Curriculum Theory, Practice and Active Learning in Changing Societies

The II International Conference

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Department of General Education
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This conference is held to celebrate the 100th anniversary of Hilda Taba – a well-known American educator of Estonian origin and to summarize the results of ten-year curriculum development experience in Estonia. This is our second conference linked to Hilda Taba's academic heritage and contribution to the curriculum theory.

The conference is jointly organized by the Faculty of Education and the Centre of Curriculum Development of the University of Tartu.

Content

The challenge of introducing a regional language into the curriculum: the case of Võro

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The advocates of Võro, a Balto-Finnic language spoken by some 50,000 people in rural Estonia, are gamely negotiating a rapidly and radically changing world. Estonia emerged from the Soviet occupation scarcely a decade ago and is hastening towards European Union (EU) membership, voluntarily but without much choice. In the process, the country is reestablishing a democracy and market economy while witnessing the lurching development of civil society and ever-shifting civil society-state relations. The Estonian language, a thread of identity and tradition that survived Soviet Russification policies, is still perceived to be in danger, whether from the 400,000 Russian-speakers left from the Soviet colonization, its pending peripheral position in a powerful EU, or the demands of the global labor market. As a small language in a small state, Võro advocates are finding opportunity amidst often mysterious and threatening changes. Capitalizing on their newfound freedoms, a web of identities, and decentralized language policy, as well as Estonia's desire to obtain EU membership and the aid that may ensue, Võro advocates are able to pursue a diverse set of programs, research, and projects including a school-based Võro-language program.

In the midst of rapid transition and despite the fact that many Estonians feel that the survival of Estonian itself is still in doubt and national unity is at a premium, several cultural associations and groups in southeastern Estonia have declared that Võro is not a backwards, rural dialect, but a language with a rich cultural history that should receive government support and funding. In the span of ten years, a civil society movement persuaded the government to finance both the Võro Institute, the group spearheading the language revival movement, and the "Southern Estonian Language and Culture Policy," an extensive four-year program to develop southern-Estonian

(Võro) language and culture by articulating a place and an importance for Võro in the global, European, national, and regional contexts.

Despite significant successes, the Võro-language movement has faced considerable challenges in the development of a school-based Võro language program. Foremost among these are the lack of broad-based support within the local school communities for a Võro-language program, which is in part connected with perceptions about the aim and content of the Võro-language class, and the common perception that the school curriculum is already "too packed" for an additional language class. Currently, twenty-seven schools in historical Võru County offer an optional Võro language class either during or after the school day. These classes are rarely, however, open to more than one grade and often all the students in the grade do not attend the class. This paper, based on eleven months of ethnographic research on the Võro-language revival in southeastern Estonia, discusses these aspects of the Võro case in an effort to broaden the dialogue about the relationship between regional language policy process and education in the twenty-first century. Furthermore, this paper argues that regional language classes, as curriculum subjects, deserve a place in the official, state-approved curriculum for both political and practical reasons.

The school-based Võro-language program raises the question of how a subject enters into the curriculum. Currently, each school in southern Estonia can decide independently if they want to offer a voluntary Võro language class during or after school. This decision rests primarily on the availability and willingness of a Võro-language teacher and often the positive disposition of the school director towards the regional language. In the last two years, Võro-language advocates have attempted, however, to move the regional language class out of the vulnerable sphere of after-school courses and secure a spot for it in the "domain" of official, state-approved optional subjects through talks and negotiations with the Ministry of Education and the County educational representatives. Expanding the discussion to include national and county-level figures has posed significant challenges to the efforts to include the regional-language class in the national curriculum. Most importantly, new issues of teacher qualification and official approval for regional language texts have become stumbling blocks.

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A second question that the Võro case raises for this conference is how do the perceived aims and content of a subject influence its entry into the curriculum? The involvement of the Ministry of Education and County Educational offices into the discussion about the future of Võro as an official subject has compounded some of the major problems that have arisen in the last ten years in the language policy process. Most problematic is that Võro-language organizations have not garnered widespread public support and, as a consequence, the Võro-language movement is yet to be a broad-based movement. Many Southern Estonians, keenly aware of the lack of economic opportunity in the region, find it difficult to support the investment of time, resources, and energy into a language whose boundaries are coextensive with those of economic deprivation. Although Estonia is doing well relative to other former communist countries, opportunity is seen in cities, in technology, and in "global" languages, particularly English. During this time of "transition," collective identities have become subordinate to pressing economic concerns and individual language choices are dominated by the perceived demands of the global labor market. Thus, just as many of the 400,000 Russian-speakers in Estonia are convinced that learning English is more important than Estonian, children in Võru County prefer English to Võro in schools. Interwoven with these economics concerns is a common perception that the aim of the Võro class is to advance the language as an internationally important and useful one on par with English, Russian, German, and Finnish; this is a goal that many do not support and an aim that the regional-language defenders are not advocating. As a result of this general lack of support and negative perception of the aims of the course, the Võro Institute has found it difficult to convince today's students to take Võro in school.

Further complicating efforts to introduce the regional language class into the curriculum is concern within local school communities and the public at large about the content of the regional-language course. In interviews and surveys I have conducted over the last year, teachers, parents, and school directors have been preoccupied mostly by their understandings that the course materials contain and promote a version of the Võro language that was either too heavily influenced by the Seto language, too artificial appearing (due to the use of "q" and softening marks), or too different from the version of Võro spo-

ken in their communities. The most serious result of these concerns is the reluctance of teachers to teach the course or to feel that they are adequately prepared to do so (especially to teach written skills). An additional consequence of these content concerns is that parents feel alienated from the language that their children are learning in school (even if they are native Võro speakers themselves).

A final, important factor to consider in a discussion about introducing a regional language class into the curriculum is the role of regional language policy in Estonia. Currently, this policy is based on a "competitive market model" where individuals or organizations in civil society compete to implement projects that are connected within a general "program" framework developed by the Ministry of Culture (e.g. within the "Southern Estonian Language and Culture Program" guidelines). In effect, a series of programs replace a comprehensive language policy with a clear line of development. There are significant problems/drawbacks with the "market model" of language policy especially as it concerns a regional-language class. First, the government has abdicated its coercive power with the "market model" and has left the regional language projects, regional education among these, to be implemented by civil society groups that lack the "teeth" of a defined and enforced government policy. Without the charge of the state, civil society groups are not able to compel the public to do things necessary for the preservation of the language like forcing schools of education to offer Võro-language teacher training or coercing resistant school directors to offer Võro-language classes in their schools. Second, the current policy process lacks a comprehensive and stringent evaluation of the regional-language projects. With civil society organizations usually understaffed and underresourced, it is the responsibility of the government to follow-up on the projects it has funded.

Regional language classes, as curriculum subjects, deserve a place in the official, state-approved curriculum for both political and practical reasons. Politically, it is in the interest of the Estonian national government to protect and promote Estonia's regional languages due to the favorable attitude in the European supranational organizations, the European Union and the Council of Europe, towards these projects. Estonia's EU accession portfolio can only be enhanced if it reveals the government's commitment not only to

guaranteeing minority language courses (e.g. to the country's Russian-speakers), but also to supporting regional language classes as well. One of the most significant legal ways that the government could express its commitment is to sign and ratify the Council of Europe's Charter on Regional or Minority Languages, which contains provisions on regional language education. Including regional language classes in the official curriculum also makes practical sense as well since it would help interested communities to overcome the preventative role currently played by some school directors and teachers in the efforts to access and expand the regional language program. Furthermore, the combined legal guarantees and guidelines of the Charter and the official, national curriculum would make a statement to critics and reluctant parties that a regional-language class meets international and national standards, while also providing regional-language promoters with ideas and contacts for effective ways to develop Võro-language classes.

In conclusion, the Võro-language case reveals the complex and shifting relationship between the language and education policy processes in a country undergoing rapid and dramatic change as it emerges from totalitarianism, and introduces and establishes democratic and market systems. Since the "market model" of language policy is only likely to spread, we need to consider how the optimal freedom of this model can be reconciled with a coherent vision of regional-language policy to enable those who so desire to pursue the language of their choice and to make that a viable decision.

The importance of different models of ethics and civics education from viewpoint of students and primary school teachers

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Introduction

Ethics and civics education is a component part of social education in 7th and 8th grade (13–14 year-old pupils) in Slovenian primary schools. The aims and objectives of this subject are also integrated into other subjects. The subject itself follows the aims of primary school education, and simultaneously it also furthers the development of social and moral thinking and raises motivation and interest for ethnical and social dilemmas and identities. The overall aims of the subject are:

➡ assimilation of such amount of knowledge that enables the pupil to be partly able to answer social and ethical questions on his own,

➡ development of ethical skills and stances, which are the basis for at least partially independent social, ethical and civil function,

➡ development of skills necessary for formation of relatively complex and internally divided civic, social and ethical judgements and stances required for moral treatment.

