr>
<td>3</td>
<td>10–100</td>
<td>864</td>
<td>0.12715232</td>
<td>23718</td>
<td>0.366369</td>
</tr>
<tr>
<td>4</td>
<td>101–1000</td>
<td>96</td>
<td>0.01412804</td>
<td>22725</td>
<td>0.351030</td>
</tr>
<tr>
<td>5</td>
<td>1001–N</td>
<td>3</td>
<td>0.0004415</td>
<td>4333</td>
<td>0.066931</td>
</tr>
</tbody>
</table>

There is evidence to maintain that the data on the statistical composition of the textbook under discussion is similar to the one of the previous textbook. The analysis of the texts in the textbook Native Language demonstrates that a considerable number of words are marked by high frequency indices. However, some of them (marked with asterisk *) are key words or subject related terms, which are attributed to a low frequency index group in the language lexical system.

The following examples are presented:

**nouns:** spelling-91, name-91, arm-89, person-88, mamma-88, field-82, relative-80, *suffix-77, bird-76, spring-74, school-73, example-73, tale-71, meaning-70, bokk-69, number-64, song-64, hare-63, lake-62, *prefix-51, *predicate-50, etc.


The conclusion has been made that a great number of words occur in textbooks only once and are marked by extremely low frequency indices. In the course of the study 2.817 words of this type were fixed and they form 41.46% of the vocabulary of the textbook under discussion. Frequency indices of those words were compared with the data in the language frequen-
cy dictionary, which is regarded as the model of the language lexical system and includes 1 million 200 thousand word usages in various texts. The following examples are presented: bitter-1(6), hop-1(2), straddle-1(3), ploughing-1(3), participant-1(13), cavity-1(36), spit-1(2), carp-1(2), hail-1(3), offside-1(2), *synonym-1(22), *sonorous-1(11), aurochs-1(5), glow-1(2)…

Thus, it becomes evident that the vocabulary of the textbook “Native Language” greatly differs from the one of the textbook “Religious Instruction”: the vocabulary of the latter is very specific and consists of a considerable number of key words and subject related terms.

Leaving out other details it should be noted that vocabulary expansion with the means of the textbook “Native Language” is inconsequent: more unfamiliar words are included into the texts for Form 3 than into the ones for Form 4. From the lingua didactic aspect consequent vocabulary expansion should be practiced.

The analysis of the vocabulary of the textbooks on elementary mathematics, natural sciences, music and other subjects demonstrated the occurrence of approximately 2,000-3,000 different words at the primary stage of education. Thus, the assumption was made that the vocabulary of all educational texts consists of up to 10,000-12,000 different words.

The statistical characteristics of the functioning of the words could be regarded as a theoretical base developing the learners’ lexicon, and therefore practically applied in the teaching process. The lingua statistical analysis of the textbook The New Cambridge English Course Part 1, Student’s Book, composed by M.Swan and C.Walter (1990) carried out by the authors of the paper proves that the texts in it are based on words with high frequency indices, and such words constitute 98% of all words occurring in it. The comparative study was carried out by referring to the Word Frequency Book (J.B.Carroll, Davies P., Richman B, 1971).

The analysis of the word acquisition level demonstrated that students were able to reproduce approximately 70% of the vocabulary of this textbook. Consequently, high frequency words are better and more easily memorised and reproduced. Moreover, the application of the data on the lexical statistical analysis creates conditions for the educator to differentiate the teaching process.

Conclusions

The study of the lexical composition of school textbooks is closely related to the problem of lexicon development by schoolchildren. To be more exact, the answer to the question of whether a learner’s active lexicon should be formed of words of high frequency occurrences is sought. Other questions are: Can lingua statistical methods be objective criteria in assessing
educational texts? What should a school leaver’s reproductive lexicon be composed of? Could its composition act as a feedback for the teacher in assessing a learner’s success (or failure) in the learning / teaching process?

Seeking the answers to these questions, the authors would like to remind of the results of a previous study which was carried out a decade ago, on the scope and the content of the lexicon of the Russian language acquired by Lithuanian learners. The study included school-leavers (N=1.800), who studied Russian as a foreign language. The aim of the study was to assess their reproductive lexicon in written Russian. A task was assigned to write essays on the subjects from their curriculum. At that time 13 textbooks were used, the vocabulary of which included over 15.000 different words. 8.000 words, used reproductively, were fixed in the essays. It was concluded that the school-leavers under investigation were able to re-create in their essays over 53% of the vocabulary of the textbooks. Recent episodic studies confirm the tendencies noted in the previous studies. Concluding, it is worth noting that due to the changes in the attitudes towards Russian language learning, the general level of vocabulary acquisition and lexicon building by school-leavers has decreased almost by 20-30%.

References

Study of mathematics textbooks at primary and low secondary level

Introduction

When studying textbooks, one can adopt different viewpoints: one can explore how to improve them or to select them, or one can observe the use of these books in educational contexts.

In the framework of the first approach, we can consider their ideological background, their history, their organization and so on. (see Johnsen (1993) and Iartem’s publications for references).

In our research, we adopt a different approach. We study textbooks for themselves without considering their use by teachers or pupils in classroom or at home. We think that textbooks are artefacts which are results of many interwoven constraints.

They also reflect ideas at a certain time and constitute a kind of potential curriculum, i.e. they describe what can be done in the school. For instance, it is reasonable to think that mathematics teachers use textbooks in their classrooms, at least as an exercises databank.

For the moment, textbooks are books and school subjects, activities and exercises have to be described verbally. Pictures and book materiality certainly have an effect on what can be proposed. Ideas, contexts and so on are evolving and also, with ICT, book materiality is changing. It seems important to study these evolutions in trying to point out the main features that characterize textbooks and their successors.

To do this research, we have chosen to focus on one subject: mathematics. The case of mathematics is certainly a good starting point because mathematical learning requires instruments and learners’ activities. Mathematics textbooks have deeply changed in one century, from reference texts to a catalogue of activities (Baron Bruillard, 1998).

Our research agenda consists of three steps.

First step: to do a descriptive study of French mathematical textbooks, in order to acquire a deep understanding of the domain and build analysis grids taking into account the main characteristics.

Second step: use theses grids to analyse textbooks of similar levels in other countries;

Third step: build an explicative model emerging from the previous studies.
The study presented here relies on a corpus of French mathematics textbooks at primary and low secondary level, from 1858 to 2003.

The aim of the research, more than establishing the grid mentioned earlier, is to underline links between forms and contents of mathematics textbooks, instruments and technological advances available and national curriculum and pedagogical recommendations. More specifically, we investigate the following two questions:

What is the nature of the link between the evolution of textbooks and the evolution of techniques and instruments available, and how does this link operate?

In the modification of the presentation of a given notion, how do the pedagogical theories and the technological possibilities melt into each other?

This text sums up the preliminary work of the descriptive study of mathematics textbooks. We include results concerning the global study of textbooks, their general shape and the mode of presentation of mathematical notions, and a more detailed study of the treatment of the area calculus. At the end of the presentation, we will give some assumptions to explain these results.

**Methodology**

Previous works (Choppin, 1992; Baron & Bruillard, 1998) give a first overview of interesting features to consider.

The idea was to extend these works and to verify their observations in a more exhaustive way. The method is based on the exploration of the corpus. We have access to a previous corpus (in the study concerning area calculus, Bruillard & al., 2003). After a first exploration based on forty textbooks, we have completed the corpus with about fifty other textbooks, adding new interesting features. To construct the analysis grids we have worked on the area calculus. The area calculus is an interesting notion to conduct a diachronic comparative study for the following reasons:

• the importance devoted to geometry in curriculum varies through historical periods;
• there exists the strongest influence of the technological instruments in geometry;
• in France, there have been many changes in the presentation of area calculus during the twentieth century.

The grid is divided into three parts: one for the technical characteristics of the textbook (such as dimensions, typography, colours…), one for the general characteristics of the pedagogical contents (such as lessons or chapters, number of exercises… ) and one for the presentation of the area calcu-
lus (including items such as previous notion, proof for the formulas…).

For the moment, we have used this grid to point out the main evolutions that we will present in the next three sections.

**Evolutions of technical characteristics**

As regards the evolution of the material aspect of textbooks, my observations are analogous to those made by Alain Choppin (1992).

*a. Textbooks authors*

During the last century, the number of authors participating to the elaboration of a textbook has considerably increased: from one or two at the beginning of the twentieth century, textbooks are now written by redaction staff in the 1980’s. Sometimes, only the name of the collection director appears on the cover. The authors are often inspectors, working nowadays with a team of mathematic teachers or primary level teachers (for primary textbooks).

*b. Typography*

Until the beginning of the twentieth century textbooks were austere. The text was written with small types and very close with little paragraphs and line jumps. From the end of the nineteen century to the 1930’s, the size of textbook stayed little, in general 11´18 cm. From 1900, authors and editors began to take care of the people using textbooks. They adapted their books to the specificities of their young audience. The size of types grew to avoid tiredness, links to the reading and the typography varied in the body of the text to help understanding and memorising of results. For examples, the titles are in bold shape, the rules and theorem in slanted shape…

After world war two, the surface of textbooks grew regularly. During the 1950’s and 60’s, the size of textbooks was 15´20 cm. The sizes grew to square shapes, 20´20 cm, in the 70’s. Then, the height increased in the 80’s to reach the current size 20´29 cm, very close to the size of a copy book.
After world war two, the generalisation of new printing techniques and the reduction of production costs allowed the use of colours in the body of text. At the beginning, the use of colours was limited to one extra colour, generally green or red to point out a result. Then, during the 70’s, several colours were used, in the body of the text, or as a background or framing colours.

Nowadays the text is very spaced, with lots of line jumps and frequent changes of colour. Colours are present in the body of the text, of course, but also in margins, indicating the importance of the text.

c. Nature and function of illustrations

Until the 1920’s the only illustrations, excepting geometrical figures, were engravings representing objects that appeared in the course, such as, for example, measuring instruments. The use of black and white photography increased after 1930. After 1940, textbooks contained illustrations having no link with the mathematical text. However, until the 1970s, the illustrations (drawing and photography) did generally have a link with the mathematical content.

After 1985, the use of funny illustrations is generalised: drawing, humorous comics, landscapes or places photography sprinkle the mathematic text, having no apparent links with it.
Evolutions of pedagogical contents and structure

In this part, I will give some examples of significant evolutions in the general presentation and content of textbooks.

a. Internal structure of textbooks

In complement with the typographic changes presented in the previous section, there exists a modification of the structure of textbooks at the beginning of the 1980s. Before this decade, textbooks where books where content was presented in a continuously written text, printed in recto-verso and divided in lessons or chapters. The numbering used was the “juridique”1 numbering, that is, each notion numbered increasingly from the beginning to the end of the textbook. After the presentation of knowledge, the authors gave some oral exercises based on the mathematical results, applying exercises and problems needing more thought from the pupils. These problems often had a practical or professional background.

After 1980, the textbook was divided into chapters, themselves divided into “rubrics” or “technical cards”, organised on a double page. All the chapters of the textbooks had the same structure and the contents of the chapter were partially determined by this organisation, which is presented in the “directions for use” part at the beginning of the textbook. Oral exercises have disappeared, the exercises and problems are classified by their difficulty level (basic exercises, extensive exercises, problem “to go further”, helping exercises...). To sum up, textbooks are now a catalogue of scholar activities, mathematical results, and exercises presented in a succession of rubrics with a lot of colours and illustrations.

b. The introductions

We have studied the introductions or prefaces of textbooks. We can distinguish two periods. Before the 1970s, the introduction was written for teach-
ers. The introduction included generally a paragraph about the conformity of the textbook with the prescribed national curriculum, a long paragraph dealing with the author’s pedagogical choices, and the justification of the author’s specific view. The introduction ended with a skeleton of the textbook with a summary of content. Sometimes, the authors added some pieces of advice for the use of the textbook to the teacher. After 1970, the introduction is written for the pupils: the authors talk directly to the pupil, often using familiar terms. They present to the pupil his new textbook and give him a use guide. One can often find a skeleton of chapters and advice for the use of the different rubrics. This is a little paradoxical because the textbook does not belong to the pupil.

**Evolutions of the area calculus presentation**

When looking at the evolution of area calculus presentation in the corpus, we notice some important evolutions corresponding to four major periods.

*a. Before 1959: a presentation with no important changes during 100 years*

From 1860 till 1959, the presentation of the area calculus had not really changed. In fact, before 1950, the study of area calculus was dominated by the study of the decimal metric system. There was no geometry in the national curriculum before the law making it compulsory in primary school in 1882 (D’Enfert, 2003). These curriculum mentioned only the study of the metric system. Since 1882, geometry is present in the national curriculum. However, a large part of the curriculum is reserved to the metric system. The chapters devoted to geometry, especially the area calculus, are preceded at least until the 1950s by a chapter aiming to study the metric system. This attachment to the metric system in France has historical roots, because it is the French Revolution that takes great care of the construction and the use of the metric system. It is one of the symbols of the French Republic’s unity.

During this period, the chapter dealing with the area calculus begins with the definition of the main surface’s unit of measure, a square of one meter length named a square meter. Then, the proof of the centesimal law, which gives the relation between two consecutive units of measures, is given by the way of a square divided into 100 small squares. Next, an important part of the chapter, is a specific study of land measures (*centiare, are and hectare*). Then, the authors insist on the fact that there is no real or effective measure of a surface: geometry gives tools using length measures for computing areas. The formulas giving the areas of basic geometric figures are presented, often with an illustration showing the corresponding figure. These
formulas are obtained from a decomposition of the figure in simplest figures for which the area’s formulas are known

**b. In 1959, a teaching reform**

In 1959, an important teaching reform took place in France. The age of compulsory schooling was extended to the age of sixteen, and most importantly, the primary school became the first degree, divided into five years. After the first degree, the pupils go to the general or professional second degree.

After this reform, the area calculus was mainly presented in grade 6 and 7, corresponding in France to the first two years of the low secondary school. The course still kept its traditional aspect. However, some innovations can be found in the exercises: millimetre paper is used for counting the squares included in the figure to obtain the area, the area is also computed by weighing the surface and comparing with a gauge.

**c. The period of “modern mathematics”**

In 1968, with the apparition of modern mathematics in the curriculum of 1968 and 1977, the aspect of the course on areas calculus radically changed. The study of the metric system is not systematically done, and the study of squaring comes before the area notion. The notion of surface is presented with the vocabulary of sets theory, and the notion of surface area is introduced through the means of equivalence classes. The geometric decomposition of figures disappears in favour of counting.

**d. The present period**

Nowadays, from 1980 till 2003, the presentation of the area notion is still based on squaring and counting; nevertheless, sets theory is no longer used. However, one can find some geometrical decompositions in the course for some basic figures, and some deepening exercises include geometrical decompositions.

**Conclusion**

To try to explain these evolutions, we can point out the following ideas. The impact of the instruments used cannot be neglected. Thus, as regards the area calculus, the apparition of a new technological instrument in classrooms, the millimetre paper, has induced modifications in the treatment of the area notion. This instrument, is often used by pupils to evaluate the area of rather small figures (hence a diminution of the size of figures in textbooks) in detriment to activities of a geometrical nature. Likewise, the generalisation of the use of calculators can explain the diminution of calculating exercises. Computers can give rise to new activities too…
The evolution of society can explain too some of the evolutions that I have pointed out. For example, the diminution of the number of farmers in the 1970s can explain the fact that the study of agrarian measures units and the calculus of a fields area have almost disappeared.