A teacher is both an expert (a mediator of knowledge) and an educator (a shaper of a young individual). Teachers build up knowledge of ethics and society, and its components that are a part of other subjects e.g. mother tongue, social studies, science, biology, chemistry, history, geography, etc. In this way a teacher fulfils the tasks registered in education legislation, and also tasks that are impossible to regulate, yet they are of crucial importance for a successful teaching process: humanness, patience, self-sacrifice and commitment. In this way teachers influence the shaping of a young individual with their personality and ethical principles as well. The pupil is in constant contact with learning and with conforming to school rules throughout the

learning process (not only at civics and ethics education), and with life, when their actions are not in compliance with legal regulations and ethical principles. Teachers should take into consideration that they will not be the only transmitters of knowledge, but above all they will have to be good organisers and "mediators" between different sources of information and pupils. Ethical skills and knowledge that primary school pupils gain in the first years of their schooling, the mode of transfer of this knowledge and the way we introduce them into the social system is of important consequence. In multitude of theories and practices of civics education we have formed seven different models (concepts: (1) The Consensual – Legal Model, (2) The Parental Model, (3) The Patriotic Model, (4) The Religious Model, (5) The Model of School Ethos, (6) The Civic – Social Model or Participating Model and (7) The Personality-Developing or Pastoral Model) of ethics and civics education through authors like e.g. Barr (1971), Rowe (1994), Audigier (1996), and Justin (1997a, 1997b).

None of these models is put to practice in its original form. In one model we can find the elements of various other models. The analysis of ethics and civics education in European countries and in the United States (Justin, 1997a, 137) show that neither of the countries uses only one model of ethics and civics education – elements of at least two or three models are intertwined.

In all models, however, we can identify three main educational authorities: the state, the family, and educators. (Gutmann, 1997.)

The purpose of survey

This survey was made in order to ascertain the relation of 4th year students and primary school teachers to different models of ethics and civics education. We were interested in students" and teachers' evaluation of the level of importance of separate models, which model they think has priority, and which, in their opinion, is not appropriate. Another purpose of this survey was to see why, if at all, the evaluations of teachers and students differ.

Information gathering technique and pattern

We have used a questionnaire that was a combination of numerical evaluation scale and open type questions. Questions were divided into clusters that represented seven models; each cluster included two or more affirmations that were evaluated from 1 (unimportant) to 5 (very important). 78 students and 72 teachers were included in the survey.

Data processing

The results were processed separately for students and teachers, so we could compare their evaluation of a particular model. With two-way t-test for independent samples we compared if there is any relevant statistical distinctions between students and teachers concerning average evaluations of single models.

Results and interpretation

The processing of data has shown that evaluations of single models do not differ considerably; both students and teachers rated the seventh – "personality developing" model the highest, the lowest on the scale according to students was the "consensual-legal" model, and according to teachers the "religious" model, as evident from table 1.

As evident from the table, separate models were, in general, evaluated higher by the teachers, presumably because of their experience in teaching and working with young pupils, and their sense of duty to prepare them for understanding themselves and others, for correct judgement, and for taking responsibility for consequences of their actions. On a scale of importance both students and teachers rated the seventh model as the most important for class and subject level, although some of the students added that *"introduction of this subject already in the lower grades of primary school in of great importance,"* or that *"the aims should be integrated into subjects already on the class level of primary school, so that later, in the 7th and 8th grade when this subject is a part of the curriculum, the pupil will understand the essence of the subject."* The students rated the seventh,

the "personality developing" model the highest because they are aware of the crisis of modern times and individual's role in this society. Furthermore, they are aware of irresponsible actions of individuals or groups, and that it is not good to merely to provide pupils with facts and let matters take its own course.

Table 1. Evaluations of importance of particular models for class[1] and subject[2] level of primary school, according to students and teachers.

Models	Students				Teachers			
	Subject level		Class level		Subject level		Class level	
	$\overline{x}$	δ	$\overline{x}$	δ	$\overline{x}$	δ	$\overline{x}$	δ
1. Consensual – Legal	3.49	0.85	2.47	0.76	3.74	0.67	2.89	0.75
2. Parental	3.97	0.72	3.74	0.87	3.90	0.86	3.66	0.87
3. Patriotic	4.17	0.71	3.79	0.82	4.18	0.67	3.89	0.69
4. Religious	3.47	0.91	2.91	0.91	3.08	0.81	2.56	0.85
5. School ethos	3.74	0.80	3.74	0.83	3.66	0.75	3.74	0.81
6. Civic – Social	3.94	0.74	3.45	0.79	3.77	0.92	3.14	1.01
7. Personality Developing	4.46	0.57	4.05	0.73	4.74	0.39	4.43	0.52

Legend: $\overline{x}$ – average evaluation, δ – standard deviation.

Students and teachers evaluated the patriotic model as the second on the scale of importance for both levels. The teachers remarked that *"the subject should teach pupils to be thoughtful and attentive towards people who are close to them as well as towards others"*, which in itself is not a patriotic statement, but more generally human. *"The subject should teach the pupils to respect other nationalities (those of ex-Yugoslavia, and Italian and Hungarian minorities) in our*

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[1] In Slovenia, class level comprises 1st–5th grade of primary school, e.g. pupils aged 6-10 years old.

[2] 6th–9th grade of primary school, e.g. pupils aged 11–14 years old.

country," wrote one of the teachers, and in this way illustrated one element of the patriotic model. Also interesting is the opinion of one of the students: *"The history of Slovenian nation is only and solely important, it is important to heighten Slovenian national awareness, and not just make a point of civics education in sense of civil obedience."*

According to the students, the lowest on the scale for subject level is the religious model ($\overline{x}$ =3.47), and for class level, with an extremely low average, the consensual – legal model ($\overline{x}$ =2.47), the religious model ($\overline{x}$ =2.91) closely follows. Students believe that mere knowledge of political and legal system does not make a good citizen, especially if the state itself breaks the rules of its own system, or lets others break them. A student wrote: *"First of all the people who lead the state should clarify their attitude to it, otherwise it is hard to speak about it at ethics and civics education."* The teachers were of the same opinion, especially concerning class level. They, however, find the importance of this model in helping the pupils to become tolerant towards persons with different religious beliefs. They are aware of possible consequences of religious intolerance that can lead to wars in today's world.

The fact, that the students ranked the parental model third for both levels of primary school, is also interesting. This model was evaluated high also by the teachers ($\overline{x}$ =3.90), especially for subject level. The teachers believe, at least such was their estimation, that some contents should be mediated to pupils in a way that does not come into conflict with parents and that the teachers only teach accepted social values. 7th and 8th grade, because of guidance concerning the choosing of the right profession, demand a lot of contact between school and home. Because of common goals a good partnership is of great importance. The teachers wrote: *"The subject should be close to children. It should not limit the pupils. This should be education for life."* As evident, the teachers are against the piling up of data or information, instead, they are in favour of improvement of skills that help the pupils when growing up and making decisions. As evident from open-type questions, the teachers think that it is important for the school to introduce the problems of democracy, the question of tolerance, justice and equality to the pupils through direct ex-

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perience and practical activity. However, they ranked the model of school ethos as the sixth on the scale of importance for subject level ($\overline{x}$=3.66), meanwhile they think that it is quite important in lower grades ($\overline{x}$=3.74) and ranked it third.

Despite the fact, that both teachers and students placed the seventh model the highest on the scale for both levels, and the fourth model on the lowest place, they varied statistically as seen from the following table. The difference between students' and teachers' average evaluations was statistically important for class level (α=2P=0.000) as well as for subject level (α=2P=0.001).

Table 2. Results of t-test for class and subject level.

Models		Subject level		Class level	
		t-test	P	t-test	P
Model 1	teachers-students	-1.934	0.055	-3.375	0.001
Model 2	teachers-students	0.537	0.568	0.605	0.546
Model 3	teachers-students	-0.046	0.963	-0.764	0.446
Model 4	teachers-students	2.740	0.007	2.400	0.018
Model 5	teachers-students	0.582	0.561	0.016	0.987
Model 6	teachers-students	1.290	0.999	2.081	0.039
Model 7	teachers-students	-3.439	0.001	3.651	0.000

Legend: P – statistical importance of differences (P) between students' and teachers' evaluations.

Statistically important are the differences concerning the appropriateness of the religious model for class level (α=2P=0.018) and subject level (α=2P=0.007). The consensual – legal model also got low evaluations – both for class level (α=2P=0.001) and subject level (α=2P=0.055). In general, the teachers evaluated separate models higher in comparison to students. Statistically important differences originate in: (1) teaching practice, (2) experience in working with young pupils, (3) constant contact between teachers, pupils and their parents, (4) belief that these aims and objectives are important for the development of individual's personality both on class and subject level.

Conclusion

The obtained data directs our attention to careful formation of inte-
grated contents for class level of primary school, as written down by
one of the teachers: *"Education should be omnipresent – during les-
sons, breaks, and a special subject would not even be necessary."*
Two students wrote: *"The subject should not be boring, it should not
merely provide the pupils with information, instead it should activate
them. I agree that this subject should be taught, only without politics
and religion, there should be more love and sociality."*

Data processing has shown that evaluations of separate models
do not differ considerably, only that the students put the first, the con-
sensual-legal model the lowest on the scale, and according to the
teachers the least appropriate is the fourth – religious model. Both
students and teachers rated the seventh, the personality-developing
model the most appropriate.

Elements of the personality-developing model have been part of
Slovenian curriculum (especially at "ethics and society") since the
1970s. It is close to the teachers; it contains elements of pastoral care
that enable close relationship between teachers and pupils, and pupils
and the society they live in. Students and teachers feel that education
that prepares pupils for self-understanding and understanding of oth-
ers, that prepares them for correct judgement and accepting responsi-
bility for their actions, is most important in our time. In general, the
teachers probably ranked models higher especially because of previ-
ous experience in working with young learners and their sense of duty
that requires them to give their pupils the most, which is the reason
they find all this so important. At the same time they know that many
of their efforts will bear fruit later in the future. They also believe
some elements of particular models are not appropriate for lower
classes of primary school because they are too demanding, uninter-
esting, or appear in other subjects already.

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Meeting-points: Seeking consensus on essentials

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Social change, scientific development, the revolution of information technology, and growing pluralism confront the education system in a new way with the issue of curriculum making. In the federalist political cal system of Switzerland curriculum making starts in a situation characterized by the fact that the autonomous educational systems of the counties (*Cantons*) have developed their own curricular designs independently from each other. As a result co-ordination is lacking between the parts of the overall system.

The paper addresses the issue of curricular co-ordination in a highly fragmented educational system as it is in Switzerland. We first describe some features of the federalist educational system in this country. The second section deals with some general trends profoundly affecting curriculum making, i.e. the selection, ordering and sequencing of curriculum content. In the subsequent two sections the idea of *Meeting-points*, defined as essential elements of knowledge students should have acquired at different grades, is introduced and illustrated by the examples of history and politics. Meeting-points are

conceived as an expression of a social consensus on essentials and as a common frame of reference for educational actors. The final section depicts a strategy eventually leading to the development of Meeting-points in the fragmented system of Swiss compulsory education.

Co-ordination of the curriculum in a federalist educational system

In the field of education Swiss counties have maintained a high degree of independence and autonomy up to the present time. Particularly at the compulsory school level they have safeguarded an essentially unlimited authority in educational matters – an authority they delegate, to varying degrees, to the communes. The national government is almost completely absent in this field. As a result of fragmentation we find a high degree of heterogeneity with respect to the development and implementation of curricula, syllabuses and textbooks. Each county periodically develops its curriculum and implements it within its borders (Bähr, 1999, 8–15). This system of segmentary curriculum-making processes contributes to the affirmation and reinforcement of the county's particularities and results in a relatively high degree of heterogeneity with respect to curricula and syllabuses (Künzli, 2002).

An educational system characterized by decentralization and particularism claims for harmonization and co-ordination. Given the absence of a federal regulation in most educational affairs, this task is assigned to the *Swiss Conference of Cantonal Ministers of Education (CCME)*. The CCME may be seen as an attempt to create a functional equivalent to central authority. Founded in 1897, the conference has significantly extended its activities since 1970 when a *Concordat on School Co-ordination*, some sort of a declaration of common intent, was agreed upon by the ministers. The Concordat firmly defines certain basic aspects of the public educational system, such as the school starting age, the duration of compulsory education, the time of schooling up to the school leaving examination at the end of higher secondary education (Matura). In addition, the CCME can issue to the counties, for their own independent school policy, recommendations – not binding for the county parliaments – concerning framework syllabuses, common teaching material, transfer regulations, recogni-

tion of school leaving certificates, designation of school types and levels, and teachers education.

As mentioned above, one important provision of the Concordat aims at common principles for the content of teaching. But while structural co-ordination has proceeded in a certain way over the last three decades, the same cannot be said with regard to subject matter and content. Indeed, no national Swiss curriculum has been developed. Some co-ordination has been attained, to different degrees, in the four regional conferences of the CCME. The French-speaking, western, as well as the central counties have founded common research and development agencies, which develop syllabuses for the counties being parts of the region. In the northwestern and in the eastern regions, however, curriculum-development has remained an internal affair of each county. But even there, where there is co-operation, at the end the result is an independent county syllabus.

At the national level, in most recent years there have been some attempts to co-ordinate the curriculum for mathematics and foreign languages. This means that subject standards that should be met at given levels of compulsory schooling, so-called Meeting-points, were recommended to the cantonal actors. Harmonization could not be achieved in this way, however. It is obvious that the mechanisms of the CCME express a clear will of all counties to refer to common principles also in curricular matters. But in order to get practical significance such common principles need to become implemented independently by the cantons.

New challenges for the selection and co-ordination of subject matters and teaching contents

For many years, this state of affairs may have led to a waste of economic resources but did not create bigger problems as long as some implicit consensus on which topics should be selected for teaching in compulsory schools could be taken for granted. However, in recent years several developments in broader society as well as in the educational system itself have weakened this implicit consensus and accentuated the need to define some core of knowledge and competencies common to all students, and to co-ordinate its implementation.

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One of the tendencies affecting the selection of contents of classroom teaching is the increased mobility of students and their families within and between countries. While movements between Swiss counties simply put the question of transfer regulations in the foreground, immigration of children with different cultural backgrounds may challenge a canon which developed in the context of European or at least western societies.

A second feature to be mentioned here is related to a general tendency towards pluralism and individualism. Concerning curriculum making these tendencies make the identification of a *core* and decisions about the selection and ordering of contents more difficult. The problem becomes further accentuated by shifts toward a student-centered approach to classroom teaching which leaves the young learners some self-direction with respect to the objects of their learning process.

Probably the most important change affecting syllabus work today is the shift in the paradigm of steering and controlling classroom teaching. For many decades political authorities stated general goals and contents of teaching, provided the necessary resources in terms of personnel, materials and rooms, and then left the educational process largely to the professional responsibility of teachers. Within this setting the curriculum played an important role as a frame of reference, which oriented teachers' actions. Apparently, today this way of system-steering by controlling the inputs becomes outdated for several reasons. To mention just one, a general tendency to emphasize students' achievements may be observed on a worldwide scale. International standardized achievement tests point to the fact that the outcomes of educational processes have become a major resource in international competition. Consequently, the focus of educational policies shifts from the control of inputs to attempts to directly control the output in terms of students' performance according to some pre-established "standards". Administrators of the educational system become more interested in the assessment of performances than in the equal distribution of a common culture. It is in this context that Meeting-points attempt to establish a balance between two legitimate but not necessarily congruent goals: enhancement of the educational performance of whole societies and the need to maintain common culture.

Steering by standards or steering by content?

Today the Swiss education systems have to propose answers in relation to both the steering of input and the steering of output in public education and instruction. On the one hand teachers call for binding guidelines and transparent orientation for the selection of content in lesson planning: Which content is essential for life-long learning? On the other hand the public discourse calls for quality control, evaluation of learning and standardized tests – that implies to define in advance the expected output. The goal of both forms of steering claim to improve the knowledge background and the competencies of young people, but under different assumptions.

Output steering deals mainly with competition. The high jumper probably jumps higher when he sets his eyes on the standard he wants to reach. However school is somehow different: Competition is attractive if a student is successful. But the situation gets critical for those who have no chance in reaching the standards. They lose interest and motivation in content and knowledge. In effect standards create two types of students: those who reach the standards and those who hardly reach them.

Exponents of input steering argue quite differently. In their understanding, the selection of content isn't primarily stimulated by achievement-oriented standards. Content itself – widely understood as *knowing how* and *knowing that* – could be considered as "standard", as teachers transform the standards in effective learning situations. In this case schools offers access to the same learning field for *all* students.

Of course schools perform in relation to input and output. Teaching aims to find a balance between today's need of students and tomorrow's social requirements.

In the German speaking part of Switzerland an attempt has been made to launch a project which aims at the development of an input-steering instrument, so-called Meeting-points. The project aims to contribute to the harmonization of the different cantonal administrations

Meeting-points are expected to describe the essential knowledge in each subject through which students should have passed when they complete grades 2, 6 and 9. Meeting-points are expected to express

both a social consensus on essential knowledge and the state of the art of the disciplines. They define what compulsory school expects from students. Which experience is to be made by all students – despite their sex, nationality, social background or intelligence? Meeting-points describe content, information and knowledge to confront students with. They mark the field of knowledge in which students progress. They unlock an area of thinking which at the same time is vast and limited. Limited by the selection of content – vast in the way of dealing with content. Meeting-points mainly are not made to evaluate the learning of students – but they might be a start point to build up evaluation procedures.