The democratisation of teaching, the lengthening of the duration of compulsory school and the decrease of the secondary sector in benefit of the tertiary sector can explain the diminution of number of practical or professional exercises and problems.

Lastly, the national curriculum insists on the fact that pupils must have a much more reflexive work, which incites the authors of textbooks to write preparatory activities and to reduce a number of exercises involving only the use of a formula.

So, these first results illustrate our research point of view, testifying to evolutions with multi-dimensional explanations. The analysis grid, not presented in that paper, is now operative.

Our current perspective is to study textbooks from other countries. The expected corpus will include, for each of the studied countries, textbooks from periods corresponding to changes in the education system of the country, official texts on educations, curriculum, and texts about pedagogical trends.

In this framework, we want to try to understand the incidence of several factors, such as the culture of the country, the teaching methods, the organisation of editors, and the choice of authors on content and the form of textbooks. In particular, we want to investigate the following questions:

What are the significant differences between French textbooks and other countries textbooks?

Are there some differences in the evolution of the general aspect of textbooks?

For a given mathematical notion, are the invariants in the treatment of the notion the same?

References


**Textbooks quoted**


Cover of Cazès’s textbook (1900)

Cover of Alphamath textbook (1994)

An humoristic illustration (transmath textbook 2000, p 175)

An engraving representing a roman steel-yard (Leyssenne, 1896, p 168)

**Notes**

1 This is the expression used by Choppin in French (Choppin, 1992)
Greek primary teachers’ preferences and characteristics of science textbooks: Teachers’ dilemma of selecting effective instructional material

Introduction

One of the most important mediums in teaching and learning is the textbook. According to Warren’s definition, a textbook is “a printed instructional material in bound form, the contents of which are properly organized and intended for use in elementary or high school curricula” (1981, p. 43). The above definition emphasizes that “it is the planned use which determines whether a book is a textbook… if a book is used in the teaching and learning process, it can be considered a textbook while it is being used in that way. As a result, collection of plays and short stories, as well as reference books, can be classified as textbooks depending upon the situation and purpose for which they are used” (Laws, 1992, p.8).

Teachers tend to rely on a variety of curriculum materials such as textbooks or workbooks as sources for their lesson planning. The degree of adherence to the textbook depends upon the subject they teach. Studies conducted by Elliot and Woodward (1990) indicated that teachers adhere closely to texts, especially in subjects such as Mathematics, Science and Reading Instruction.

On the other hand, the misleading notion that teachers “teach really by the book” is well grounded. Research that has been undertaken by Stodolsky “found little evidence in literature or our case studies to support the idea that teachers teach strictly by the book. Instead, we have seen variation in practice that seems to result from teachers’ own convictions and preferences, the nature of the material they use, the school context in which they teach, the particular students in their class, and the subject matter and grade level they are teaching” (Stodolsky, 1989, p.180).

Furthermore, teachers, students and schools use and have used textbooks as valuable resources in their teaching and learning for different reasons. According to Horsley (2001, p.37), textbooks are used

- As sources of information
- As sources of tasks and activities
- As interpretations of the curriculum and its outcomes
• As representations and reflections of the subject matter
• As a portable and relative learning tool
• As a guide to the appropriate pedagogy in teaching and learning
• As a source for the guided construction of meaning
• As a way of multiple entry point to information
• As a source of guidance on the quantity of information to be learned.

The functions of textbooks

Textbooks can serve multiple functions. From a historical perspective, textbooks can serve and reflect changes / developments in curriculum, subject knowledge, knowledge about learning and production technologies. Innovative technology, current changes in the study of learning (e.g. constructivism) and curriculum may affect textbooks’ construction and design. In every time span textbooks reinforce, reflect and guide the educational trends prevalent at that time. Recent trends in the design resulting in text “disappearing” from geography textbooks have been questioned by educational researchers. Lambert (2001, p.11) draws our attention to the point that the design and format of books might seriously limit how students and teachers utilize the books. In addition, Graves (1997, p.62) advocates that texts that are designed as pedagogical devices to help readers generate learning, often mediated by the teacher, may have limited “explanatory potential”.

Problems related to selecting effective instructional material

Internationally, the textbook selection process differs from country to country and sometimes in different states in the same country (e.g. the U.S.A., adoption and non-adoption states). It definitely reflects the philosophy of the educational system, the intended curriculum, developmental and cognitive psychology, and democracy, and has to do with power and control.

The Greek educational system is centralized, with a mandatory curriculum imposed on schools by the Greek Ministry of Education and Religious Affairs. In Greek primary schools, textbooks for subjects such as Greek Language, Mathematics and Social Studies are eighteen years old and are still in use by teachers. Recently the same textbooks have undergone minor revisions by university professors and experts from the Pedagogical Institute (an advisory of the Greek Ministry of Education and Religious Affairs). Greek constitutional law stipulates that every student must be provided with a textbook free of charge for all subjects at all educational levels.

Furthermore, in Greece, there has neither been a serious debate in society about textbooks nor in-depth examination of the matter by experts. In the last decade, themes such as the depiction of woman in primary reading textbooks series (Kadartzi, 1991), and the image of the “other” neighbor in
the textbooks of the Balkan countries (Xochellis, 2001) have received little attention. In addition, science texts and technology as they are depicted in school science textbooks as well as in newspapers were studied by Koulaidis, Dimopoulos and Sklaveniti (in print). Textbooks that dictate not only the content but also the context in which teachers and students operate have received severe criticism (Mavrogiorgos, 1985, p.23).

On the other hand, a proposal to abandon the use of textbooks in Greek primary school was supported by arguments that textbooks were “dogmatic”, had encyclopedic content, targeted low level skills, and provided one didactic approach to the subject under study (Benekos, 1985).

The publishing sector has also received hard criticism. In Greece there is one public publishing sector, which publishes and distributes all the educational textbooks. Proposals to liberate the publishing operation, providing textbooks to the students from the free market in order to improve textbooks through the competition of different publishing companies, have been rejected.

During 2001, the Greek Ministry of Education and Religious Affairs imposed an updated science curriculum on Greek primary schools. Simultaneously, a policy to introduce “multiple teaching resources” in science in Greek primary schools came to action. In order to implement the new science curriculum, new science textbooks were written under the guidance of the Pedagogical Institute (an advisory body of the Greek Ministry of Education and Religious Affairs). Finally, from the two approved science textbooks, Greek primary teachers for the first time in their career have had the opportunity of selecting one-science textbook for their students for year five. The textbook selection task was released with specific details concerning the time and the process, which every school should follow in order to successfully complete the selection task. The science textbook selection task raised serious questions among the Greek primary teachers such as:

Is it appropriate to expect classroom teachers to make choices regarding the selection of textbooks?

Do teachers have the expertise in content and format to make these choices?

Have teachers had any training for these tasks as part of their undergraduate or graduate education?

Is training for the selection process available to them?

If preservice teachers should receive theory and guidelines for the selection of textbooks, when should it occur? What would those guidelines be? Would they be realistic and congruent with teachers’ capabilities, the needs of children in both urban and rural contexts, and the realities of teaching in public schools today?
What should be the role of students in the textbook’s selection process? (Exarhos, 2003) Regardless of a teacher’s ability to influence the selection of a textbook, research into teachers’ preferences in text characteristics may be of value. First, such research would help authors / publishers design texts that nearly meet teachers’ preferences. Second, such research might help identify perceptions of the role of textbooks in curriculum.

The aim of my research is to identify Greek primary teachers’ preferences and perceptions of science textbooks in relation to textbook construct, science text characteristics, and the function of illustration in science textbooks. My research questions are:

- What is Greek primary teachers’ attitude / opinion on science textbooks?
- What is Greek primary teachers’ attitude / opinion on the function of illustrations in science textbooks?
- What is Greek primary teachers’ attitude / opinion on text?

The context in which my research is conducted is the public Greek primary school. A Shymansky, Yore and Good (1991) questionnaire was modified and enriched with statements related to illustrations and science text characteristics in order to fit my research. The new questionnaire consists of 32 items in a Likert type scale and during the pilot test it yielded internal consistency of 0.82 (Cronbach α=0.82). The questionnaire is attached to the appendix. A random sample of 78 public Greek primary schools in Attica (province of Athens) was selected, consisting of 720 teachers. Findings will be codified and analyzed with the aid of a computer program (S.P.S.S., 10.0).

References


10. Xochellis, P. (2001) The image of the “other”/ neighbour in the school textbooks of the Balkan countries, in P. D. Xochellis et. al. (eds). *National History and/or European History*, 193-211. Athens

**References (the origin text is written in Greek language)**


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Talking about texts in the classroom

Abstract

This study presents a comparison between how a teacher and her students talked about texts in civics during a regular lesson, and during two lessons where structured text talks in smaller groups were used. The results demonstrate that during the structured text talks the teacher’s share of talking time diminished, while the students’ showed an increase in verbal production. The teacher’s questions also changed, there was an increase in the number of inference and check knowledge questions. Moreover, the students read more actively and made numerous inferences.

Introduction

In Sweden many students on vocational programmes have difficulties in understanding texts in civics. Civics is a core subject, which means that everyone has to take it. Studies have shown that texts in civics are more information dense and have a lower degree of readability than texts in history and religion (Reichenberg Carlström, 1995; see also Graesser, McNamara & Louwerse, 2002).

One effect of the information density of such texts is that much information is left implicit. If the reader is to gain a deeper understanding, he or she has to be very active, making inferences and reading between the lines. However, many students on vocational programmes read in a very passive way; for example, they are less likely to note inconsistencies in text content, to monitor what they understand from the text, take notes, etc. (see Lund-berg, 1998, for a further discussion of passive readers). Why, then, have they developed such a passive attitude? One fundamental reason is probably lack of practice.

Several studies have shown that it seems to be the privilege of teachers to ask questions. A classic pattern of classroom discourse is a cyclical pattern of three-part sequences: initiation- response-evaluation (IRE) (Dillon, 1990, Nunan & Lamb, 1996). The IRE pattern assesses comprehension but does not assist the process of comprehending (Beck, McKeown, Hamilton & Kucan, 1998). Another reason for students’ passivity is their belief that textbooks are above criticism and that they are not allowed to question the author. Consequently, many of them blame themselves when they do not understand. Many of these students have a low self-esteem from a con-
tinuous failure to understand texts. To avoid further failure, they have developed different strategies, like using a minimum of effort when reading: if you do not waste a lot of energy, then your failure will not be so big (Høien & Lundberg, 1999; Taube, 2000).

International studies have demonstrated that text comprehension can be promoted by instructions to read strategically. One approach has been to encourage students to actively respond to what they read through collaborative discussions on line, in which students share and challenge each other’s ideas, for instance Reciprocal Teaching (Sullivan Palincsar & Brown, 1984) and Questioning the Author (Q&A) (Beck, McKeown, Sandora, Kucan, & Worthy, 1996). Characteristics of Q&A are: (a) The text is viewed as the product of a human author, who is fallible in communicating ideas. Consequently, the text is open-ended and incomplete, and the reader has to contribute something to complete it. (b) Q&A deals with the text through teacher-posed queries such as “What is the author trying to say” and “What do you think the author means by that?” (c) Q&A takes place on line, reading segments of the text and discussing the ideas and events encountered. The segmentations have been made in advance by the teacher where he/she expects the students to have difficulties. Stopping to discuss a text also allows readers to consider different alternatives. (d) Q&A encourages collaborative discussions in which students are forced to grapple with ideas in order to construct meaning. (Beck et al’s. 1996, p 387).

The aims

The overall aims of this project are

to investigate how teachers and students talk about texts in civics in the classroom;
to investigate to what extent, if any, structured text talks (QtA) in civics affect teachers’ and students’ talk.

The following more specific questions are focused on:
(a) What kinds of questions do teachers ask when reading texts in civics in the classroom?
(b) How do students respond to these questions?
(c) How is talking time distributed when discussing texts in civics?

Focusing on poor readers’ reading comprehension, I decided to adopt Beck et al’s (1996) approach of segmenting the text and the idea of questioning the author. However, there are also differences between the present study and Beck et al’s (1996). Since the students in this study are older than those in Beck et al’s the way of questioning the author differs. Furthermore, the
students were instructed to skim the text first, to get a general view of the material before the text was segmented. Lastly, the students read the texts in small groups.

Method

Participants A total of 48 students and four teachers participated. The majority of the students had chosen vocational programmes. Out of these 32 were identified by their teachers as poor readers and 16 as good readers. It was decided that these 48 students were to participate in structured talks about texts in civics. Each student’s ability to decode properly and his/her reading comprehension were tested at the beginning of the study. In this first study I will focus on the way one teacher talked about texts in the classroom.

Material and procedure

Five 40 - minute lessons in civics were videotaped: one regular lesson and four Q&A lessons in smaller groups. In the regular lesson 13 students participated. For this lesson the teacher chose the text: “Crime”, dealing with different sorts of crimes, why people commit crimes, etc.(Bengtsson, 1999). After the regular lesson the teacher and her three colleagues were invited to participate in Q&A seminars led by the examiner. In these seminars Q&A, current reading research concerning reading comprehension, reading strategies, and different question types, etc; was discussed. The teachers also practised Q&A during three lessons with their students before videotaping the second time. The teachers´ experiences were discussed during the seminars.

From the regular group 12 students were selected for the second and third videotaping. The students were divided into two groups (A and B) with six people in each – four poor readers and two good readers. Each group participated in two videotaped Q&A lessons. In the first Q&A lesson each group read a text called “From extended families to core families”, dealing with how changes in society affect the family structure. In the second Q&A lesson each group read a text called “From poorhouse to the Swedish Welfare State” dealing with how society has changed over the past 150 years.(Cronlund, 2003). These two texts were chosen by the examiner.

Data analyses

As a first step in the data analysis, the distribution of talking time during the lessons was examined. The total number of words uttered by the teacher and the students was counted, excluding those words that were part of the segments read aloud by the students.
The next step was to trace and categorize the teacher’s questions. ‘Question’ here refers to any utterance by the teacher related to the act of questioning the students. Procedural questions, rhetorical questions and discourse maintenance questions, (e.g. giving turns, ”Does anyone else have any suggestions?”) were left aside. Repaired questions, i.e questions repeated or paraphrased, were coded as one (see also Janssen, 1996).

The third step was to analyse and categorize students’ answers to the teacher’s questions. Several literal or possible inferential answers from the students to the same question were coded as one. Two independent raters scored the teachers’ questions and the students’ answers and there was a 90 per cent agreement between the raters. The discrepancies were solved in discussion with a third rater.

**Results and analysis**

Table 1 presents the distribution of talking time. During the regular lesson the teacher took a very active role and totally dominated it.

<table>
<thead>
<tr>
<th></th>
<th>Teacher</th>
<th>Students</th>
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<tbody>
<tr>
<td>Regular lesson</td>
<td>3124 (75, 2 %) 27, 1</td>
<td>1031 (24,8 %) 8,3</td>
</tr>
<tr>
<td>Questioning the Author 1 (a)</td>
<td>2842 (50,6 %) 19, 5</td>
<td>2779 (49,4 %) 12, 4</td>
</tr>
<tr>
<td>Questioning the Author 1 (b)</td>
<td>2949 (58,3 %) 19,5</td>
<td>2106 (41,7 %) 14,7</td>
</tr>
<tr>
<td>Questioning the Author 2 (a)</td>
<td>1622 (39 %) 15, 0</td>
<td>2531 (60,9 %) 12, 9</td>
</tr>
<tr>
<td>Questioning the Author 2 (b)</td>
<td>1986 (48,5 %) 12, 2</td>
<td>2084 (51,2 %) 12, 4</td>
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</table>

The proportion of words uttered by the teacher was 75 per cent and her turns – the length of utterances expressed in words – were very long. The teacher used a version of the IRE (= initiation, response and evaluation) format. She mostly retold what had been read. The students were given few opportunities to give longer answers and, consequently, their turns were short. Regarding the students’ talk, two of them dominated. In the Q&A lessons not only the teacher’s talk, but also her turns diminished dramatically. The turns were also more evenly distributed among the students.