Consequently they offer, on one hand, a common frame of reference for educational actors (teachers, students and parents) and on the other, an instrument which sustains the search for higher literacy, equity, and academic performance by helping pupils to establish their knowledge base grade by grade. We assume that a curriculum like Meeting-points contributes also to harmonize the Swiss federalist school system.

For instance: Meeting-points for history and politics

In 2000 an German speaking working group of historians and subject experts has developed two documents with Meeting-points for history and Meeting-points for politics. The pilot project was launched and financed by one of the regional German-speaking conference of education ministers (NW EDK) in order to balance out the differences between the curricula of the cantons. The purpose was to develop a prototype of a Meeting-point, valid as example for a planned overall curriculum project of the German-speaking cantons – by that time a quite unusual– and in the mean time – no longer appropriate idea. Referring in this article nevertheless to Meeting-points emphasizes our conviction that this instrument is thought to be very convenient for regulation of input steering in a federal context.

The two Meeting-point-posters enclose six Meeting-points for history and three for politics. The colored background, the illustrations and the design attract the attention of observers. The target group is students: "You will learn how the world's goods could be divided fairly" is the quintessence of Meeting-point 5 in history about

the European industrialization under the title "Does the world belong to the industrial nations?" In three short sections students find – written in clear language – summaries of the content and about what they will do and learn concerning the topic.

In the document, history is considered as an interesting and attractive subject, which makes possible that students understand historical changes and current situations. History is worthwhile to deal with – this is the main message of the poster!

As mentioned, a small working group has produced the mentioned Meeting-points for history and politics. The project didn't include any implementation of the product. It isn't surprising that probably only a small number of teachers are informed about the instrument. Moreover, the Meeting-points are not official documents in any canton. They are informal instruments and that for without any steering effect.

To create an efficient regional steering instrument like Meeting-points means to seek wide-ranging consensus about the question of what is essential at school.

A model of making meeting-points

An example how such consensus can be ascertained is given Donata Elschenbroich with her project that defines the "canon of world-knowledge of 7 years old children" (Elschenbroich, 2001). In a first step Elschenbroich made up a list what children should have experienced by the age of 7 years. In the second step she discussed the list with experts, teachers, parents and even children. Finally she describe the result of her inquiries and defines a second list.

A similar process was suggested by Rudolf Künzli (2000) for the development of Meeting-points: Starting point is an analysis of the content of subjects in different current curricula. As a result a group of school experts make a first selection of essentials in each subject and formulate a provisional list of Meeting-points. This list is evaluated, completed, shorted in a first wide ranging Delphi-inquiry with teachers, politicians, pedagogues, parents and public. As a consequence the first list is revised and in a second inquiry evaluated by content experts and researchers. This result in a definite list of Meeting-points which must be implemented in all cantons.

Meeting-points have to satisfy demands at different levels. They must correspond to the state of the art. More over they have to be relevant for students. Teachers must be convinced that they are essential. Form the perspective of parents, meeting-points must give them at least an idea of that what is really important at school.

Current curricula of the cantons in Switzerland are very complex and vary enormously. They deal not only with content but also with guidelines, school types, didactics, cooperation with parents and school board and so on. Meeting-points focus only content. As the school structure differs from canton to canton it is obvious that in federalist Switzerland Meeting-points could probably be a helpful instrument for intercantonal input steering.

"Society's concept of the function of public school determines the curriculum" Hilda Taba's basic conviction hasn't lost its value (1962, 16ff). Looking at the Swiss curriculum situation with 26 different curricula we can ask: What might be the function of public school in relation to the national context for example? What do children and students learn by the fact, that the frame of public school is the canton and not the country? And what does such a federally organized curriculum net have to do with the growing gap between social groups? While standards underline the learning success of the single student and by that the selection meeting-points intend to highlight the essential knowledge and content for all students and by that the transmitting and change of culture.

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Legal enforcement of the curriculum

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Introduction

Legal aspects of the curriculum and its legal enforcement have not got necessary attention yet. Scientific analyse has been mostly dealt with organisational enforcement of the curriculum: teacher training, text-books and study-aids, curriculum development and support to it (Laius, 2001).

Curriculum in Estonia

Under the Education act (art 2) there should be a state curriculum including compulsory study programmes on each level of education. We may conclude, that these study programmes should be a part of a curriculum. In fact we have a state curriculum only for pre-school education and for primary and secondary education, but not for vocational training, colleges and universities.

On the other hand we can not say, that the curriculum includes compulsory study programmes.

This term is not used in the curricula and it is not defined in other legal acts. Here we have three possible solutions for the compulsory study programmes:

- ➧ to change the term "compulsory study programmes" in the law or corresponding terms in the curricula);
- ➧ to add compulsory programmes to the curriculum as it is different from syllabus or
- ➧ to change the law (education act) and give up regulating study programmes in the curriculum.

Personally I recommend the second solution and add some compulsory programmes to the curriculum and follow their fulfilling. It is too late to check the outcome of the school. The time and money is already spent and it is impossible to give a second chance to the graduate like we may recycle some other resources. Compulsory subjects and timetable does not influence the essence (what to teach and how to teach) of learning and teaching.

It is more important how to teach than what to teach. Modern concept of quality management also recommends surveying process and not the final output.

In colleges, universities and adult training institutions the curriculum is passed by the institution itself and its existence is controlled during licensing and accrediting of the institution. If the curriculum is not fulfilled the institution may be not accredited or loose its license.

Curriculum as a legal act

The curriculum is a general legal act and it is the basis for other legal acts. The legal status of different curricula is different in different countries. In Estonia state curricula for preschools, basic schools and gymnasiums are approved by the Government and for special schools by the Minister of Education. School curricula are sanctioned by the school board or the headmaster.

In Estonia there are no local curricula. Kindergartens, basic schools and gymnasiums must have their own curricula which have to be in accordance with the state curriculum. Other schools have to work out their curricula themselves and to present them to the ministry of education.

The legal basis for school curricula are article 3 of the Basic school and gymnasium act, article 16 of the Preschool act and corre-

sponding state curricula. Article 16 of the Preschool act regulates also the procedure of the preparing of the curriculum involving teachers and parents. Involvement of the owner, parents and other social partners in curriculum development should be a rule.

The character of the state curriculum in different states is different. Usually it fixes the minimum (Jürimäe, 2001; Läänemets, 1995) for the school curricula, in Estonia it practically fixes the maximum, the minimum is not fixed.

Legal enforcement of the state curriculum

The existence of the school curriculum and its accordance with the state curriculum is controlled at the licensing of the school (article 12 prim of the Basic school and gymnasium act). A school may loose its license if it does not follow the state curriculum.

One tasks of the state supervision is the evaluation of the accordance of the learning results with the state curriculum (article 48 of the Basic school and gymnasium act), this task described more detailed by the minister of education. Unfortunately the criteria for the supervision and evaluation are not related with the general part of the curriculum.

State supervision and evaluation takes place in every school once in five years. Parents and students can address their complaints to the owner of the school (a municipality for municipal schools) or to the supervising institution. There is even a suspicion that some municipalities (officials, school headmasters or council) are not interested to organize teaching in accordance with the state curriculum because better students may leave the municipality (they go to the university and would not return to their municipality) and it will loose one taxpayer and some state support. These municipalities prefer to spend their money on school food or other social needs. This is still a hypothesis which needs controlling.

We may summarize that not every child has been guaranteed the constitutional right to education as the curricula of the schools and teaching is not always in accordance with the state curriculum.

Difficulties with the fulfilment and enforcement of the curriculum are caused also by the fact that this autumn we will have the third state curriculum since 1992–1993 and the fourth version is already

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being prepared. In so short period it is not possible to carry out all necessary measures and as it has not fully implemented we cannot analyze problems related with this curriculum and make recommendations for changes and curriculum development.

Accordance of state exams, text-books and study materials with the curriculum

Article 23 of the Basic school and gymnasium act stipulates that text-books and other materials should be in accordance with the curriculum. In fact this accordance is not fulfilled.

The OECD experts recommended giving up verifying the text-books by the ministry (Eesti, 107). This will increase the responsibility of the teachers and their interest in curriculum development. Now they often trust the ministry and work on the basis of the text-books and not of the curriculum.

In fact state exams, text-books and study-aids include more facts than prescribed in the Curriculum. In some subjects (history) there are informal agreements between the authors of the questions and the teachers, that state exams do not deal the whole curriculum, but only some themes and more deeply.