The teacher had made five segmentations in “From extended families to core families” and six in “From poorhouse to the Swedish Welfare State”. Each segmentation was read aloud by a student. At each segmentation, questions were asked and a collaborative discussion took place.
Table 2. Frequency of Question Types in Regular and Questioning the Author Lessons: civics.

<table>
<thead>
<tr>
<th></th>
<th>Literal questions</th>
<th>Check Knowledge</th>
<th>Inference questions</th>
<th>Open-ended questions</th>
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<tbody>
<tr>
<td>Regular lesson</td>
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<tr>
<td>Questioning the Author 1 (a)</td>
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Four question types could be identified (see table 2):

*Literal*, where the students just have to retrieve information from the text to be able to answer the teacher´s question, e.g. “What kinds of crimes are the most common?”

*Check knowledge*, where the teacher wants to check if the students know, for instance, the meaning of a word or if they have the necessary prior knowledge, e.g. “Do you know what an auction is?”

*Open-ended*, where there are several possible answers to the question and the answer is not to be found in the text (Dysthe, 1996). Semi-open questions are included here, e.g. “What about the core family today?”

*Inference questions*, where two types of inferences were found

(a) text-based inferences that capture the meaning relations across sentences in the text; e.g. “What is the author´s message?”.

(b) model-based inferences that depend on the integration of information in the text with prior knowledge, e.g. “I wondered when I read: ‘What made it possible to construct such a society during such a short period?’ ‘This is not explicitly stated in the text. The students just receive the information that people wanted better conditions. The teacher expects the students to make connections with what they had read about ideologies earlier during the term. (See Garnham & Oakhill, 1996; Cain & Oakhill, 1999 for a further explanation of inferences).

During the regular lesson the literal and the open-ended questions dominated (see table 2). One tendency was that the teacher asked many questions in one turn:

… anything else... Is there anything that you want to discuss? What sorts of crimes are committed? Or what sorts of crimes are reported to the police? Is that it? Do you think it is in accordance with your view? … What sort of crimes are most reported in the media?... The impression you get from the mass media and things like that?

In the Q&A lessons the teacher´s question types had undergone a change.
The number of literal and open-ended questions has decreased. Instead there is an increase of check knowledge and inference questions. The teacher also asked many follow-up questions:

Teacher: Who lived in the poorhouse?
John: Those without keys.
Teacher: What do you mean by that?

The teacher also used different strategies to get the students to focus on the content. In the text excerpt below she helps the poor reader, Ingrid.

Teacher: How did the poor people survive in the cities then?
Ingrid: Maybe the Social Welfare Office helped them.
Teacher: … What does the text say, Ingrid?

Table 3. Frequency of students’ answers in Regular and Questioning the Author Lessons: civics.

<table>
<thead>
<tr>
<th></th>
<th>Retrieve information</th>
<th>Inferences</th>
<th>Questions/comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular lesson</td>
<td>21</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Questioning the Author 1 (a)</td>
<td>9</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>Questioning the Author 1 (b)</td>
<td>14</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>Questioning the Author 2 (a)</td>
<td>9</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>Questioning the Author 2 (b)</td>
<td>15</td>
<td>8</td>
<td>4</td>
</tr>
</tbody>
</table>

In the regular lessons there was no inferencing from the students (see table 3). Furthermore, the students very often just took information directly from the text or did not even bother to look at the text.

They only gave their personal views. In the Q&A lessons the students’ answers had undergone a change. They really tried to explore ideas in the text and several times they managed to make text-based as well as model-based inferences. Sometimes they even made inferences when the teacher asked literal and check knowledge questions. The students also made comments about the texts like the three poor readers in the text excerpt below:

Shirin: But I think it is wrong to write ”rent” because it is like,,
Margerita: It is like they were for sale.
Shirin: Yes, it is like, come here and do that and that and then you may go.
Margerita: Like slaves perhaps.

The students also initiated questions. In the text excerpt below, a poor reader, Azra, disagrees with the teacher concerning who was paid to take care of the poor orphans:
Teacher: The farmer had to pay to get a child. Although he tried hard to pay as little as possible.
Azra: I thought it was the farmer that was paid?
Teacher: The farmer had to pay.
Azra: Look!
Teacher: Pay as little as possible.
Azra: The farmer. Azra reads aloud from the text. They were left to the farmer who got some compensation from the community.
Teacher: Yes.
Azra: Consequently, they got some compensation.

The example demonstrates that Azra really has grappled with ideas expressed in the text and that the teacher has missed the point.

**Discussion**

In this study structured talks (Q&A) on line affected the way the teacher and her students talked about texts in civics. Compared to the regular lesson, the students not only talked more but also interacted more actively with the text when reading. On several occasions they spontaneously utilized their prior knowledge and connected it with the information in the text, thus demonstrating that they had the potential to make inferences. Furthermore, all students were more or less involved. They contributed actively to the teacher’s and their peers’ contributions in order to explore the ideas in the texts. Their answers demonstrate that they could discuss very complicated matters. But they need much more practice to be able to grapple with ideas in the text on their own. The present results are in accordance with Beck et al’s (1996, 1998) and Sandora et al’s (1999). However, their students asked more questions, but they had practised questioning for a longer period.

The students’ active involvement was probably a consequence of both the distributed discussion and the teacher’s way of questioning and directing the talk about the text. Compared to the regular lesson, the teacher was more attentive to where the students were in the construction process, their prior knowledge, etc; and that affected the way she directed the talk about the text. However, the design of the study with smaller Q&A groups may also have affected the teacher.

Although this is a very limited study, it has demonstrated the importance of asking inference and check knowledge questions in the classroom. Inference questions are necessary if the teacher wants the students to get deeper understanding of the text. By asking such questions, the teacher is likely to become a model for the students when they have to question the author on their own. The study has shown that training students to infer and to ask
questions from the text is very important if a student’s comprehension of expository texts is to be increased.

Many textbook writers take for granted that students have sufficient prior knowledge or vocabulary to understand the texts. A challenging pedagogical question is how it would be possible to use students’ potential and make them interact actively with texts when reading. One possible way may be to encourage students to actively respond to what they read through structured text talks (Q&A) in small groups.

References:


**Notes**

1. The students were sixteen years old at the outset of the project, and turned seventeen during the year I worked with them.

2. Three texts and 14 questions from the international reading literacy study by IEA were selected; two of them consisting of connected prose text and one of an information task – designed for 14 year old students. The maximum score on the comprehension test was 14 points. In the IEA test the reading achievement of nine and 14-year-old-students was compared in about 30 countries (Elley, 1994).

3. A detailed transcription of all utterances, all sorts of non-verbal, visual and prosodic clues, such as facial expressions, body languages, intonation, etc. is important. However, it is extremely complicated and time-consuming. Like Janssen (1996), I used a less detailed method and only transcribed all verbal utterances and some contextualization clues (hesitations, etc.).

4. The mean value on the three IEA texts of four good readers was 10.5 and the eight poor readers 7.75.

5. During the first videotaped Q&A lesson one student in each Q&A group was absent, but during the second Q&A lesson they were present. These two students – one poor reader and one good reader – were also absent from the regular lesson.

6. When group A had Q&A lessons, group B was in the school library and when group B had Q&A lessons group A was in the library. The first time, group A started and the second time group B.

7. Five of them were immigrants.
From the newsstand to the classroom
The pedagogics of the teachers' guides

A substantial means of support for teaching purposes:
textbooks or guides for teachers?

Within national educational methods, textbooks have forever been regarded as the most essential means of support for teaching. However from the year 1996 in the Argentinean field of education an editorial phenomenon with a lot of scope, which opposes this hypothesis, has gained ground. It has not been noticed yet by either specialists or educators. It has to do with a mass consumption by teachers and professors alike of a monthly issue, whose format may be circumscribed to the genre of guides to teaching. This series of guides is regularly published and available for teachers by EDIBA (Bahiense Editors) and includes several titles: Kindergarten Teachers; Teachers of Primary and High Education; The Magazine for the Third Cycle; Teachers of Special Education, and, The Teachers’ Magazine. A monthly edition of these publications is approximately three thousand issues on average. Their prospective readers, amount to nearly six hundred thousand.

These guides printed by EDIBA are meant to serve practical teaching purposes through different tasks focused on by educators at school. These are magazines which count on a relevant graphic design as well as quality. On the inside, their contents are namely: an annual planning for the school year; activities for students covering all of the different curricular aspects; posters and maps as related material to be developed during the lesson; assignments for evaluations; follow-up records for the students’ scholarly pursuits; speeches and drama plays for scholar ceremonies; instructive material for making hand-made crafts; invitation-cards for parents meetings; regulations for scholarly fellowship, among other topics in support of a teacher’s everyday work.

One of the characteristics of these guides is that their narrative is the responsibility of educators who are in command. Furthermore, it is an editorial policy not to include those authors who are specialists in education.

The magnitude of the sales of these teaching guides by the above-mentioned editors allows us to make the following estimate – one out of two educators in Argentina subscribe to this publication. It is to be assumed, therefore, that readers deem it an effective tool and a very appropriate ready-made issue available for their work.
Three conclusions may be drawn in respect of this which are to be put forward for consideration. The first one is directly related to Comenio and his assumption about the major role of textbooks in teaching: Are they still worthy of the highest praise, such as the one given by the author of the Orbis Pictus, or do we have at hand practices which make a textbook a note-book and the educationists’ concern as well, something different?

A second consideration relates to a communicable as well as an educational phenomenon. In this regard, Vigarello’s evidence (1995) turns out to be suggestively related to communication and health. According to this French researcher on the history of the human body, in the Twentieth Century people’s health turned out to be a commodity. For more than twenty years, magazines specializing in health-care have multiplied in number, alongside a mass media diffusion which places them on the list of best-sellers in France. Taking this into consideration we make ask the following question: Are we facing the fact that the printing press attempts to make those consumer-educators not feel defenceless when making a decision as to the meaning of teaching?

A third aspect formulates once more the topic of recipes as a pedagogical argument. In particular, the discussion about the need in itself as well as the role that educators should play in regard with their formulations. A point of view as to the actual value of these “recipes” is arguable in the academic field and, also, the everyday practices that make educators face this dilemma. A few years ago Estanislao Antelo (1999) made an attempt to reinstate this very argument; saying: “I do not believe that having no recipes and just asking one selves questions, in fact means something to be highly regarded. It is my opinion, in connection with our know-how that someone who has no recipes is not capable of teaching.” This gives rise to the following question: Is the question of recipes already settled in terms of pedagogy?

**Guides for educators as a subject of research**

Up to the ’70s, the field of study in connection with textbooks was circumscribed to the history and content of books. During the following decades, systematic research on textbooks increased. Recently a considerable research publications as well as specialized research centres in many countries have developed. In addition, over the last twenty years, educational research in Argentina is actively involved in the process, thus contributing with a meaningful assortment of scientific studies on related material.¹

Most of the research in connection with textbooks has been focused on their educational contents, with the aim of improving referred contents to allow for tolerance and an international comprehension among quite distinctive societies.² (Johnsen, 1996). The most recent research attempted to
enlarge the field of study from the introduction of difficulties such as literary forms and their corresponding methods of usage in the classroom; the output and market of textbooks as well as the distribution channels of textbooks.\footnote{3}

However, in spite of the expanded availability of the teaching guides in different educational systems, up to the present they have not been subjected to research.

Michael Apple (1996, 1996) draws special attention to the role of textbooks in teaching. This author states that a technical control is of prime relevance at school through the text. From his own point of view this means disrespect towards educators along with a lack of possibilities for the development of professional capabilities. He also points out that some aspects of the subject matter of textbooks have made it possible for educators to abide by them with ease with a flexible support as well. Similarly, most of the researchers conclude that textbooks exert a restrictive influence on teaching methods and pedagogy.

From a different perspective, José Gimeno Sacristán (1996, 1997) states that in order to avoid a simplified analysis both of textbooks and their influence, it is necessary to bear in mind the institutional circumstances at school coupled with the educators’ work itself. In consequence, he concludes that teaching implies support which is highly necessary, and hard to do without for everyday tasks in the classroom.

These polarized interpretations of textbooks are also voiced in those generalizations which sometimes, are inferred to the guides for teachers.

Over the last years an attempt has been made to review these kinds of interpretations by sustaining that there exist different kinds or reading practices and different styles of reading matter for teaching. Readers are the ones who infringe and intrude into the textual room, without authorization inclusive, thus producing a new text, a reading text as a result of an activity with which to make sense. In this respect, Anne Marie Chartier and Jean Hébrard (1998, 2002) point out that opposing practices for teaching constitute different kinds of reading of curricular texts. Therefore, and by means of practices meant to be creative reading, teachers and professors alike restore their perspectives to their daily tasks, constituting their identity as teachers.

This perspective focuses on methods of reinforcing an approach to everyday scholarly education, making an attempt to put into evidence, and analyzing as well a phenomenon frequently regarded as commonplace that enhances a pedagogical culture inherent to the know-how of people devoted to teaching. Reconstructing diverse readings of the guides and the different kinds of regulations in use at present, nowadays it is a road to returning
back to the starting point in order to understand the fundamental aspects of pedagogies as methods of teaching in the classroom and everyday practices whoever is in charge of teaching.

**Queries raised about the guides for teachers**

What pedagogical contents are conveyed by those teaching guides already studied? What socio-historical and educational factors give meaning of those contents? What are the different readings implemented from educators of those publications? In what manner does the reading of the guides give shape to teaching practices? What is regarded as a change or a permanent method in the teaching methods?

In order to answer these questions it is necessary to take into account the context of the Argentinean education over the last decade. During this period the culture at school and teaching pedagogy was neglected as educational reform redesigned the system’s structure. Curricula contents changed and management methods were introduced. While advisors were in favour of school reform, the motivation of teachers and professors themselves stood for protecting the status quo together with the former methods of their work.

Educators attributed to reformers eradication of past practice and putting forward for consideration renewed teaching practices, such those characteristic of Viñao Frago’s (2001) towards other educational contexts. The chores of many an educator continued within a framework of disbelief for which the guides for teachers and professors were meant to be taken into account.

In this context, only certain pedagogical traditions and a sort of hybrids were given attention to, such as the fundamental contents of the guides. As a result, a combination of cultural know-how for teaching was restored or continued to be exercised as a ritual belonging to the procedure being followed by the school according to particulars of the 1420 Law.

Not only the contents are relevant to the purpose of the guides but also reading practices by teachers as well as the experience gained that assumes for them to be able to appropriate those proposals they give their consent to. In connection with this, Jackson (2002) states that “Teaching is what we read rather than that which is seen”, owing to the fact that what is done in the classroom depends on hidden factors.

Finally, those readings translate into diverse usages being carried out by teachers involving the teaching guides which have a bearing on changes and the continuity of school practices.

**Reading highlights key to the teachers’ guides**

An interesting method for studying the teaching guides is through the perspective of using inventive designs from daily life in the classroom and in shaping the school’s culture.
The speeches on teaching frequently address an allegedly known reality from everyday existence, thus being approached as pedagogical certainties which in depth do not reflect upon its complexity, instead, they are incidentally or not directly being addressed. According to Anne Marie Chartier (2000), in general, their features deal with teaching methods alone, that is, forgetting about or just having a detached judgement of the ordinary chores of daily life at school. As a result, she states, it is possible to sustain school practice, “What is done at school, what is done today or what is always done” is a disregarded dimension to most of the research into the causes of concern.