We do not have legal precedence of student applications to the court against such state exams. Students may apply against their results of state exams but not against the exams themselves. Schools and other interested persons can apply only on the basis of general principles of law but our legal system is too young for such legal actions.

General principles of law and curriculum enforcement by state exams

State exams might be efficient means of the enforcement of the curriculum. In fact they are often in conflict with the general principles of law.

Legal certainty. Students and teachers might expect that state exams are in accordance with the curriculum. In fact exams are often broader or narrower than the curriculum.

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Transparency. The principles of state exams are not transparent (Koolijuht, 2002), pro-profit extra-curricular courses are organised for students and teachers to prepare for exams.

Right on hearing. Interested persons (students, teachers) have no possibility to influence the state exams, their accordance with the curriculum.

Non-discrimination and equal treatment. Not all students have the possibility to attain special courses preparing for state exams organised by the authors of the questions of the state exams. The level of state exams differ from year to year.

Proportionality. State exams do not cover proportionally the curriculum (incl. general principles), many questions are not in accordance with the curriculum.

Non-legal enforcement of the curriculum

Public opinion, media and pressure by teachers`, students` organisations and other interest groups are means for the enforcement of the curriculum outside the legal system.

Estonian media has not paid attention to the fulfilment of the curriculum. On the contrary, it has spread a misleading idea that the curriculum is not realistic and too full of facts, suggesting that to fulfil the curriculum is not possible and is even dangerous. The real problem is in the text-books and state exams. Text-books first time arouse in the agenda of media only this year. They include too much information not needed by the curriculum (Monakov, 2001; Kallaste 2002). State exams are also not in accordance with the curriculum (Heinmets, 2002; Klandorf, 2002; Läänemets, 2002). The role of state exams have been supported by the media by using their results to rank the schools. People are convinced, that those schools are better were the results of the exams is better, not those, were the teaching is in accordance with the curriculum. To seem better schools do not accept all students, try to get rid of poor students (Herm, 2002) and teach mainly those subjects were students take state exams.

Interest groups (parents, students, employers) usually do not relate general competencies with the curriculum (although they are described in the curriculum) and are usually against the curriculum

saying that there are too many facts (Herm, 2002) and stressing, that general competencies are more important.

Schools and kindergartens are owned by local municipalities. Many municipalities are small (less than 3000 inhabitants) and they do not have competent specialists and politicians in the field of education and curriculum. They have to trust their schools and state supervision.

Private schools and kindergartens pay usually more attention to the general development of their students (cooperation with the parents, the role of class teachers, etc.) but they cannot influence the whole policy. They are even interested, that the situation in municipal schools will not improve.

The fulfilment of the curriculum has to be supported by teacher training, consulting and other organisational activities, but these activities have not been systematic, timely and efficient (Laius, 2001).

While non-legal measures are not able to enforce the curriculum we have to increase the efficiency of legal measures like licensing of schools, state supervision, etc.

Legal regulation of terms education, learning, teaching and curriculum

To regulate legally the content of education, learning, teaching and curriculum we need to agree in the content of these terms. On the other hand we need to discuss about the influence of these phenomena and processes in the development of the society.

In Estonia we do not have an agreement in the content of the term education. Some authors say that education is a part of upbringing (kasvatus). On the other hand we do not have legal acts regulating upbringing. Only in the Family law is regulated, that the upbringing is the task of the parents.

Usually legal acts define education, teaching and learning broader, teaching means not only facts and skills but also upbringing and curriculum is also regulating upbringing.

Preschool curricula regulate both teaching and upbringing (article 16 of the Preschool act).

The heading of the 4th chapter of Basic school and gymnasium act is "Arrangement of teaching and upbringing", but article 23 of

this chapter stipulates only that "the basic document for learning is the curriculum of the school". Upbringing is not mentioned, we may deduce, that the curriculum may not regulate upbringing or it is a part of teaching. But we cannot conclude that schools are not dealing with upbringing. Much attention to upbringing is spent also in the general part of the state curriculum.

The term "the basic document for learning" is not correct and should be changed to "the basic document for teaching" or "the basic document for teaching and learning" although it is very difficult to regulate learning.

As long as the specialists in pedagogy can not agree in the content of the central terms, the legal acts and the legal practice is also inconsistent. Contradictions are even in the legal acts themselves. Interpretation of the legal acts is also difficult because of the different usage of the terms.

Curriculum in the changing society

We have to take into account the changing role of teaching and schools in the society. During the last centuries education policy and legal acts have mainly dealt with teaching poor people, as far as their parents were not able to guarantee their children education needed by the society. Teaching meant first of all literacy, knowledge that could not be taught by parents.

In the end of the 20th Century important changes took place in the modern society. Middle class mothers went to work and municipal schools were now meant for most of the students. Single parents in cities could not socialize children like big families in village communities.

The role of the church has been also changed.

On the other hand mass media and internet can provide wide scale of information and the curriculum, text-books and teachers cannot and need not present all the new information. Students can gain information and learn without listening a teacher or reading a textbook.

After the World War II the attitude towards a human being has also changed. Human life is considered as a value and previous practice of dealing with the waste of the educational system (death pen-

alty, penal servitude, exile, starving to death, etc) is not used any more.

The role of schools in the society has to change. They can not be merely institutions for preparing for final exams. At the age of 18 it is to late to correct mistakes, a human life has been spoiled. Schools are the major environment for socialisation, where students get experiences in ethics, aesthetics, communication and labour. It means also changes in the curriculum. Earlier we could describe knowledge and skills but now it is more important to regulate the cooperation in school, the relations between teachers and students, feedback instead on correction of mistakes and marks, etc.

New curriculum and its enforcement

We can see a shift from central delivery to consumer oriented and school managed education (Kallen, 1997, 24). Parliaments are fixing basic principles and aims (Kallen, 1997, 33–40) to achieve mobile stability in education.

Educational reform now means not organisational and instructional but primarily, and often exclusively, curriculum reform. Curriculum reform does not primarily concern, as it used to, the individual disciplines, but the overall programme provision, interdependence of subjects, their accumulated contribution (Kallen, 1997, 119).

These are the new legal challenges to the curriculum. We have to use new measures of the enforcement of the curriculum:

Schools define their own syllabuses, and schools submit these to the state for approval as it is already in Flemish Community of Belgium (Kallen, 1997, 123).

Involvement of all interest groups (teachers, students, parents, authors of the text-books, teachers of the next step, etc) in the development of the curriculum. If the interest groups have no possibility to express their interests and opinions they should have the right to apply to the owner of the school and to the court.

Transparent curriculum and curriculum development. Now most of school curricula are not available in the internet. Transparency enables interests groups to follow the process and interfere when their interests are broken.

Development negotiations. Each school should have development negotiations involving all interest groups (teachers, students, parents, etc). Participants get feedback to their activities and agree in common principles and targets for the next period. It means also moor individual curricula.

Giving account. Teachers give feedback to the students, parents, other teachers and other interest groups. This is not merely accounting the marks, but first of all an analysis of the teaching and learning experience.

These measures of enforcement should be regulated by law. The curriculum may be in this case shorter and more general as the real curriculum will be the agreement on the level of a student, a class and a school.

The state supervision in this case should deal with analyze of the activities of the school (partnership and cooperation, transparency, accountability) and not merely with marks and documents.

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Implementation of the new curriculum into Slovene Primary Schools

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Abstract: The paper illustrates some results of an evaluation study concerning the renovation of implementing the process of training and education in compulsory school.

In our research, we wanted to determine if the new curricula, which are implemented in the primary school for a trial period, influence the execution of the educational process, especially the methodological aspect.

Keywords: Compulsory education, new curricula, educational process, didactically methodological aspect

Introduction

In the Republic of Slovenia was compulsory education, which lasted eight years obligate up to the year 1999. In the school year 1999/2000 we started with an experimental implementation of the nine-year primary school system together with the required process of evaluation. The basis for the systematic reform of compulsory education was *The White Paper on Education in the Republic of Slovenia* (1995); the legal establishment was acquired by the *Elementary School Act* in 1996.

The main purposes of the school renewal are:

➡ changing the duration of the school obligation from eight to nine years;

➡ changing the organisation of the schooling from two periods (1–4 and 5–8 years of schooling) to three triads (1–3, 4–6, 7–9 years of schooling);

➡ changing the entering of children to the school from age 7 to age 6;

➡ renovation the curriculum.

The introduction and the supervision of the nine-year compulsory education is methodologically a demanding task. We investigate the intertwining of both the school and the curricular reform and their evaluation. In the area of school reform we are interested in the efficiency of the introduction of the new system; in the evaluation of the curricular reform we research the influence of curricular innovations on the educational reality.