In his review of the Social Sciences, Michel de Certau makes a proposal to address them as an issue of concern for those ordinary chores of everyday life. Far from the classical approaches, he suggests that any practices be studied as skills to be developed and not as mere facts of society or just in search of culture. From his personal perspective reading matter cannot be understood either as receptiveness imposed, as something being subjected to a text as a submissive activity to the reader. On the contrary, reading matter as an assignment to active participation, at the same time it modifies and confers the survival of the text, a reading matter refers to “a singular means to empower what it is in writing.”

Similarly, Certau (1999) points out a distinction among strategy, tactics and cunning. These concepts are a contribution to think about cultural appropriations. Those in the domain of culture are well aware where they are headed; have a course of action; a personal strategy which is also familiar and collective as well. Others do not aim at a strategy but get along with tactics and a cunning attitude. While some bring into existence situations and modify them, others are capable of developing a destructive effect with which they are themselves inflicted. And in order to restrict those destructive effects they resort to cunning tactics. The reading matter of the guides for teachers may be understood in the current context as a paradigm of a tactical activity of those who teach. They perform, as they can and want the reading text of the guides to produce a new text for their work in the classroom. In this sense it may be thought of that the dimension involved in the reading of the guides on the part of teachers constitutes several tactics: Tactics that are related to pedagogical aspects; tactics which denote a position in regard to education policies and tactics referred to the well-being of a practical knowledge and the identity of teachers themselves.

The reading matter and usage of the guides, recreate daily life in the classroom as an historical research (Julia, 2001, Vincent, 2001), they are recorded in the history of scholarly culture. The idea of a school grammar, ascribed by Tyack and Cuban (2001) and referring to a series of educatio-
nal reforms in the United States for over a hundred years, flames thinking about the changes and progress made in the school culture.

Grammar in the school is defined by a set of traditions and institutional regulations settled over the years and handed down from generation to generation by teachers and professors alike. It consists of methods of doing and thinking being taught by means of the teaching experience. In the school’s daily life, grammar comes into being with the rules of the game and with shared understanding without being questioned and thus allowing for teachers to adapt themselves to the imperatives being brought about through the referred grammar as well as modifying any innovations farther away from that of its own demands.

The notion of grammar is useful to explain and analyse how the school adapts itself to changes. It allows for the understanding of why some proposals are introduced and others are rejected, modified or distorted. It also gives an explanation of how school change is made and how this change turns out to be a mixture of continuities and ruptures.

Overrating the idea of grammar may cast a shadow of doubt as to the effective possibilities of allowing for changes in education and also in the attitude of teachers and professors to disrupt school practices. However, the focus of Tyack and Cuban gives the notion of a school suggests a more sober and suggestive teaching practices may be conceived as either experimental or adaptations of proposals that fall on those responsible for education. In this respect, it may be possible to understand some teachers’ and professors’ practices as a drive that in a sense compensate for, or make amendments to teachers work.

This dimension relates to the scope of implementation of the guides in education, for the participation of teachers; operative capabilities of teachers and also changes or continuity in the shaping of the scholastic grammar.

**Contributions of this type of study**

The study of the teaching guides allows for carrying out substantial contributions in terms of gaining knowledge that makes up for any gaps for the specialists’ task; pedagogues, and technicians that carry out their duties within the academic fields or the management of educational policies; and to that of teachers and professors alike, responsible for what is being taught in the classroom.

In addition, in relation with the academic freedom, this sort of findings contributes to an access to the field of the specifics of teaching. Thus giving an account of possible scopes to those findings as concerns practice itself and contributing to a substantial knowledge that allows for heritage, reflections, and exchanges.
References


Notes


5. Curriculum Reform and Teaching and Learning Materials
Every ten years, national curriculum (courses of studies) in Japan has been revised since 1947. In the 1980’s, the revision of the national curriculum was aimed at introducing the so-called flexible and not-tough curriculum standards, in order to change the excessive academic achievement oriented school education and society. The pupils and students were forced to study hard and the curriculum required the students to memorize lots of “school knowledge” so that they could pass the university entrance examination of the leading universities. The curriculum was organized according to the modernization theory of education, used in Japan.

“Education Mama” devoted themselves to the education and training of their sons and daughters. They were willing to sacrifice for the future of their sons and daughters. University entrance examinations forced the students to learn much knowledge. The level of achievement became high, but the subject knowledge that had to be studied and learned increased rapidly.

Such sayings as “examination hell” or “four hours sleep all right but five hours sleep fail” became popular. Educational reforms in Japan at these times aimed at reducing the study burden on the students.

The revision of the curriculum in the 1980’s intended to improve these competitive and knowledge oriented aspects of school education. Transmission of knowledge was replaced by the goal or aims of education to develop the ability to think spontaneously or independently and to solve the problems. These abilities were defined as the “new concept of achievement/ability. In order to help the students to develop those abilities and attitudes, it was believed that the students should be given more flexible and free time during which they could enjoy what they wanted without being forced to learn and study. Therefore the contents of the national curriculum were reduced and refined. Standardized teaching hours were also reduced in the national curriculum.

The recent revision of the national curriculum introduced the unique area of the curriculum in addition to the traditional areas of “subjects”, “moral education” and “special educational activities”. This is the “hour of integrated learning” (cross-curricular learning activities) which include information literacy education, environment education, welfare education, edu-
cation for international education, and others which the schools develop. This hour is 3 unit-hours of instruction per week, from elementary schools, junior high schools to senior high schools. Moral education is only one unit hour per week. The Integrated Learning hour is much longer than moral education, or some subject instruction.

The revision of the national curriculum in 1997, also aimed at developing the ability or zest to live: to able to identify and solve problems, to think and act critically and spontaneously so that students can cope and live in the rapidly changing society with the advancement of technology, especially information and communication technology, and in the increasingly globalized society.

Five weekdays program of school education policy and some issues

In 1995, every two Saturdays, the schools began to be closed. The partial five weekdays program was implemented. Teachers were released from working on Saturday in accordance with the policy of reducing the working hours to 40 hours from 44 hours in a week. But in Japan many parents did not want such policy of reducing the working hours of the teachers. They wanted school education on Saturdays. The Government then changed the campaign of introducing the policy of a five weekdays school program by saying that it was aimed at students. The five weekdays per week policy became an educational reform to help the children to develop the zest for living: to think freely and spontaneously or independently to act, by providing them more “free time” (staying at home). The Government advocated that by introducing the five weekdays program into school education, the children should be given more free time in which they need not spend in studying and preparing for the examination, or they need not to go to the cram-schools, but in which they could play and do what they wanted, and as a result of and being present at schools for six days in week. In order to have understanding and appreciation among the parents about the policy, the Government maintained that the reason of introducing it was not for the teachers’ welfare but for the sake of children. It was bedescribed as an educational reform for children.

In 2002, the five weekdays program was implemented every Saturday. The parents did not oppose the policy. The problem of introducing the policy then was not opposition among parents, but the reduction is the content of the national curriculum by 30% because the teaching hours had to be reduced. About 35 half-days of instruction had to be removed from the school curriculum. The revision of the national curriculum aimed at reducing the content of study. Even the hours for the instruction of Mathema-
tics, Japanese, English, Social Studies, and Science were also reduced by almost 20 to 30% in comparison to previous courses of study.

Another problem of the five weekdays program was that private schools continued to provide education services even on Saturday, although every public schools were prevented. The competition among students who are in the private schools and in the public schools became inequitable. For preparing for the university entrance examinations. Parents wanted their sons and daughters enrol in private schools. They were unlikely to send them to public junior or senior high schools, because public schools did not provide instructs on Saturday.

*Damping-down of the levels of achievements among the students*

Universities reacted to the reform with research showing less achievement at senior or junior high schools with the new curriculum and with the five weekdays program. There were lots of reports based on surveys and university results which showed the leveling down or damping-down of ability and skills especially of Mathematics.

For example, in 1998 Professor Nishimura of Kyoto University showed that only 80% of the students at some private universities answered the correct answers on Mathematics tests which are to be for the elementary school pupils. In 1999, 40% of the students of some national universities and 33% of the students majoring in engineering at the faculties of technology at some national universities showed reduced performance on calculation tests, which including the addition and subtraction of the negative numbers. The results of 1998 TOEFL scores showed that the score of Japanese participants was ranked 33 among 39 countries. The score of Korean students was ranked 20 on the same TOEFL. Japanese’s students were far behind Korean students. Almost 80% of the professors of Saga national university agreed that the achievement levels of the students declined at the university in 2000.

More than 105 universities among about 600 universities in Japan began to provide remedial courses or programs in order to cope with such reduced academic achievement levels of the students. 88% of the senior high school teachers believed that the level of the high school students in their teaching subjects dropped rapidly. In particular 97% of the mathematics teachers at senior high schools felt the same trend among the students.

As for the motivation among the students to learn the subjects, the results of the survey conducted by the Japan Textbooks Research Association in 2001 showed that 56% of the 4th graders responded that they like Physical Education, 40% Fine Arts, 24% Music, 19% Science, 17% Mathematics, 15% Japanese, and only 10% for Social Studies. Very few 4th graders responded that they like learning of traditional subjects. Junior high school
students (8th graders), only 36% answered that they liked Physical Education, 29% Social Studies, 25% English, 24% Music, 22% Fine Arts, 18% Mathematics, 16% Science, and 10% for Japanese. Many pupils and students were seen as losing their motivation for basic learning, and many pupils and students reduced their basic skills and knowledge. The level of the academic achievement declined.

The reasons why the levels of student achievement declined, have been debated often and widely in Japan. One of the agreed reasons among the experts was the fact that the content and the volume of the national curriculum (courses of studies) were in fact reduced to some extent (not necessarily by 30%).

Another reason was the fact that the national curriculum put more emphasis on flexible and less-intensive learning of the curriculum contents based on the concept of the “new achievement.” The most important and strong factor was the fact that the five weekdays program at public schools released many children to study and learn on Saturdays. It really helped the children’s level of achievement went down much rapidly than we thought.

**Solving the problem of reduced student level of achievement**

Different groups including the Ministry of Education, and universities, have tried to solve the problem of reduced achievement. The Japan National University Association has tried to increase the required number of subjects tested at the university entrance examination at each university so that the senior high school students study hard and would be prepared better. In the past national universities had reduced the number of these subjects, in order to compete with private universities. In the 80’s and 90’s, national university entrance examinations were targeted as an evil for the healthy development of students because they required many kinds of subjects, while private universities and colleges required only three subjects (English, Japanese and Social Study). The students were likely to choose private universities because they prepared only three subjects. At that time national university entrance examinations required 7 to 9 subjects. Many national universities reduced the number of the subjects and required only three subjects, like private universities. The students they reduced their subject study. From 2004, many national universities will introduce new subjects for the entrance examinations (about 7 subjects instead of three subjects). High school students are now requested to study more subjects. At private branches, the recruitment paper examinations are likely to introduce the common required subjects (knowledge) and to provide more rigorous standards of selection. At TOYOTA, they introduced the test of Japanese Characters for their recruitment examinations.
The Ministry of Education has not changed the five weekdays program to increase the hours of training, but the Minister of Education has asked the advice of the Central Council on Education about revision of the national curriculum. The debates are still rages and no one can have a clear understanding about what revision or reform of the national curriculum will occur. But if we carefully study the statements and documents issued by the Minister of Education or by the Under-secretary of the Minister of Education, we would be able to notice a slight change in terms of the ways of interpreting the nature of the national curriculum, or to notice the new emphasis on basic skills. The Ministry of Education began to suggest that the national curriculum or the course of study should be the minimum standard for every student, although in the past the Ministry explained the nature of the national curriculum as the standard (some students may accomplish much higher level than the standards, and a few may not be able to accomplish the level). But based on the new definition of the national curriculum, every student must be trained enough in the basic skills and knowledge, and at the same time those who easily accomplish the minimum of the contents of the courses of studies (school textbooks), should be given opportunities to learn advanced contents.

In Japan, the first time that the teachers are to be allowed to teach the advanced contents beyond the courses of studies if the students complete the minimum standards, in accordance with the learning results of the students.

**Improvement of the textbooks in order to meet the new standard of the National Curriculum**

The Ministry of Education, following the recent drafted revision of the national curriculum which allow the teachers to teach advanced content if students meet criteria, asked the advise at the Advisory Council for the School Textbooks Authorization about how school textbooks can describe advanced or developed content, fair and balanced description in the textbooks, the quality research on the adoption of textbooks, and more clarification about the textbook adoption process. In order to cope with the strong doubts about the reduction in students’ achievement, these themes are asked of the Council in 2003. So far the Ministry of Education has not approved and allowed teachers to teach any content which is not described in the courses of study, and school textbooks also do not contain such content. However courses of study have been defined as the “minimum standard” and advanced and developed contents will be taught at the schools which are not necessarily described in the courses of study.

New edition of the textbooks which were published this spring in 2003 were criticized as very thin textbooks, or as very light textbooks. They may be colourful but have fewer pages and context.
These newly edited textbooks are going to be re-edited and published with more pages in which the advance contents are described. The editors of the textbooks must compete and develop new ideas on the advanced contents which should be described in the textbooks, although the course of study do not include such context or give guidelines. Textbooks editors want the Ministry of Education to provide some guidelines on the advanced content to the teachers and to the editors so that they can safely deal with such unfamiliar tasks as curriculum development without directions from the Ministry of Education. I think that the Ministry of Education may provide some guidelines for the contents in the future, but at this moment the contents are in the hands of the editors and the teachers.

The textbooks editors and writers in Japan are now faced with new and really unfamiliar challenges to improve the contents of the textbooks which meet the two different needs of the firm acquisition of the basic skills and knowledge among all students, and of the advanced learning for the fast and high achievers in the same classes by providing advanced content. The textbooks may become thick, and large, although there is no clear policy about the purchasing costs of such textbooks with advanced content. And, at the same time, there is no clear understanding about what will happen to the learning among the fast learners who took the advanced content when they are promoted to the next grade, and the next grade. There is no clear explanation about the relations between the advanced content and the minimum and standardized content of the next grade and also the advanced contents of that grade. Teachers are not trained enough to deal with such a dual track of the curriculum and the textbooks. They have been used to teaching the textbooks to all of the students of the class. But now they must develop the strategy or design of instruction using this new kind of the textbooks which contain minimum and advanced content.

The attitude of the Ministry of Education is rapidly changing. In the past it was likely to control the fundamental frameworks of educational administration, but nowadays it is the Ministry of Education that has tried to introduce new and innovative challenges and to change the laws and regulations if necessary so that the schools and the teachers can challenge the innovative practice of education. The Ministry of Education used to say “no” to new ideas, but now it asks the people and the teachers to challenge new ideas. The textbooks system is no exception. The processes of publishing textbooks may change drastically and the ideas of editors may be very much more competitive in the near future. The authorization process may also change and be simpiler and clearer. Deregulation policy is going to be applied to the textbook publishing process, which will bring innovative improvements to textbooks in Japan.
Transforming curriculum as teacher’s activity

The report presents findings of the research focused on the ways in which the primary and lower secondary school teachers transform the subject matter presented in the textbook while teaching Czech language and mathematics. The research was carried out in 2002 at the Department of Education at the University of Ostrava within the institutional research of the Faculty of Education (VZO – “New possibilities in the education of teachers, educators and students for learning society of 21st century”).

The concept of subject matter and teacher’s activities with the subject matter

The concept of the subject matter changes intensely with the changes of the conception education. Traditionally it was perceived as a sum of knowledge the teacher should transmit to the students. In a wider conception the subject matter means a material content of instruction, learning material, (Lehrstoff in German context). In our research we use the term “subject matter” for appellation of knowledge, skills, attitudes and values which are the object of teaching and learning (Mare, Gavora 1999).

In the light of the stages of curriculum the research is focused on the transition from intended curriculum (subject matter in the form of curricular documents and materials) into implemented curriculum (instructional content communicated directly to students). In this context teachers are called as curriculum constructors. They are those who transform the subject matter into the form it will attract students’ attention and become the content of students activities.

So the subject matter presented in curricular materials is mediated to the students mostly by the teacher. It is the creative activity because the teacher must tailor the subject matter to the specific students’ needs. The teacher’s work in these stages of instruction is focused partly on the subject matter selection, partly on further didactic transformation of subject matter presented in textbook.

The research of transforming curriculum as teacher’s activity

If we want to know, what and how students learn at school, we have to know precisely which educational contents are presented to them and in what form. Many researches in the Czech Republic as well as in other countries (Kon 1995, Pru‘cha 1997) confirm above all intense use of textbooks as
a source of the subject matter. The researches aimed at the ways in which teachers transform the textbook subject matter are less frequent. But it's clear that there are differences between the way in which the subject matter is presented in the textbook and the way in which the teacher presents the same subject matter to students. In 1985 Czech researcher J. Pručcha carried out an inquiry among primary and lower secondary school teachers in which 8 main ways of modification of the textbook subject matter by the teacher were distinguished (Pručcha 1998, p. 114). These findings have become an important guideline for us in the planning of our research.

**Aims and methods of the research**

The aim of the research was to find out how the primary and lower secondary school teachers work with a subject matter presented in a textbook in the lessons of Czech language and mathematics, specifically if they present a subject matter to students in correspondence with a textbook or if they modify it, which particular ways of subject matter modification teachers use and in what extent.

The basic method employed in our research was the questionnaire with graduated multiple-choice questions. The content of individual questions and their formulation have been specified in pilot inquiry which was carried out by the method of an individual non-structured interview with 44 teachers of Czech language and mathematics. 290 teachers from 37 schools formed the questionnaire sample. The questionnaire was filled by 154 Czech language teachers and 136 mathematics teachers teaching at primary schools (grade levels 3, 4) and lower secondary schools (grades 7, 8). All teachers in the sample teach in the Ostrava region. The sample was selected on the basis of convenient sample. The experienced teachers predominated both among the primary school teachers (48% of them with the practice 6-15 years) and among the secondary school teachers (59% more than 21 years).

The most important question was based on the types of modifications J. Pručcha had identified in 1980s, brought into line with findings of our pilot interviews with teachers (see Fig. 1).
Fig. 1 Overview of the modification types presented in questionnaire:

<table>
<thead>
<tr>
<th>Making the subject matter</th>
<th>More interesting</th>
<th>More comprehensible</th>
<th>Better arranged, more transparent</th>
<th>Selecting the core subject matter</th>
<th>Simplifying the subject matter</th>
<th>Reducing the subject matter</th>
<th>Leaving out (omitting) some too complicated matters</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The respondents should have marked the rate of using the particular modification at 5-point scale (no use(1) – (2) – (3) – (4) – (5) constant use).

**Main research results**

Because of the fact that only teacher knows particular class in which he/she teaches, it is obvious that he/she is the only person who can adapt the textbook subject matter to the specific needs of his/her students. Generally we can agree with the statement that teacher shouldn’t use a textbook as a cookery book. It means that it is necessary to modify the subject matter presented in the textbook. There is no obvious reason why the teachers should modify the textbooks in the same way. They use different textbooks in their classes, written by different authors, published by different publishers – in Czech republic there are at least 5-6 parallel textbooks for every grade for every subject available. We supposed then that teachers use various types of modification but the extent in which they use them depends on school subject and grade level:

Our initial hypothesis was that there exists significant differences between the frequency in which teachers use individual modifications of textbook subject matter in Czech at primary and lower secondary school on one hand and in mathematics at primary and lower secondary school on the other hand.

*All teachers in the sample modified* subject matter presented in a textbook in various ways. The majority of respondents used a few types of modification. The modifications are used very often (average coefficient at six of them scores over the average value on 5-point scale – see Fig. 2).
There were no significant differences among the use sequences of individual modifications in Czech at primary schools, Czech at lower secondary schools, maths at primary schools and maths at lower secondary schools in our sample. The types of modifications labelled as A, B, C, D were always ranked from 1st to 4th, types E, F, G from 5th to 7th (see Fig. 3).

Fig. 3 Sequence of modification types (according to use)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A Interesting</td>
<td>4.30</td>
<td>4.09</td>
<td>3.36</td>
<td>3.53</td>
</tr>
<tr>
<td>B Comprehensible</td>
<td>4.15</td>
<td>4.30</td>
<td>3.72</td>
<td>3.82</td>
</tr>
<tr>
<td>C Better- arranged</td>
<td>3.96</td>
<td>4.25</td>
<td>3.68</td>
<td>3.52</td>
</tr>
<tr>
<td>D Select core</td>
<td>3.68</td>
<td>3.36</td>
<td>4.07</td>
<td>3.72</td>
</tr>
<tr>
<td>E Simplify</td>
<td>3.39</td>
<td>3.34</td>
<td>2.82</td>
<td>3.15</td>
</tr>
<tr>
<td>F Reduce</td>
<td>3.05</td>
<td>3.05</td>
<td>2.79</td>
<td>3.11</td>
</tr>
<tr>
<td>G Leave out</td>
<td>2.69</td>
<td>2.46</td>
<td>1.96</td>
<td>1.93</td>
</tr>
</tbody>
</table>

The differences in frequency of using modifications between Czech (both primary and secondary) and math (both primary and secondary) are not significant from statistical point of view (Pearson correlation coefficient is \( r_p = 0.640 \)). Our hypothesis HYP(1) has been refuted. (Almost the same applies for differences between primary grades and lower secondary grades in Czech and maths together, although the differences are bigger (\( r_p = 0.768 \)).

At the same time it is interesting to notice the variability rate of primary dates, i.e. how many respondents have chosen various values at the scale. There has been proved a significant difference between Czech and maths – the standard deviation for dates in Czech has reached 23.8 while it has been only 16.1 for maths. The differences among maths teachers are longer than among Czech teachers.

As we have already mentioned teachers have to transform the textbook subject matter in some measure. On the other hand it is important which
types of modifications the teachers use. Unfortunately we could state in
general that the majority of Czech textbooks are overwhelmed with infor-
mation, often invariant, they are characterised by a huge concentration of
information especially terms. Therefore we expected the teachers in our
sample would above all
• reduce the subject matter as for the extent and
• select mainly that subject matter which is regarded to be core.

From that assumption another hypothesis has arisen: that Czech and math
teachers use the modifications “reduce” (F) and “select the core subject
matter” (D) significantly more often than other modification types (A, B,
C, E, G). This hypothesis has not been proved. The modification “reduce”
(F) has always been ranked 6th in sequence. The average coefficient at the
scale scores from 2.92 to 3.11, i.e. the mean value of use frequency. On the
contrary the teachers in our sample use modifications A, B, C significantly
more often than modification F both in Czech and mathematics ($r_{p,A:F} = 0.025$, $r_{p,B:F} = 0.049$, $r_{p,C:F} = 0.139$).

The part of hypothesis concerning dependency of modification D and
modifications A, B, C has not been proved either. The coefficients at scale
score from 3.36 to 4.07. In Czech this modification (“selecting the core
subject matter”) is used more often only in comparison with modification G
(“leaving out complicated matters”). The modification “D” seems to be the
most used in maths (it is ranked 1st according to the coefficient value). But
it concerns only E, F, G. The differences between the use frequency of D
and A, B and C are insignificant from statistical point of view.

**Interpretation and conclusion**

We regard as the most important finding the fact that the teachers in our
sample use the modifications “making more interesting”, “making more
comprehensible” and “making better arranged” (A, B and C) very often or
costantly. In the case of Czech they are ranked 1st, 2nd or 3rd in sequence
both in primary and in secondary schools, in maths 2nd, 3rd or 4th. In Czech
the coefficient scores more than 4 at the scale.

To give some concrete examples:
• Czech: 80% of primary school teachers have stated that they try to make
  the textbooks more interesting “constantly” or “very often” (choose num-
  bers 4 or 5 at the scale), in case of secondary lower teachers - 73%.
• Czech: 72% of primary school teachers and even 82% of lower secondary
  school teachers have stated they make the textbooks more comprehen-
  sible “constantly” or “very often”.
• Czech: 65% primary school teachers and even 81% lower secondary school teachers state they must make the textbook better arranged “constantly” or “very often”.

• Maths: concerning all 3 modifications A, B and C at both school levels more than 50% of the teachers (50%-67%) have stated they make the textbooks more interesting, comprehensible and better structured.

We are aware of the shortcomings of the applied method. The findings need following inquiry. Are the results valid for other school subjects? The sample ought to be more characteristic. In spite of that our findings indicate some conclusions.

Our research has shown that the Czech and maths teachers consider their textbooks unattractive and demotivating, that the students cannot study the text without help because the textbooks are little comprehensible for them, that they cannot orient in the textbooks because they are not composed lucidly. The teachers in the Czech Republic are empowered to influence the textbook selection process in great extent (as individuals or on the basis of agreement with their colleagues). In view of that fact there are two main possibilities: either all the Czech language and mathematics textbooks for grades 3, 4, 7 and 8 available have got these inconvenient qualities or the textbook selection process is insufficient.

We think the both statements are valid. The textbook selection process has been too much spontaneous, the reviewers often decide more according to their instincts than on basis of an elaborated evaluation procedures. The teachers themselves are not trained for selecting teaching materials. But at the first place there is a considerable need for textbook analyses which are not being carried out professionally and systematically.

References


Changing textbooks and changing readers in Estonia

The learning environment of contemporary pupils is changing very rapidly. During the last 10 years the introduction of new curricula in Estonian schools led to a process of simultaneous replacement of most textbooks from grades 1 to 12. At the same time new social and information conditions are affecting motivation and the development of the lexical and thematic competence of learners. This article analyzes how the learners of today view different school subjects and the content of new textbooks.

Introduction

The learning environment is changing very rapidly. Two factors characterizing this process are a continuous growth of scientific information and understanding that the knowledge acquired at school becomes quickly outdated. (Mc Cormac, Jones, 1998) Today, radical changes may be observed in the sphere of all school subjects. These factors have an impact on the choice of the content of the new textbooks applicable in the contemporary information conditions. (Chambliss, Calfee 1998; Mikk 2000) At the same time the results of our study “Students in the stream of information” (1979-1999) showed that the quality of textbooks is a very important factor determining the teacher’s classroom activities and the use of the additional learning materials. (Vassilchenko, 1999)

Our longitudinal study, conducted in 1979 - 1999, allowed researchers to trace change in school information conditions and to reveal students’ and teachers’ difficulties in the learning process in connection with the quality of textbooks.

Table 1. The correlation between students intrinsic motivation and characteristics of the textbooks. (7 - 12 grades, n = 2250)

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Comprehensibility</td>
<td>.367</td>
<td>.406</td>
<td>.399</td>
<td>.242</td>
<td>.249</td>
<td>.440</td>
<td>.327</td>
</tr>
<tr>
<td>Illustrations</td>
<td>.299</td>
<td>.287</td>
<td>.286</td>
<td>.207</td>
<td>.231</td>
<td>.230</td>
<td>.276</td>
</tr>
<tr>
<td>How interesting</td>
<td>.541</td>
<td>.541</td>
<td>.537</td>
<td>.470</td>
<td>.475</td>
<td>.606</td>
<td>.491</td>
</tr>
<tr>
<td>Closeness to life</td>
<td>.392</td>
<td>.380</td>
<td>.438</td>
<td>.292</td>
<td>.281</td>
<td>.391</td>
<td>.394</td>
</tr>
</tbody>
</table>
This research showed that correlation between the text clarity and learning motivation was high and significant (p < 0.001) for all subjects. Consequently one of the main conclusions to be drawn is that the characteristics of school textbooks are an essential factor influencing students’ motivation and use of additional sources of information, especially in such subject areas as physics, chemistry and mathematics.

Figure 1 presents the relationship between text quality and the role of the teacher’s explanation in nine fundamental subjects of Form 9. A careful look at the graph shows a mirror symmetry pointing to an inverse relationship: the more difficult the text is, the more explanation given by the teacher is required. This reveals an important conclusion, not only does a poor textbook dampen the interest in the topic and independent search for additional knowledge, but it also restricts the creative endeavors of the teacher. The teacher will have to conduct long monologues trying to interpret the texts in the textbook into a language his/her students can understand. There will be no room for the teacher and students to do any research, discuss unsolved questions debate points of theory, and very teaching and learning strategies.

Figure 1. The relationship between text quality and the role of the teacher’s explanation in nine subjects (grades 7 - 12, n = 2250).
Changes in motivation and knowledge

During the last 10 years the introduction of new curricula in Estonia led to the process of simultaneous replacement of the textbooks by new ones in grades 1 to 12. At the same time, great changes have taken place in children’s competence (prior knowledge). For example, the new situation for Estonian language in Russian schools has already resulted in the development of new lexical and communicative competencies.

![Figure 2. Changes in the Estonian language lexical and communicative competence amongst the grade 5 - 9 students for the period of 1993/94 (1500) to 1998/99 (3000)](image)

A similar tendency is evident for English and for other school subjects. After comparing the results we can state that the students’ vocabulary is developing faster than their thematic competence. Deep understanding comes with gained experience, thus the role of everyday personal contacts and mass media is very important in the students’ English development. Mere memorizing of the key words does not guarantee a good command of the subject discussed. (Asser, 2001)

On the whole, the results of the studies show that the thematic and lexical competence level of the students is continuously changing. The rate of these changes is different for different subjects. It largely depends on the changes in social and information environments. Teachers, the authors of new textbooks and on-line learning materials, have to consider the changes in the vocabulary and prior knowledge of young people of today. Undesirable are both under- and overestimating of preliminary knowledge in school subjects. If we focus attention only on the scientific content, we may face a situation, where newly designed textbooks, composed accordingly to curriculum requirements, will evoke no interest. If authors underestimate children’s competence, the textbook may be dull to most of them. If they overestimate the readiness of children, the reaction that will be of rejection and
the work with the textbook will be minimized due to difficulties in comprehending the text. The latter will inevitably increase the importance of the teacher’s explanations and reduce the role of students’ creative work during a lesson.

Changes in motivation have not been the same in all areas of knowledge. Rapid growth of interest in the English language and computer science has been accompanied by insignificant changes in the field of other school subjects.