The new primary school curricula direct the teachers to the use of different teaching methods, various interactions, teaching aids and cross-curricular links. The teachers who plan the educational process

are aware of the fact that this process is more varied and more effective if it combines a variety of approaches, interactions and methods (Meyer, 1996). Likewise, the presentation or the teaching of the learning content in different possible combinations creates a wider referential frame for the learners, a sense of coherence and development of the learning content, the changing nature of knowledge and its characteristic perspectives (Plut-Pregelj, 2000, 148).

Definition of the research problem

The study of lesson planning in the eight and nine-year primary school represents the basic starting point of our research. We were interested in discovering whether the new curricula, which are experimentally implemented in the nine-year primary school, have any influence on the educational process, particularly from the didactically methodological point of view (c.f. *Izhodišča za evalvacijo, 1999*). Another element that we were interested in was to find out whether there are any differences in planning and the execution of lessons among the teachers who teach in the eight-year primary school using the old curriculum and the teachers in the nine-year primary school who experimentally implement the new curriculum.

Our hypothesis was that the teachers who teach in the nine-year primary school plan their lessons more often as a process and are less likely oriented towards the transmission concept of the educational work than the teachers who teach in the eight-year primary school.

Methodology

Basic research method

In our study a descriptive method was used.

Defining the sample and the procedure of collecting and processing data

The sample included the teachers who teach in the eight-year primary school and the teachers who teach in the nine-year primary school. Then we divided the sample into two groups.

Group 1 consisted of the teachers from all 42 primary schools which introduced the experimental implementation of the new curriculum in the school year 1999/2000. This group therefore included:

⇒ all teachers teaching in the second grade of the nine-year primary school in the year 2000/2001 in case the school started experimentally introducing the first triad,

⇒ the teachers of the Slovene language or mother tongue, mathematics, foreign language, history, biology and physics who taught in the eighth grade of the nine-year primary school in the year 2000/2001 in case the school experimentally introduces the third triad,

⇒ all teachers who teach in the second grade and all the above mentioned teachers who teach in the eighth grade in case the school experimentally introduces the first and the third triad.

Group 2 consisted of the teachers from 42 randomly chosen eight-year primary schools which have not yet started implementing the new curriculum for the nine-year schools (the old curriculum is still used in this schools). This group included:

⇒ all teachers who taught in the first grade of the eight-year primary school in the school year 2000/2001 and

⇒ the teachers of the Slovene language or mother tongue, mathematics, foreign language, history, biology and physics who taught in the seventh grade of the eight-year primary school in the year 2000/2001.

The data were collected on the basis of an anonymous questionnaire.

32 of 42 Primary schools returned the questionnaires completed by 247 teachers who teach in the eight-year primary school and by 182 teachers who teach in the nine-year primary school. All together we received 429 completed questionnaires.

We processed the data statistically at the level of the basic descriptive statistic processing and chi-square (χ^2) test was also used. In the presentation results we restricted ourselves to the display of the frequency of use of the teaching methods, interactions and aids as well as cross-curricular links.

Results and Interpretation

We asked the teachers who took part in the survey to assess the frequency of use of the following teaching methods: explanation, discussion, display or demonstration, working with a text, problem-solving and laboratory-experimental methods. We then compared the answers of the teachers from the eight-year primary schools with the answers of those teachers who teach in the nine-year primary schools.

The teachers frequently use explanations in their lessons, more often those who teach in the eight-year school than those in the nine-year primary school of which more of them declared that they seldom use this method.

Similarly, the teachers often decide to use the class discussion in their lessons. There are no statistically significant differences in the frequency of use of this method between the teachers from the eight and nine-year primary schools.

Likewise, the teachers equally frequently use display or demonstration method. It can be concluded that also in this case there are no statistically significant differences in the frequency of use of this method between the two groups of teachers.

Another common method is working with a text. There are no statistically significant differences in the frequency of use of this method between the teachers from the eight and nine-year primary schools. It can only be mentioned that there is a slightly lower percentage of the teachers teaching in the first triad of the nine-year school who frequently use this method.

Some teachers use laboratory experiments in their lessons but this is not a frequently used method, since 24.5% of the teachers often use it, 34.5% rarely use it and the remaining 41% never use it in their lessons. It is interesting to notice the difference in answers between the teachers in the first and the teachers in the third triad – 53.5% of the teachers who teach in the first triad of the nine-year primary school claimed that they often use this method.

One of the elements that have an important role in the execution of the educational process is the teacher's decision about the organisation of the lesson. The roles of the teacher and the roles of the learners are significantly different in direct forms like frontal teaching or lock-step and indirect forms like individual work, pair work or

group work. Based on the analysis of the teachers' answers we can conclude that the teachers who teach in the eight-year primary school use frontal teaching more frequently than the teachers in the nine-year primary school. Those teachers on the other hand use group work more often. We would like to emphasise that there are no statistically significant differences between both groups of teachers in the use of interactions but the above mentioned tendencies can be noticed. Changing different forms of interaction within the lesson can significantly contribute to a more interesting, varied and a more dynamic lesson. The teachers believe that the lessons they plan and execute often include the changes of classroom interactions. There are no statistically significant differences between the answers from both groups.

Since the sources of knowledge can be various, we asked the teachers which teaching materials and aids they use. We established that more than 80% of the teachers often use the texts from the textbooks and the activities from the workbooks. There are no statistically significant differences between both groups of teachers in their answers about the teaching materials. We would only like to single out the answers of the teachers who teach in the third triad of the nine-year primary school of whom only 50% (c.f. the rest) often use activities from the workbooks in their lessons.

About 50% of the teachers included in our survey seldom use different texts from newspapers, magazines, books or from the computers and television. It can be stated that the teachers from the nine-year programmes more often decide to use computers in their lessons than the teachers from the eight-year schools. As many as 50% of the teachers who teach in the third triad of the nine-year schools use television programmes in their lessons. 49.9% of the teachers never use the Internet in their lessons. There are no statistically significant differences between both groups of teachers but a tendency is perceived in the group of teachers from the nine-year primary school (particularly in the third triad) to use the Internet rarely or occasionally.

Cross-curricular or interdisciplinary links present an important aspect of our educational or curricular reform. If the teaching is separated into individual subjects it can create an impression of nonconnectedness of the knowledge (Ivanuš Grmek, 1999, 18). In practice the links between different school subjects are accomplished in

various ways. The teachers can consult each other on possible connections or links in the content, teaching methods, they can prepare numerous projects together with the learners and put cross-curricular links into practice through team teaching.

Teachers' answers to this survey question lead to the conclusion that on average they consult each other in 71.1% on the content links among the school subjects. The only deviation from this answer is noticed with the teachers who teach in the third triad of the nine-year primary school since all of the interviewed teachers replied that they consult each other (and reach an agreement) on the content links among different school subjects. About half of the interviewed teachers or more precisely 49% of them discuss the possible connections in methodological approaches among school subjects. There are no statistically significant differences between both groups of teachers but it can be established that more teachers who teach in the first (62.8%) and the third triad (75%) consult each other on the methodological links among the school subjects than the teachers who teach in the eight-year primary schools (49.4%) who less often or rarely discuss this problem.

Likewise, it is established that 71.8% of the teachers decided that the connections among school subjects are executed through joint ventures of teachers and learners on different projects which significantly expose cross-curricular links in the content area. There are no statistically significant differences between both groups of teachers. The answers from the teachers who teach in the third triad show that even 87.5% of them prepare projects together with their pupils. 54.3% of all teachers answered that particular teams of teachers for the implementation of cross-curricular links among the school subjects are formed at schools in case of need. There are no statistically significant differences between both groups of teachers although the teachers from the nine-year primary schools chose that option more frequently.

13.3% of all teachers believe that there are no cross-curricular links at their school.

There are no statistically significant differences between the groups of teachers, it can only be stated that the teachers who teach in the third triad of the nine-year school unanimously (100%) replied that some connections among the school subjects are present at their

schools. Similarly, it was established that only a small part of all teachers (16.8%) decided to choose the answer that cross-curricular links are not necessary.

Conclusion

There are no statistically significant differences in planning the curriculum between teachers from the eight and nine-year primary school. Some small not statistically significant differences are present which are:

➡ the teachers from the nine-year schools use explanations more rarely and problem-solving or laboratory-experimental methods more frequently than their counterparts in the eight-year schools;

➡ indirect form of teaching are used by teachers in nine-year primary school more often.

Looking the results I got the impression that planning of the lesson in nine-year school slowly transform from the transmission model to the process-oriented concept of education.

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Lessons of environmental studies in primary school reform

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1. Introduction

The subject of Environmental Studies has appeared in the primary school curriculum together with the reform of compulsory education at the end of the previous century. It is the successor of the subject of the Natural and Social Sciences (NSS) which has been taught in primary schools in Slovenia since 1957.