Table 1. Indexes of extrinsic and intrinsic motivation for learning of different school subjects (Russian and Estonian schools in 1993 and 1998)

<table>
<thead>
<tr>
<th>Subject</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>4.2</td>
<td>3.3</td>
<td>4.8</td>
</tr>
<tr>
<td>Mathematics E</td>
<td>4.3</td>
<td>3.3</td>
<td>4.9</td>
</tr>
<tr>
<td></td>
<td>3.6</td>
<td>3.1</td>
<td>4.3</td>
</tr>
<tr>
<td>Physics  E</td>
<td>3.3</td>
<td>3.0</td>
<td>3.9</td>
</tr>
<tr>
<td></td>
<td>3.2</td>
<td>2.9</td>
<td>4.1</td>
</tr>
<tr>
<td>Chemistry E</td>
<td>3.0</td>
<td>2.9</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>4.3</td>
<td>3.8</td>
<td>4.4</td>
</tr>
<tr>
<td>Biology E</td>
<td>4.4</td>
<td>4.0</td>
<td>4.8</td>
</tr>
<tr>
<td></td>
<td>4.3</td>
<td>3.8</td>
<td>4.6</td>
</tr>
<tr>
<td>Geography E</td>
<td>4.0</td>
<td>3.2</td>
<td>4.8</td>
</tr>
<tr>
<td></td>
<td>4.0</td>
<td>3.5</td>
<td>4.1</td>
</tr>
<tr>
<td>History E</td>
<td>4.0</td>
<td>3.5</td>
<td>4.2</td>
</tr>
<tr>
<td></td>
<td>4.0</td>
<td>2.9</td>
<td>4.4</td>
</tr>
<tr>
<td>Literature E</td>
<td>4.0</td>
<td>3.2</td>
<td>4.2</td>
</tr>
</tbody>
</table>

* Difference between two indexes 0.1 is significant at the level $p < 0.001$

For instance, as our studies, conducted during 20 years, show - in all schools of Estonia chemistry and physics have never been regarded as particularly popular subjects. This phenomenon can be explained by high abstractness and complexity of these subjects and slow process of elaboration of attrac-
tive additional materials for school-age readers. The range of out-of-school sources on mathematics, physics and chemistry, which are accessible to pupils, has changed little.

Like 20 years ago, teacher explanations remain the main source of information for the majority of the 7-12 grades’ students. History and literature teachers and authors of textbooks quite often have to explain the meaning of certain simple words, well-known to older generation, but unfamiliar to children, who live in totally different social conditions. At the same time in relatively new and very rapidly developing fields of knowledge children are frequently more competent than their parents. For instance, in the world of computers we are witnessing an overwhelming growth of competence, which particularly applies to boys. In the 1990-es, owing to the national program of computerization “Tiigrihüpe”, Estonia moved from zero position to the ranks of advanced countries, distinguished for their high level of new information technologies within the shortest possible time. But the use of new “on-line resources” is not easy, because it is difficult to find attractive learning materials in the native language for all school subjects.

The results of our study that was conducted every 5 years, in 1993, 1998 and 2003, enabled us to compare the pre-reform generation of textbooks to the present ones. The only indicator that has visibly improved for all subjects is the quality of design. New textbooks contain numerous color pictures and photos. But the analysis of data showed that the creation of a large number of well-illustrated textbooks has still not improved the learning motivation in all subjects. Results“comprehensibility”, ”closeness to life” and interest-provoking texts are still important for school-age readers.

In 2003 we asked students to select the best textbooks and to explain what makes them so attractive for learners. The results were very different for grades 7-9 and 10-12. Only biology and English textbooks completely satisfied the majority of students from grades 7 to 12 and were in accordance with their expectations. Especially important for students was that the material was presented in a comprehensible way and its structure was suitable for users. The better illustrations contain features, which improve understanding of text. They noted, especially in connection with the quality of English textbooks, that contemporary topics from everyday life make learning material more attractive for them.

**Conclusion**

Concluding the analysis of the current information environment in the general secondary education of Estonia we may state that we have managed to accomplish an extremely difficult and time-consuming transition curriculum and textbooks. Thus the first stage of the school reform is comple-
However, we realize that our achievements are far from ideal. Both the curricula and new textbooks need to be thoroughly updated, considering recent changes in the lives of our students. It is important that when developing new textbooks and additional materials on the subject, the authors should more often listen to those who will have to read them.

**References**

Assessing Themes of Educational Subjects Taught in General Education Schools: Problem of Hierarchy in Knowledge

Introduction

Lithuanian General Education School followed the classical “knowledge oriented” educational paradigm for almost 50 years. The purpose of today’s Lithuanian school reform is to create a modern general education system “oriented to satisfy the needs and capabilities of schoolchildren”. Therefore the development of the curriculum and the reduction of curriculum load has become one of the main reform topics.

Documents regulating the curriculum of Lithuanian General Education school show that knowledge of general education are to be selected carefully and the teaching must be planned considering not the traditional framework of the subject, but within the importance of the knowledge educating mature outlook (the common programs of the Lithuanian general education school, 1997). The mentioned attitude to leads to assumption that the most optimal way to improve the curriculum is to distinguish the most important and useful scientific knowledge. The problem how to distinguish subjects of the curriculum and its themes into “essential” and “replaceable”, “central” and “peripheral” is typical of not only in Lithuania but also in other countries (Swanitz, 1999).

On this basis actual hypothesis that in the curriculum exist “the core of knowledge“ and “periphery” is singled out. “The core” means all segments of the most important information of separate subjects, which form the structure of hypothetic and multipurpose general education. Data of cognitive psychology research show that systematically organized person’s general knowledge is the basis of human being’s intellectual activity, and the quality of general knowledge is an important factor, which a productivity of an adult cognitive activity and success of adapting rapidly changing knowledge in the society (Glaser, 1984; Siegler, Richards, 1982; Furnham, Heaven, 2001; Chi, 1978; Solso, 2002). “Periphery” refers to more specialized knowledge, topical for particular subject (physics, chemistry, etc.) and for vocational training rather than for general education.
The scientific problem of survey is shown through such questions: which knowledge (the components of humanity, Lithuanian culture and science march) that is centered in the content of Lithuanian General Education school has a supreme persistent value in a young adult’s (20-40 years old) general education? Does the possibility empirically to differentiate the curriculum into “the core” and “periphery” exist?

The aim of this research is to evaluate subject themes of the content of Lithuanian General Education School according to the criteria of persistent knowledge and to check the possibility to differentiate the curriculum into “core” and “periphery”.

Methodology of the research

The expert method was used to solve the problem. The assumption that only teachers who are involved in the teaching process of particular subjects can assess the subject themes used to select the experts.

Ten separate questionnaires were formulated for pedagogical examination (Lithuanian Language, History, Basics of Civil Society, Geography, Mathematics, Biology, Chemistry, Physics and Astronomy, Music, and fine Art). Subject themes were presented for assessment. They were developed according to curriculum programs. In spite to avoid uneven repartition thematic sectors, this work was done together with teachers and lecturers.

Questionnaires design:
• Equal demographic unit: 5 questions about gender, age, pedagogical qualification, the place of school, teaching experience.
• Different diagnostic units. The stimulus material (the list themes of different subjects) was formed according the content programs in Lithuanian General Education School.

The question presented to the experts was: what knowledge will be necessary for an educated person 5-10 years after graduation regardless of his profession, public activity and position?

A three-dimensional rating scale format was chosen to record the answers. Possible answers were: “questionable”, “needful” or “very needful”.

The survey was carried out only in secondary schools and grammar schools. Only teachers who teach a corresponding subject were asked to fill in the questionnaire. The survey was carried out between 2000 March and April in 94 of the 690 schools operating in Lithuania in 1999-2000. It was not meant to content formal statistics of random sampling by forming expertise sampling. 1550 questionnaires were presented. 1440 questionnaires (from 1514 that were returned) were statistically processed. The distribution of the questionnaires is shown in Table 1.
Table 1. The number of presented themes and statistically processed questionnaires.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Themes</th>
<th>Questionnaires</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithuanian Language</td>
<td>221</td>
<td>288</td>
</tr>
<tr>
<td>History</td>
<td>83</td>
<td>147</td>
</tr>
<tr>
<td>Basics of Civic Society</td>
<td>124</td>
<td>90</td>
</tr>
<tr>
<td>Geography</td>
<td>97</td>
<td>98</td>
</tr>
<tr>
<td>Mathematics</td>
<td>57</td>
<td>249</td>
</tr>
<tr>
<td>Biology</td>
<td>125</td>
<td>111</td>
</tr>
<tr>
<td>Chemistry</td>
<td>83</td>
<td>95</td>
</tr>
<tr>
<td>Physics and Astronomy</td>
<td>83</td>
<td>133</td>
</tr>
<tr>
<td>Music</td>
<td>118</td>
<td>114</td>
</tr>
<tr>
<td>Fine Art</td>
<td>48</td>
<td>115</td>
</tr>
<tr>
<td>Total:</td>
<td>1039</td>
<td>1440</td>
</tr>
</tbody>
</table>

Statistically processed data and assessment were encoded. “Questionable“ = 0, “needful” = 1, “very needful” = 2. The central tendency of assessment (average – M) (tables 2,3), shows a tendency to value knowledge of a particular subject as especially important to a person’s general education even 5-10 years after graduation in spite of profession, public activity and position. The approach of central tendency of assessment to 0, is interpreted on the contrary.

Results and their Analysis

The result is rating of themes of these ten subjects in General Education school in Lithuania: Lithuanian Language, History, Basics of Civil Society, Geography, Mathematics, Biology, Chemistry, Physics and Astronomy, Music and Fine Art. Ratings are formed according to the value of the persistent knowledge criteria. Hereafter some ratings of the themes and their fragments are presented to illustrate the essence of the survey results.

249 teachers from all over the Lithuania assessed themes of mathematics that cover all the program of the subject. Data was processed and the rating of mathematics themes was formed. It is presented in Table 2.

Table 2. Mathematics themes rating. **R/Nr.** – themes rating number; **M** – arithmetic average

<table>
<thead>
<tr>
<th>R/Nr</th>
<th>Title</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Natural numbers and zero. Addition and subtraction of natural numbers</td>
<td>1.91</td>
</tr>
<tr>
<td>2</td>
<td>Multiplication and division of natural numbers</td>
<td>1.90</td>
</tr>
<tr>
<td>3</td>
<td>Area</td>
<td>1.83</td>
</tr>
<tr>
<td>4</td>
<td>Fractions. Addition and subtraction of decimal fractions</td>
<td>1.77</td>
</tr>
<tr>
<td>5</td>
<td>Multiplication and division of decimal fractions</td>
<td>1.72</td>
</tr>
<tr>
<td>6</td>
<td>Angle, triangle, rectangular</td>
<td>1.67</td>
</tr>
<tr>
<td>7</td>
<td>Initial geometry concepts</td>
<td>1.63</td>
</tr>
<tr>
<td>8</td>
<td>Length and area of the circle</td>
<td>1.60</td>
</tr>
<tr>
<td>9</td>
<td>Positive and negative numbers. Rectangular system of coordinates</td>
<td>1.58</td>
</tr>
<tr>
<td>No.</td>
<td>Topic</td>
<td>Weight</td>
</tr>
<tr>
<td>-----</td>
<td>--------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>10</td>
<td>Solid sizes</td>
<td>1.55</td>
</tr>
<tr>
<td>11</td>
<td>Quadrangles</td>
<td>1.49</td>
</tr>
<tr>
<td>12</td>
<td>Triangles</td>
<td>1.48</td>
</tr>
<tr>
<td>13</td>
<td>Division of common fractions</td>
<td>1.46</td>
</tr>
<tr>
<td>14</td>
<td>Circle</td>
<td>1.42</td>
</tr>
<tr>
<td>15</td>
<td>Cylinder, cone, sphere</td>
<td>1.40</td>
</tr>
<tr>
<td>16</td>
<td>Operations with rational numbers</td>
<td>1.38</td>
</tr>
<tr>
<td>17</td>
<td>Features of common fractions</td>
<td>1.33</td>
</tr>
<tr>
<td>18</td>
<td>Polyhedrons</td>
<td>1.33</td>
</tr>
<tr>
<td>19</td>
<td>Divisibility of natural numbers</td>
<td>1.29</td>
</tr>
<tr>
<td>20</td>
<td>Parallel lines</td>
<td>1.28</td>
</tr>
<tr>
<td>21</td>
<td>Spheres size and area</td>
<td>1.26</td>
</tr>
<tr>
<td>22</td>
<td>Multiplication of common fractions</td>
<td>1.26</td>
</tr>
<tr>
<td>23</td>
<td>Expressions and equations</td>
<td>1.24</td>
</tr>
<tr>
<td>24</td>
<td>Square root</td>
<td>1.22</td>
</tr>
<tr>
<td>25</td>
<td>Statistics elements</td>
<td>1.17</td>
</tr>
<tr>
<td>26</td>
<td>Degree with natural index</td>
<td>1.09</td>
</tr>
<tr>
<td>27</td>
<td>The relation between triangle sides and angles</td>
<td>1.08</td>
</tr>
<tr>
<td>28</td>
<td>Quadratic equation</td>
<td>1.06</td>
</tr>
<tr>
<td>29</td>
<td>Formula of shortened multiplication</td>
<td>1.03</td>
</tr>
<tr>
<td>30</td>
<td>Functions</td>
<td>.99</td>
</tr>
<tr>
<td>31</td>
<td>Inequalities</td>
<td>.98</td>
</tr>
<tr>
<td>32</td>
<td>Degree with integer index</td>
<td>.98</td>
</tr>
<tr>
<td>33</td>
<td>Combinatory, elements of theory of chances</td>
<td>.97</td>
</tr>
<tr>
<td>34</td>
<td>Equations and their systems</td>
<td>.95</td>
</tr>
<tr>
<td>35</td>
<td>Inequalities with one variable</td>
<td>.95</td>
</tr>
<tr>
<td>36</td>
<td>Progressions</td>
<td>.90</td>
</tr>
<tr>
<td>37</td>
<td>Similar triangles</td>
<td>.90</td>
</tr>
<tr>
<td>38</td>
<td>Linear equations systems</td>
<td>.85</td>
</tr>
<tr>
<td>39</td>
<td>Equations and flats normal</td>
<td>.85</td>
</tr>
<tr>
<td>40</td>
<td>Multinomial</td>
<td>.82</td>
</tr>
<tr>
<td>41</td>
<td>Quadratic function</td>
<td>.81</td>
</tr>
<tr>
<td>42</td>
<td>Equations and flats parallelism</td>
<td>.80</td>
</tr>
<tr>
<td>43</td>
<td>Coordinate method</td>
<td>.78</td>
</tr>
<tr>
<td>44</td>
<td>Solid geometry axioms</td>
<td>.73</td>
</tr>
<tr>
<td>45</td>
<td>Rational fractions</td>
<td>.69</td>
</tr>
<tr>
<td>46</td>
<td>Generalized degree concept</td>
<td>.64</td>
</tr>
<tr>
<td>47</td>
<td>Degree with rational index</td>
<td>.62</td>
</tr>
<tr>
<td>48</td>
<td>Vectors</td>
<td>.60</td>
</tr>
<tr>
<td>49</td>
<td>The relation between triangle sides and angles. Vectors scalar multiplication</td>
<td>.58</td>
</tr>
<tr>
<td>50</td>
<td>Exponential and logarithmic function</td>
<td>.57</td>
</tr>
<tr>
<td>51</td>
<td>Fluxion application functions exam</td>
<td>.51</td>
</tr>
<tr>
<td>52</td>
<td>Functions limit and fluxion</td>
<td>.50</td>
</tr>
<tr>
<td>53</td>
<td>Trigonometry expressions</td>
<td>.41</td>
</tr>
<tr>
<td>54</td>
<td>Trigonometric functions and equations</td>
<td>.40</td>
</tr>
<tr>
<td>55</td>
<td>Coordinate method expanse</td>
<td>.39</td>
</tr>
<tr>
<td>56</td>
<td>Vectors expanse</td>
<td>.36</td>
</tr>
<tr>
<td>57</td>
<td>Movements</td>
<td>.35</td>
</tr>
</tbody>
</table>
First (quality aspect): themes that appeared in the top of the rating (for example R/Nr. 1-10) cover rather elementary topics but very often in daily life used information that is necessary to know: geometric figures, to count their area and size, to do mathematic operations with natural numbers, fractions, etc. The knowledge of mathematics and competence necessary and obvious for person’s general education follows. Themes at the “bottom” (R/Nr. 48-57) cover more specialized, knowledge related to trigonometry, fluxions, vectors, etc. more useful for higher and vocational schools, than for every day life. The second (quantity aspect): arithmetic average of the themes in “top” and “bottom” is clearly different (from 1,91 (R/Nr. 1) to 0,35 (R/Nr. 57) when Mmax is 2,00). The fact shows that Lithuanian teachers differentiate mathematics themes according to its importance to adult’s general education.