The reasons why Environmental Studies (ES) came into existence can be found in the social changes which occurred in Slovenia at the beginning of the '90's of the previous century, in the new concept of the primary school programme, in the established negative sides of Slovenian education, in greater comparability of the subject with similar subjects in other European countries and, last but not least, in the negative sides of the subject Natural and Social Sciences (Adamič, 1990; Nacionalni kurikularni svet, 1996).

In the same way as the Natural and Social Sciences, the Environmental Studies also follows interdisciplinary issues. Its content is integrated from different scientific areas; natural sciences (biology, chemistry, physics, techniques and technologies) and social sciences (history, geography, sociology, ethnology). It is also taught in the first three years of the primary school, three lessons a week, the only difference being the fact that it is taught to a year younger children (six year olds) and that there are two teachers in the classroom or a combination – a teacher and a nursery nurse (Cunder, 1998)

The differences between the two subjects can be found in the curriculum. The curriculum of the Environmental Studies includes recent theoretical, developmental, psychological and methodological issues. It is designed on the basis of the learning target strategy and the process strategy of curriculum planning and it is based on the constructional and humanistic theory of learning and teaching, on the greater emphasis of cross-curricular connections between subjects

and the increased teacher's autonomy. The only compulsory parts of the curriculum are the teaching aims while the pupils' activities, curriculum, didactic recommendations and suggested cross-curricular connections are the suggested parts and can therefore be replaced with the more convenient criteria.

We have tried to find out how the planned changes in the curriculum of Environmental Studies were realized in practice by means of empirical research.

2. Definition of the problem

In our research we have tried to find out how the lessons of the Environmental Studies in the first year of the "new" nine-year education programme differ in quantity and quality from the lessons of the Natural and Social Sciences in the first year of the "old" eight-year education programme. We compared teaching aims and analysed their dimensions. We analysed the appropriateness of interaction, teaching methods, teaching aids, resources, stages of lessons and the participation of pupils in relation to the achievement of the teaching aims in both subjects. We were also interested in the pupils' attitude towards the respective subject. We also investigated the teacher's opinion about the reformed school subject.

3. Methodology

3.1. Method

The basic resarch method was the causal, non-experimental method of pedagogic research.

3.2. Sample and data gathering

3.2.1. On the level of indirect observation of both subjects the sample contained:
➡ 18 detailed curriculums or annual teaching plans, 9 for each subject (or in other words one from each unit of the Board of Education),

➠ 36 teaching plans, including the teachers who were involved in the indirect lesson observations of both subjects.

3.2.2. Four primary schools belonging to the Maribor region of the Board of Education were selected for the direct systematic classroom observations of the Environmental Studies and Natural and Social Sciences. Two schools started introducing the nine-year primary school programme in the academic year 1999/2000 while the other two schools carry out the programme of the eight-year primary school programme. A class of the first year pupils was selected in each school. The research included eight primary school teachers and two nursery nurses.

Classroom observations were performed in February, April and May in the academic year 1999/2000 according to three common thematic clusters: Celebrations, Garden and Meadow. Each cluster lasted for three 45-minute lessons. The audio and videorecorded materials amounted to 18 hours for each of the subjects.

The final year students and the graduate students of the Department for Junior Primary School Programme helped us with the direct classroom observations. They had been trained for this task for a longer period of time. Several students were involved in some aspects of the lessons in order to achieve a greater data objectivity.

Technical equipment was yet another means for classroom observations. A cassette player was used during all classroom observations. A video camera was used to record only one lesson at each school.

3.2.3. Regarding the pupils' feelings during the lessons the sample contained all four classes of selected schools. 286 pupils were involved in the ES and 269 in the NNS.

3.2.4. All the teachers and nursery nurses who were teaching the first year pupils in the nine year primary school programme in the academic year 1999/2000 (128) were included in the sample of examining the teacher's and nursery nurse's attitude towards the Environmental Studies. However, the data processing involved only 39.8% of them.

3.3. Instruments

This research used the following instruments:

3.3.1. Curriculum evaluation criteria (Bloom, 1970; Marentič-Požarnik, 1990; Strmčnik, 1996).

3.3.2. An observation protocol-to record some dimensions of the learning process (Tomić, 1999), to record levels of questions and strategies for asking questions (Marentič-Požarnik, 1980), to observe the distribution of the teacher's questions among the pupils (Hopkins, 1990) to write down pupils' activities during a lesson (Bognar, 1987), to observe the stages of the lesson (Tomić, 1990),

3.3.3. A checklist – to assess the typical characteristics of the learning process (Tomić, 1995),

3.3.4. Two questionnaires (one for the pupils and one for the teachers and nursery nurses).

3.4 Data processing

The data was processed on the level of descriptive and inferential statistics. The procedure of frequency distribution (f, f%) was used along with the hi-square test and Kullback test.

4. Results and interpretation

The most important findings are the focusing point of the results and interpretation.

4.1. Evaluation and comparison of teaching aims in the national curriculum

The main finding was that there exist differences in both curriculums which depend mainly on the various starting points of the values and different strategic plans of both curriculums. The teaching aims of the Environmental Studies are focused more anthropocentrically. They are written on all three levels (general, periodic and operational).

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Their cognitive component is emphasised. However, the aims of the natural science field are more central. The teaching aims of the Natural and Social Sciences are inclined more sociocentrally. They are written only on the general level. Their educational component is emphasised and the focal points are the aims of the social science field.

4.2. Evaluation and comparison of teaching aims in the detailed curriculum of teachers' plans

The differences between the two subjects can be seen in the planning of teaching aims according to their written records, in the definition of their temporal realization, in the number of recorded aims and considering the correlations with other subjects, as well as the analysed detailed curriculums and teaching plans. However, there are no significant differences in the written records of teaching aims in their dominant extent and dominant taxonomic levels of cognitive teaching aims (knowledge).

It can therefore be said that although there is a different approach in the curriculum planning of the Environmental Studies, the teachers and nursery nurses are confronted with the following specific problems when designing teaching aims: their operation, determining their basic extent and their variety.

In the table below is the data gathered by means of systematic observations of lessons of both subjects.

4.3. Do the lessons of the Environmental Studies differ from the lessons of the Natural and Social Sciences regarding the affirmation of pupils' grouping?

From the statistic point of view there is a significant difference between the Environmental Studies and the Natural and Social Sciences regarding the dominant grouping of pupils. Group work was the most dominant grouping during the Environmental Studies and whole-class grouping during the Natural and Social Sciences.

Table 1. The number and the structural percentage of lessons with the dominant grouping of pupils.

Grouping pupils	Lessons			
	ES		NSS	
	f	f%	f	f%
Whole-class grouping	5	27.8	13	72.2
Group work	12	66.7	1	5.6
Pair work	0	0.0	0	0.0
Individual work	1	5.6	4	22.2
Total	18	100.0	18	100.0

$2i=14.58>\chi^2$ (P=0.01, g=3)=11.34

4.4. Do the lessons of the Environmental Studies in the first year differ from the lessons of Natural and Social Sciences based on the general use of teaching methods?

From the statistic point of view there is also a significant difference between the Environmental Studies and the Natural and Social Sciences regarding the dominant teaching method.

Table 2. The number and the structural percentage of lessons of the dominant teaching methods.

Teaching methods	Lessons			
	ES		NNS	
	f	f%	f	f%
Verbally textual	6	33.3	16	88.9
Illustratively-demonstrational	2	11.1	0	0.0
Laboratory-experimental	8	44.4	2	11.1
Experiential learning	2	11.1	0	0.0
Total	18	100.0	18	100.0

$2i=13.15>\chi^2$ (P=0.01, g=3)=11.34

Laboratory-experimental teaching method was the most dominant teaching method while teaching the Environmental Studies and verbally-textual teaching method while teaching the Natural and Social Sciences.

4.5. Is there a difference between the types of pupils' activities during the Environmental Studies and the Natural and Social Sciences in achieving target teaching aims?

Table 3. Types of activities pupils participate in during the Environmental Studies and the Natural and Social Sciences.

Pupils' activities	Lessons			
	ES		NNS	
	F	f%	f	f%
Physical	486	26.9	586	22.3
Sensory	367	20.3	323	12.7
Mental	415	23.0	741	29.1
Expressive	538	29.8	912	35.8
Total	1806	100.0	2544	100.0

$2i=76.01>\chi^2 (P=0.001, g=3)=16.27$

There is a significant statistic difference between dominant types of pupils' activities during the lessons. The pupils attending the Environmental Studies were more physically active and used their senses more while the pupils who attended the Natural and Social Sciences were more expressive and mentally active.

The most dominant physical activites during the Environmental Studies were object manipulation and walking and during the Natural and Social Sciences walking and standing up.