Similar tendencies are noticeable with geography themes, on fragment of which is shown in Table 3. Themes in the “top” cover basic knowledge: about maps, geographical locality of Lithuania, global problems, etc. Their statistical scores exceed the scores of the themes in the “bottom” (R/Nr. 87-96).

Table 3. The fragment (top and bottom) from geography themes rating.

<table>
<thead>
<tr>
<th>R/Nr</th>
<th>Title</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Geographic map</td>
<td>1.82</td>
</tr>
<tr>
<td>2</td>
<td>Map of Lithuanian</td>
<td>1.81</td>
</tr>
<tr>
<td>3</td>
<td>Political map of Europe. Its development</td>
<td>1.80</td>
</tr>
<tr>
<td>4</td>
<td>Political map of world</td>
<td>1.80</td>
</tr>
<tr>
<td>5</td>
<td>Lithuanian position in Europe and world maps</td>
<td>1.77</td>
</tr>
<tr>
<td>6</td>
<td>Humanity global problems and world future</td>
<td>1.73</td>
</tr>
<tr>
<td>7</td>
<td>Europe population</td>
<td>1.68</td>
</tr>
<tr>
<td>8</td>
<td>Economical – geographical place</td>
<td>1.65</td>
</tr>
<tr>
<td>9</td>
<td>The Baltic and the Curonian Bay</td>
<td>1.64</td>
</tr>
<tr>
<td>10</td>
<td>North Europe countries</td>
<td>1.64</td>
</tr>
<tr>
<td>87</td>
<td>North American specific landscape and regional differences</td>
<td>.93</td>
</tr>
<tr>
<td>88</td>
<td>Antarctica name origination. Discovery history</td>
<td>.91</td>
</tr>
<tr>
<td>89</td>
<td>South American specific landscape and regional differences</td>
<td>.91</td>
</tr>
<tr>
<td>90</td>
<td>Australian name origination. Discovery history</td>
<td>.85</td>
</tr>
<tr>
<td>91</td>
<td>Humans living and moral geographic</td>
<td>.83</td>
</tr>
<tr>
<td>92</td>
<td>American name origination</td>
<td>.81</td>
</tr>
<tr>
<td>93</td>
<td>Fragments of the history of earn</td>
<td>.79</td>
</tr>
<tr>
<td>94</td>
<td>Minerals of Antarctica</td>
<td>.78</td>
</tr>
<tr>
<td>95</td>
<td>American lifestyle</td>
<td>.77</td>
</tr>
<tr>
<td>96</td>
<td>Central American coast shape</td>
<td>.69</td>
</tr>
</tbody>
</table>

Consistent pattern of mathematics and geography themes are characteristic to the other subjects. For example, biology themes related to human health came onto the top of the rating.
Table 4. The top from biology themes rating.

<table>
<thead>
<tr>
<th>R/Nr</th>
<th>Title</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Viruses. Effect. HIV virus. Aids symptoms</td>
<td>1.79</td>
</tr>
<tr>
<td>2</td>
<td>Reproduction and evolution (human)</td>
<td>1.78</td>
</tr>
<tr>
<td>3</td>
<td>Pathogenic bacterium</td>
<td>1.75</td>
</tr>
<tr>
<td>4</td>
<td>Human ecology, environment protection</td>
<td>1.72</td>
</tr>
<tr>
<td>5</td>
<td>Digestive system (human)</td>
<td>1.70</td>
</tr>
<tr>
<td>6</td>
<td>Breath (human)</td>
<td>1.67</td>
</tr>
<tr>
<td>7</td>
<td>Blood and circulatory system (human)</td>
<td>1.65</td>
</tr>
<tr>
<td>8</td>
<td>Human sex inheritance. Different organisms sex reflection</td>
<td>1.63</td>
</tr>
<tr>
<td>9</td>
<td>Skin (human)</td>
<td>1.62</td>
</tr>
<tr>
<td>10</td>
<td>Clinical and biological death, features, biological essence</td>
<td>1.62</td>
</tr>
</tbody>
</table>

Top themes from chemistry are these concerned with a human’s organism, nourishment, air, water, pollution, ecocatastrophe, etc. (Table 5).

Table 5. The top from chemistry themes rating.

<table>
<thead>
<tr>
<th>R/Nr</th>
<th>Title</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chemical elements and trace elements needs human organism, impact heath</td>
<td>1.54</td>
</tr>
<tr>
<td>2</td>
<td>Water. Water pollution. Way of water abstergent</td>
<td>1.72</td>
</tr>
<tr>
<td>3</td>
<td>Air and water as important and protect natural reserves</td>
<td>1.69</td>
</tr>
<tr>
<td>4</td>
<td>Synthetics materials effect for health and natural environment</td>
<td>1.69</td>
</tr>
<tr>
<td>5</td>
<td>Industrial company waste products, pollution and effect for nature</td>
<td>1.66</td>
</tr>
<tr>
<td>6</td>
<td>Soil, water and air pollution chemical dimensions</td>
<td>1.66</td>
</tr>
<tr>
<td>7</td>
<td>Energetic companies waste, pollution oil products, motor transport exhaust gas, ways of reduction</td>
<td>1.64</td>
</tr>
<tr>
<td>8</td>
<td>Ecological problems ways of resolution</td>
<td>1.64</td>
</tr>
<tr>
<td>9</td>
<td>Rot of provision, how to avert</td>
<td>1.63</td>
</tr>
<tr>
<td>10</td>
<td>Chemical materials in our environment</td>
<td>1.57</td>
</tr>
</tbody>
</table>

The same quantitative tendencies to differentiate themes into “more topical” and “less topical” remain in the assessment results of humanitarian and art themes. However some consistent patterns develops other surveys are needed to explain them. For example, that are some themes of “top” of the rating scale, are themes only from Lithuanian history.

Besides themes rating, a deeper statistic analysis was carried out. This research was meant to determine if assessing differences between groups exist. The statistical hypotheses about assessment differences between expert groups formed according to social-demographic features (gender, age, pedagogical qualification, location of school, teaching experience) were cross checked (non-parameter Mann-Whitney U criteria was used). It was found that differences exist. For example, women teachers while assessing such biology themes as: “Human Sex inheritance; Sex off different orga-
nisms; Human sex change” (R/Nr. 8). “Development after Birth and Abnormalities” (R/Nr. 15) ranked these themes higher than did the male teachers in biology. Teachers who work in small town and villages think themes “Reptilians” (R/Nr. 45), “Amphibian” (R/Nr. 48) to be more important rather than teachers in towns etc. Assessment differences were found in ratings of all 10 subjects that were presented for pedagogical examination.

Conclusions and discussions

The results of the pedagogical examination show that the curriculum of Lithuania schools is not homogeneous based on the important knowledge to a young adult’s (20-40 years) general education. Quantitative and qualitative analyses show curriculum can be separated into “core” – essential knowledge of general education and “periphery” – more specialized, not essential knowledge.

According to the ratings, these assumptions that the main criteria of “core” formation should be thematic of “human and environment” can be formulated.

We think that the results of the survey can be used to develop the curriculum in Lithuania General Education schools, to prepare textbooks and, to minimize the teaching load.

References

6. Educational Programs for teachers, Publishers and Textbooks Author
How to select and use textbooks?
A training course

The French educational system is strongly centralized. Government has always prescribed educational content and elaborated curricula for every subject matter and every teaching level.

In France, textbooks are on the open market: they must be in congruence with the appropriate curriculum, but no preliminary examination nor any state agreement is required for their use at school. Textbooks are freely produced by private publishing houses, even if they are now mainly provided free of charge by the ministry of education or by local authorities.

Textbooks are also freely chosen by teachers. Neither educational authorities nor parents are allowed to intervene in the selection process. Should a book not be in conformity with the national curriculum (but it never happens in practice) it would be rejected by teachers themselves. Therefore, in every primary or secondary school, teachers have a meeting every year to select the new books that their pupils will use during the following years. The teaching staff has to come to an agreement in a democratic way, because only one book must be selected (for instance, in the same school, all pupils of the fifth grade must use the same history textbook).

In the same way, every teacher can freely use textbooks which have been selected. He or she may also use other pedagogic tools, in addition or instead of the selected textbooks.

But problems have risen for the last three decades. They result from teachers’ attitudes towards textbooks and from the evolution of textbooks as well. On the one hand, pedagogic critics against textbooks have increased in the seventies, so that young teachers who studied in the “teachers training centers” (called “écoles normales” at that time, and now called “instituts universitaires de formation des maîtres (IUFM)”) were encouraged not to use textbooks any more, they were encouraged to elaborate pedagogic material and tools on their own. In practice this led to a huge increase of photocopies, including a great number of textbooks’ pages copied.

On the other hand, textbooks themselves have changed considerably. For social, economical, demographical and also pedagogical reasons, a great change occurred in textbooks structure, textbooks design and textbooks use (or expected use). Textbook lost there functions as a reference book or as a reading book and therefore their traditional linear structure. Textbooks now offers a lot of textual or iconographical documents which are displayed
in a “reticular” way, in order to allow teachers to adapt their strategy to groups of pupils which have become more and more heterogeneous.

Several recent inquiries, supported by the Ministry of National Education (Report Borne, 1998) as well as the French Textbooks Publishers Society (Métoudi & Duchaufour, 2001) clearly prove that these evolutions lead teachers to face serious difficulties, not only in selecting and using new textbooks, but also to help their pupils to use them. The evaluation report presented to the Minister of Education in 1998 recommended teacher training sessions especially devoted to the selection and use of textbooks.

The training tool we intend to present briefly in the following pages may be considered as implementing the recommendations of this official report, in which I took part as an expert. It is the result of a collaboration between the French Textbooks Publishers Society (Savoir Livre), the Teachers Training Institute (IUFM) of Paris and the National Institute of Pedagogical Research (INRP) to which I belong.

A CD-Rom will soon be available for trainers and for trainees as well. The CD is in three parts.

The first part gives general information on textbooks and their environment: textbooks and other pedagogic Medias, textbooks and curricula, textbooks publishing, textbooks costs and finance, textbooks authors, textbooks typography and layout, and so on. Many documents, as schemes or statistics, are provided.

The second part lists and presents the textbooks’ pedagogical functions. About fifty textbooks pages are displayed as examples.

The third part deals with the textbooks selection process. The main selecting criteria are presented, but also discussed in relation with peculiar conditions of teaching (school characteristics and projects, nature and composition of the audience, teacher’s strategy, and so on).

A number of activities are proposed to the trainees, in relation with the second and the third parts.

In addition, a historical approach gives information on the evolution of the French educational system, of textbooks publishing and of textbooks legislation, conception, structure, use and reception. A selected bibliography is also presented in the CD-Rom.

It is quite important to underscore that we do not intend to offer students recipes or guidelines that they would just have to put in practice. The general purpose is to make teachers think and decide on their own. For this reason, no instruction is given. The first message we would want to put across could be: “The answer is yours. But to have answers, you must be able to ask questions. Our target is to help you to ask questions and not to forget relevant ones”. The second message could be summed up by some words that Jules Ferry, a famous ministry of Public instruction, wrote to
French primary teachers in 1883: “The book is made for you, and not you for the book. Never become enslaved to a textbook”. Even if textbooks have a symbolic weight, they not the Bibles. But, in a way, we first have to persuade teachers that they do not have to be respectful: they are allowed not to use a textbook in the way(s) the authors intended it to be used.

In France, when textbooks are objects of study, it is always from a didactic perspective, i.e. in a disciplinary context. This one-side approach consequently neglects other essential aspects of tests. We intend to bring to the fore what is shared by all the textbooks, whatever subject matter they deal with. One of the central questions is: “How does this textbook work?” In a way, these training sessions could be an introduction to the study of textbooks and should take place before any didactic approach to textbooks.

For these reasons, it is crucial that the trainees have to work, from the beginning, on textbooks which are related to subject matters they do not teach. The main purpose is to put a teacher in a pupil’s position: because contents is of no help, the trainees have to find their way, as pupils do, by paying attention to material elements that they do not usually notice in the textbooks they use. They have to consider, for example, the layout, the colours, the general structure of the book, the typographic variations, and so on. So, in adopting another viewpoint, teacher students can acquire skills to evaluate textbooks in order to apply them later to their own books. They may also notice that textbooks contain implicit links or knowledges which often lead users to incomprehension or to misunderstandings.

Another purpose of this training course is to initiate exchanges and promote discussions on textbooks between teacher students. It has been proved that the sessions were always more successful when developed as follow:

- giving trainees not only a common culture on textbooks, but also a common language to talk about, especially – but not only – in some technical fields, as typography;
- conducting activities in small groups (two or three participants) to make discussions easier;
- mixing in the same group teacher students from different subject matters or teaching levels, in order to oppose different viewpoints, stimulate exchanges and give rise to questions and propositions.

Twenty-one activities are offered to the teacher students. They can be classified in three categories:

1. Activities which tend to underscore the characteristics and the variety of textbooks, on the one hand, and the expectations of the users, on the other hand. These activities are elaborated on an observation and comparison basis (for instance, the analysis of the same lesson through several textbooks);
2. Activities which tend to describe or elaborate a more complex organisation or process: the restitution of the “instructions for use” of a textbook, or the elaboration of a evaluation tool, for instance;

3. Activities which tend to criticize, by analysing several textbooks, evaluation tools proposed to the trainees or elaborated on their own.

This training tool is not the result of a theoretical approach, even if an international scientific bibliography is given. It results from practical and numerous teaching experiments in which I have been involved for almost a decade. This training tool has been elaborated little by little, step by step, depending on the questions, centres of interest, gaps of knowledge, reactions, attitudes, and so on of the trainees. All the training sessions have been evaluated and criticized by the students and almost all the activities have been tested with the groups. In a way, it could be considered that this instrument has been co-elaborated by all the participants.

Annexe – Summary of CD-Rom contents

Part I – The textbook and its environment
1. The textbook in its context
2. The book and other supports of knowledge
3. The relationship with communication and information technologies
4. Textbook and curriculum
5. French school publishing
6. Some statistics on French school publishing
7. Who pays for textbooks?
8. Textbook economy
9. Textbooks conception: many actors
10. Textbooks conception: who are the authors?
11. From the manuscript to the printed book
12. Summary concepts of typography and page-settings
13. Textbooks and illegal reprographies

Part II – Textbooks functions
14. Introduction

From the teacher’s point of view
15. Are textbooks substitutes for or interpretations of the official curriculum?
16. Do textbooks say more than what is expected by the official curriculum?
17. Textbook as a tool for elaborating one’s course
18. Textbook as a tool for starting one’s course
19. Textbook as a collection of illustration
20. Textbook as a collection of exercises
21. Textbook as a tool for pupils’ mistakes remediation
22. Textbook as a database for the teacher
23. Textbook as a tool for reactualization of the teacher’s knowledge
24. Textbooks as a place for confronting various theoretical approaches
From the pupil’s point of view
25. Textbook as marks of the teacher’s course
26. Textbook as a memory help
27. Textbook as a database for the pupil
28. Textbook as a reference book
29. Textbook as a reading book

From a more general point of view
30. Textbook and interdisciplinary
31. Textbook as a tool for transmitting values and attitudes
32. Textbook as a methodological aid for exams
33. Textbook as a link between school and family
34. Textbook as an help to organize and select documentation

Part III – Selecting a textbook
35. Introduction: selecting a textbook is an important first step
36. The textbook and its context
37. The teacher’s book
38. A textbook is a book
39. Is the textbook adequate to the national curriculum?
40. Is the textbook adequate to the school pedagogical project?
41. Is the textbook adequate to the teacher’s pedagogical project?
42. Is the textbook adequate to the supposed level of the pupils?
43. How is the paratext organized?
44. How are theories and knowledges exposed?
45. Are the exercises appropriated?
46. How are the socio-cultural issues approached?
47. Is the textbook a training tool for documentary research?

References


Abstract

The application of the methodology of the preparation of region’s development plan is analysed in the article. The sectional reports of ten groups of sociological researches of students comprise the base of the research. In groups students carried out a regional development plan. The structure of the reports is presented, and the results of students and the topic of research are analysed.

Keywords: Sociology, sociological researches, potential studies, development plan of the region.

Introduction

Relevance of the research and topic. Universities are often accused of insufficient linkly of scientific study with regional development. Students need apply theoretical knowledge reality, and adapt theoretical models in particular situations. It is especially topical now when a pragmatic science philosophy orienting towards scientific rapplication of utilitarian character flows from the West to Lithuania.

Regional policy is a new phenomenon in Lithuania. It is especially emphasised of late years because of the increase of economic and social differences among Lithuanian regions (districts) and the significance attached to regional policy by the EU. Hopefully, specialists of economics and management will often confront regional policy. This is why a detailed research of the regional problems and professional analysis, becomes an essential part of the training of specialists of such type.

1. Development Plan of the Region

In February to June of 2003 36 lecturers of the Faculty of Social Sciences prepared a plan of the development of Siauliai region for 2004-2006. A new task has become topical: to apply planned material and databases to studies of the region and transform it into educational media in training Economics and Management specialists for Bachelor’s and Master’s degree.

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A text of 182 pages comprises the plan and its appendixes (267 pages). In the introduction a context of the plan is presented as well as vision of the development of the region till 2014 and four priorities are formulated.

In the first part of the plan analysis of the situation of the region after 20 economy spheres is carried out, SWOT (strength, weakness, opportunities, threats) matrixes are abstracted, and results of the poll of 2300 residents are summed up.

In the second part strategy of the region is formulated and four priorities of the region as well as objectives and tasks, which correspond to them, are established and grounded. Means designed for the implementation of the tasks are presented. Seven municipalities of the region and many companies and institutions presented 1496 means with concrete indicated tasks, expected results, and financial estimates. These means were generalized into 183 grand means.

Material of the analysis of the situation, results of the poll, and a 1496 means list, which is arranged under strategic priorities, objectives, tasks, and grand means, comprise 32 annexes. There is a list of 110 sources.

2. The application of the Development Plan of the Region to studies

In spring semester of 2003 material of the plan was applied in lecturing Sociology, Economics, Business Administration, and Public Administration modules for students of Bachelor study programmes. They carried out research, analysed situations of separate districts of the region, modelled strategy of the region, and formulated plans of the region.

10 groups of students carried out sociological researches on the subject of “Vista Studio of the Preparation of the Development Plan of Siauliai region”. These main parts are required in the report of the research:

2.1. Introduction

2.1.1. Research problem. Formulation of the problem is a difficult task for students. Students emphasised mostly that basically, Lithuania, having rejected the planned economy, needs strategic plans and that planning of the state economy and region has not been treated as an important task of the state. Similarly, Siauliai region does not know its significance and potential in the general context of the country, and does not see the potential development, and does not have experience in strategic region planning.

2.1.2. Research topicality. This part of the introduction of the research report is easier for students. Here students emphasised that the development of the state and regions has been planned in the European Union precisely and responsibly every seven year. The same is demanded from Lit-
huania, which is preparing to become a member of the EU. Hence, Lithuania will join into the last three years of the septennial plan of the EU, i.e. 2004-2006. That is why the representatives of the EU offered Lithuanian government assistance to plan regional policy for 2004-2006 and be ready to prepare a septennial plan of the development of the country and separate regions together with the EU countries. Hence, strategic planning of the development of regions has become a very significant and topical task and that is why sociological research are particularly topical in this sphere.


2.1.4. Research subject. According to the theme students formulated vista studio of the preparation of the development plan of Siauliai region as a subject of the research.

2.1.5. Research objective. Since the objective of the research corresponds to the theme, students did not have any problems with the formulation of it: the objective of the research was to carry out a vista studio of the preparation of the plan of the development of Siauliai region.

2.1.6. Research goals. Many groups of students singled out three main goals:
• To carry out the analysis of the situation of Siauliai region.
• To carry out SWOT analysis of Siauliai region (S Strength, W Weak, O Opportunity, T Threat).
• To carry out the analysis of Siauliai region priorities, objectives, goals, and their implementation.

2.1.7. Scientific hypothesis. Students formulated the priorities of the development of the region as main evidentiary. According to the collected material about the region, students considered the expansion of the competitive ability of small and medium businesses, development of human resources, development of economical and social surroundings, and improvement of the situation of the country and agriculture as main priorities.

2.1.8. Research base: methodology, methods, and strategy. Describing sociological research about the development base of the region, students singled out three main parts of this basis.
• Methodology. In the report it is divided into two parts: a) in the first part students shortly described the main theories of regional policy and the topicalities of the development of the regions, and summarized the material of the theoretical part of the report; b) the second part is more complicated: here students had to ground the logic of their research, reveal the philosophy of the research, and answer the questions why the research was carried in such a way.
• **Methods.** In the report it was divided into three parts: a) in the first part students described the research methods of their group members: the analysis of theoretical sources, the analysis of documents, the method of experts, and poll, b) in the second part and exploratory section was introduced: the main data about the development of the region and the situation in each of six regions of the district and Siauliai is shortly presented; c) in the third part the instruments of the research, mainly questionnaires made during laboratory proceedings in computer classes and distributed among the regional specialists of various spheres, heads of companies and enterprises, and students were described.

**Strategy.** This is a detailed research plan made in the beginning of the semester and coordinated with study plan: eight seminars and accordingly seven tests for separate parts of the report of the research; eight laboratory proceedings with appropriate defence of accomplished work.

**2.1.9. The innovation of the results and their theoretical and practical significance.** This is the final and perhaps the most difficult introductory part.

The innovation was grounded on the basis that the results of the research were collected and worked up especially for the development plan of the region and summarised into strategic provisions. The biggest part of the data was not published in scientific and study reports and was collected from the Internet and the accounts of companies and institutions. Vista studio of the preparation of the development plan of Siauliai region was carried out for the first time. Describing theoretical significance of their researches, students emphasised that the theories of the development of the regions were supplemented with real empirical material as well as expanded in additional and concrete levels. In several reports it was stressed that theories of the development of the region acquired utilitarian character and became significant to particular regional surrounding thanks to the results of the researches.

To ground the practical significance of the results was considerably easier for students than to ground theoretical significance. Really, potential studies of all ten groups revealed real ways of the preparation of the development plan of Siauliai region and projected particular means, and the collected data may be of service in grounding separate components of a real development plan.

**2.2. Theoretical foundations of the research.**

Each of ten student groups presented an individual package of theoretical material characteristic only to the prepared report of their group members.

Students analyzed four main factors of the competition among the regions: the amount of industrial resources, the size of natural resources, and human resources.
Much attention was paid to the policy of the development of the regions: experience, models, and the systems of various countries and regions were described. The increase of the significance of the processes of strategic planning was emphasised. In the majority of the reports of the research the review of the experience of the development of regions in foreign countries was carried out and encouragement methods and means of economic development of regions were analysed.

Students studied encouragement facilities of local business, obstacles to the development of business, and forms of support to business.

Democratic theories of the Western World widely propagated the experience of regional social partnerships. Students analysed the resources of social partnership and compound parts of this partnership.

The fluctuation of regional policy of Lithuania while integrating into economic and social sphere of the European Union and conformation to the demands of structural policy of the EU received particular attention among the students.

2.3. Research results analysis

2.3.1. Situation analysis. Students, having grouped into nine teams, carried out this analysis in each group in nine parts. Situations in this analysis in each group in nine parts. Situations in nine parts. Situations in Siauliai as well as in six districts Akmene, Joniskis, Pakruojis, Radviliskis, Siauliai and Kelme were analysed. The eight team carried out the analysis of the situation of Siauliai district, and the ninth team compared the major rates of Siauliai district with appropriate rates for Lithuania, the EU, and its countries regres.

2.3.2. SWOT analysis. Here students worked in the same nine teams and singled out the strengths, weaknesses, opportunities, and threats of Siauliai, its district, and six regions. Much attention was paid to the grounding of each factor with concrete facts.

2.3.3. Strategic analysis. In this part the same nine teams of each group set the strategies of the development of Siauliai, its district, and six regions for the 2004–2006, singled out the main priorities of development, detailed them with concrete objectives and tasks, and projected the means of their implementation.

2.4. Conclusions and proposals

It was demanded that conclusions would follow from the theoretical statements or from the results of research. Proposals were also grounded with definite facts and were designed to particular addressees: municipalities, specialists and heads of companies and institutions.
2.5. Discussion

It consists of two parts. In the first one the authors of the report stated their attitudes towards the preparation of the report and collected data and conclusions, and described the success and failures of their research. In the second part the possible continuation of research and future plans of the research of research groups were forecasted and readers were encouraged to initiate researches analysing the development of Siauliai region.

2.6. Literature list

In a report, from 25 to 80 resources, constituted this list. Significant foreign literature and Internet information were used.

The size of reports amounted from 145 to 378 sheets of A4 format printed in 12 type. The reports are supplied in bound books and compacts in electronic form.

Students carried out research and prepared reports within a semester, i.e. within 20 weeks. A conference proceeded in every group during examination: the presentation of a report using Power Point.

There were 300 students in 10 groups. About 60 percent of students got good marks, i.e. from 8 to 10 points. About 35 percent of students didn’t contribute to the research and the preparation of the report that is why they got 5-7 points. 14 students, i.e. almost 5 percent of all students, did not consider the studies of sociology a serious subject and did not integrate actively in the teams of students, and were evaluated negatively from 1 to 4 points. The result of this examination is problematical: research was carried out, reports were written, seminars and laboratory work were done, and, having learned the theory, it is possible to get only 2 points. We had to formulate new tasks of sociological research for such students.

The majority of students enjoyed carrying sociological research in groups. They broadened their knowledge about the facilities of the development of the region, collected a lot of theoretical and empirical material and systemized, generalized it as well as singled out the main directions of development. The main thing is that they felt visibly how the truth is being searched and grounded in social research.

3. The possibility of further studies

In autumn of 2003 a new specialization of Business Administration study programme – Project Management, which consists of 4 semesters of 4 credits module each, is going to begin. Students, who will choose this specialization, will go deep into preparation of projects and their management. Projects will result from the means confirmed in the plan. The lecturers of
the faculty receive proposals from the companies to prepare projects under means presented in the plan.

The development plan of the region becomes an important educational media not only to Sociology and Project Management modules. Many lecturers have an opportunity to take practical examples from the material of the plan and concrete problems of the region become good educational media for the analysis of optimal solutions.

The plan will be issued in a book format in autumn. The lecturers of the faculty qualify for the monitoring of this plan for three years. That is, the lecturers will supplement and correct this plan and measure the results of achievements. Educational media for students and experience of the studies should develop together. This will be generalized in the textbook of strategic planning of the activity of regions and companies.

**Conclusions**

Students developed theoretical competence in regional planning and carrying out sociological research projects.

They gained skills in selecting and generalising empirical findings.

They gained competence in grounding and proving statements of sociological character.

They developed analytical skills and relate theoretical assumptions to empirical findings.

The results of incorporating empirical information into theoretical courses proved to be benefit for quality assurance in the teaching and learning process.

**Literature**


The national non-fiction author course in Norway

In Autumn 2002 the first Norwegian and Nordic non-fiction author’s course was started. Behind the study, which is at college level, we find NFF (The Norwegian non-fiction authors’ and translators’ association with more than 4300 members). This association has fully financed the study with some 3 million Nkr (400,000 Euro). Responsibility for the study has been placed with the University College of Vestfold and the University College of Oslo. The new study is based on 5 modules each of 15 credits, which will end in a bachelor’s degree. The content of the study is related to text, media and communication, learning and communication, production of teaching material, essay writing and non-fiction writing. The study is a combination of three week-end gatherings at the college, and net tutoring. The students work with written tasks which will make up a digital portfolio. Students will be required to discuss the contents of their portfolios in the end-of-course oral examination.

This course is a pilot project. We previously suspected that there was considerable interest in such a course. There were nearly 200 well-qualified applicants for 30 places. The study was very popular, not only because of its content, but also because of the financial conditions: it was free.

When the 30 students were chosen, we hoped that the class would function in the same way as an orchestra does. Our intention and opinion is that a student group consisting of different persons with different backgrounds will be a dynamic and supportive one. What the 30 students have in common is that they all have a professional background and education. There is an equal number of men and women, aged from under 30 to over 50. They come from all over Norway. They all have an academic background: we have a vicar, some teachers, a translator, some journalists, a social worker, even a stand-up comedian and a bartender – in other words, a full orchestra. What they all have in common is some experience in writing.

The first of the five modules is a common one, called 'Text, Medias and Communication'. The students established writing workshops that responded to texts written by the group members. These texts were obligatory throughout the study. The groups, consisting of 5 students, had their own tutor who commented on their work. In the week-end gatherings we have invited specialists to give lectures. These lectures have covered topics such as genre conventions, journalism, publishing, biography, scientific writing etc. In this way the students have tried different sorts of non-fiction genres.
The students’ evaluation of the new study has been very positive. All the students wanted to continue to the next module ‘Learning and Communication’. This module is about all types of educational media, from classical textbooks to new electronical media. The organization of the study is similar to the first module. This part of the study is also popular among the students. It was concluded in May this year, and most of participants have chosen new modules for this autumn term. The most attractive module offered is Essay Writing.

We concluded very soon that the new non-fiction author study was so popular that a new group of students was taken up from January 2003, after the same pattern as in 2002. As a consequence of this, the board of Vestfold University College decided to offer this course as part of their regular study catalogue this autumn.

Although we have not made a comprehensive evaluation of the study, we can provisionally conclude that a national non-fiction authors’ study has been established in the Norwegian university and college system. We also know that Sweden is preparing a similar study starting this autumn. NFF and the University Colleges of Vestfold and Oslo all agree that there has been a real need for such a course.

For more than 20 years we have had study programmes for fiction authors in Norway. We know that more than 80% of the new fiction authors from the last 10 to 15 years have followed and participated in these. For the new generation of textbook-writers using both traditional and digital media we think and hope that our study will be a vital recruiting base.

The new university and college reforms in Norway demand a programme of international student exchange. The University College of Vestfold is now working with plans for an international approach to this study. In particular we see this study promoting interesting new links with Eastern Europe and the Baltic countries. We therefore invite IARTEM to cooperate with us to create an international study for non-fiction authors.