The most prevailing mental activity was recognition during the Environmental Studies and counting during the Natural and Social Sciences.

Throughout the Environmental Studies pupils expressed themselves mostly by talking to their partners and throughout the Natural and Social Sciences they answered the teacher's questions.

The most common sensory activity throughout the Environmental Studies was sight and throughout the Natural and Social Sciences it was hearing.

4.6. Are there any differences in the didactic structure between the two subjects?

There is no statistically significant difference between the two subjects ($\chi^2 = 3.00$, P=0.05) regarding the number of teaching stages during the lesson observations. Additionally, only three out of five possible teaching stages occurred.

Table 4. Approximate length of each stage of both subjects and the number of lessons where an individual stage occurred.

Teaching stages	Lessons			
	ES		NNS	
	min	No. hours	min	No. hours
Motivation	7.5	16	11.0	18
New subject matter	24.4	9	35.5	16
Practice	33.2	10	0.0	0
Revision	16.2	6	20.5	8

It is evident from the table above that on average practice lasted the longest during the lessons of the Environmental Studies. In the lessons of the Natural and Social Sciences the new subject matter prevailed but there was no practice. In addition, neither of the subjects contained testing and assessment as an individual stage.

4.7 Are there any differences between the two subjects regarding prevailing teaching aids and sources of knowledge?

During the Environmental Studies the most prominent teaching aids were the ones for practical usage of pupils. Pupils worked with various materials such as clay, paper, steel wire, and used various tools, for example, scissors, trowels, hole punches, etc.

During the Natural and Social Sciences the teaching aids demanded more mental action from the pupils such as work with hand-

outs, different texts, and more action from the teacher, namely work with OHP, OHP transparencies, writing on the board, etc.

There is no statistically significant difference ($\chi^2 = 1.38$, P=0.05) between the Environmental Studies and the Natural and Social Sciences regarding the prevailing sources of information and knowledge. In both subjects the straighforward reality is the most prevailing source of knowledge.

On the basis of the classroom observations and the checklist data about the characteristic features of the teaching process it can be seen that the lessons of the Environmental Studies were designed in a much more modern way than the lessons of the Natural and Social Sciences. Teaching aims planned mainly in a cognitive way in the Environmental Studies were realized with those pupil groupings and teaching methods which ensured active participation of pupils in the teaching process to a greater extent. However, problems do already exist in the initial stages of the lesson structure and the accomplishment of individual phases when the teacher or nursery nurse communicate with the pupil.

4.8. How did the pupils feel during the lessons?

There exists a statistically significant difference between the subjects according to the pupils' feelings ($\chi^2 = 44.12$, P=0.001). In general, pupils who attended the Environmental Studies felt better than the ones who attended the Natural and Social Sciences. This was influenced by internal and external organisation of the lessons. The pupils' feelings were not influenced much by the external organisation of lessons but by the teacher's or nursery nurse's didactic-methodological basis of the teaching process, or in other words, the choice of pupil groupings, teaching methods, teaching aids, sources of knowledge, accounting for teaching stages when achieving specific teaching aims. They were selected in the Environmental Studies in order to enable active role of pupils in the teaching process. Positive feelings, such as pleasure towards work, excitement and interest, were detected during the lessons which involved active pupils' participation They enjoyed the work while making a butterfly, making a garden in the classroom, picking up meadow plants, chasing meadow animals, making a herbarium, etc. Most activities pupils were involved in resulted in a tangible

product. Pupils were happy and proud of their success. Each pupil had an opportunity to assert themselves according to their abilities. These activities mainly involved group work that is why the pupils were working as a team, helping each other, exchanging opinions, persuading each other, solving conflicts, etc. Their learning was typical of natural and experiential learning which is very close to the pupils of this age.

4.9. What do the teachers and nursery nurses think of the Environmental Studies a year after its implementation?

Opinions of the teachers and nursery nurses do not differ significantly when it comes to the questions in the questionnaire. They both classify the subject of the Environmental Studies among the relatively popular subjects as they believe this is due to a higher degree of the psychological and physical effort of the teacher and the lack of suitable didactic materials.

Both teachers and nursery nurses realize there are problems in devising the lessons of this subject particularly when it comes to detailed annual planning of the curriculum. However, they do not mention any major problems with the subject's performance and its evaluation. A year of team work experience between a teacher and a nursery nurse has been assessed as very successful. Most of them think that team work contributed to making the lessons of the Environmental Studies more modern. They have exposed the greater opportunities for active pupil groupings and teaching methods, as well as better chances for the individualisation of the lessons. According to the questionnaires the most appropriate additional education was organised by the publishing houses Državna založba Slovenije and Modrijan when the coursebooks series on the subject were published. The less appropriate education turned out to be the one offered by both Pedagogic Faculties and the Board of Education. Pedagogic workshops were the best rated form of education.

Conclusion

We have discovered that in most aspects the Environmental Studies teaching is of better quality compared to the teaching of the Natural

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and Social Sciences regarding the observed didactic components. This can be seen as a result of different conceptual and didactic structures of the Environmental Studies and additional continuous work and team work of the teaching staff. Furthermore, it is due to better material basis/financial status of the Environmental Studies lessons, fewer pupils in the class and, also, to the phenomenon of innovation. The facts that the pupils feel better and that the teachers as well as nursery nurses have a more positive attitude towards the subject are very stimulating. The results of our research should, above all, contribute to the quality of planning, implementation and evaluation of the teaching of the Environmental Studies in the first as well as the following two years of the nine-year primary school programme. We also consider them useful in the education of the future teachers and nursery nurses of the Environmental Studies in the primary school education.

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The quality of the knowledge

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Abstract

Since 1995 pupils in the Republic of Slovenia graduate from a high school (pupils from 14 to 18 years old, high school is a school preparatory for university studies) by passing the final exam. The final exam consists of five subjects (three of them are obligatory: mathematics, mother tongue and foreign language; two are optional subjects). The final exam is external, which means that the State examination centre provides the questions and the criteria and defines the evaluation procedure. The substance for the exam and the criteria for each subject are gathered in catalogues. All the candidates take the exam under the same circumstances, which are known in advance. Because of the importance of the final exam – with it the pupils finish the secondary schooling, however, the exam also provides an oppor-

tunity to continue the schooling at the university – there have been indicated some impacts of the final exam on the pupils as well as on the teachers and the lessons in the high school. These impacts lessen the quality of pupils' knowledge. So far the best way to define the quality of the knowledge was the definition (Marentič Požarnik, 1999a, 8) from the point of view of the endurance and applicability of the acquired knowledge in new situations, in other words its transferable quality.

Although the aim of the high school is to increase the quality and endurance of the acquired knowledge – therefore the contents of the wider validity and usage (Drugi strokovni posvet o maturi, 1998)[1] have precedence over the other contents – there are more and more indices (Marentič Požarnik, 1999a, 1999b, 2000b) that show that we cannot be fully satisfied with the knowledge of the high school pupils.

In the first part my report on the research shows the impact of the final exam on the teachers, pupils and lessons, and in the second part it demonstrates the results of the research about the endurance of the high school knowledge of the mother tongue and literature (mother tongue is an obligatory subject at the final exam for all the pupils).

Key words: knowledge, external evaluation of the knowledge, final exam, quality, endurance and applicability of the knowledge, the impacts of the final exam

1. The impacts of the final exam

With the introduction of the final exam the teachers' autonomy was to become the necessity, because the teachers took the responsibility not only to give lessons to the pupils but also to teach them. In other words, the teachers became responsible for pupils' results. But there are many teachers who consider the external evaluation of the pupils' knowledge as an evaluation of their work (Brinovec, Juvan, 1999, 33).

Even more, as Kompare (1997, 10) found out, there is also a problem connected with the transferance of the knowledge, where a

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[1] The second conference on the final exam, 1998.

teacher could be rather "unreliable" if "he deviate from supposedly the best methods of teaching and from supposedly the only true knowledge that he is to transmit to the pupils. A teacher could also be "disturbing" if he introduces the variety and differentiation into the activity of the social reproduction".

The teachers themselves often point out that the final exam limits their teaching. However, they often define their role to be the medium of the knowledge and to contribute to the shaping of the pupils (Šteh Kure, 1998). Namely, the majority of the teachers (Drugi strokovni posvet o maturi, 1998) subjected their lessons to the final exam catalogue, which consequently turned into the lesson plan (curriculum). One of the consequences of such work is also that there is less project and research learning, less practical work and debates on topical issues.

We talk about the so-called consecutive validity – the consequences that the specific ways of evaluating the knowledge have on the teaching and lessons (Marentič Požarnik, 2000a, 266). The impacts of the final exam are shown in three ways:
➡ Dividing the teaching material. The pupils are taught to find the specific information to answer the exam question.
➡ Deviation from the lesson plan (curriculum). The teachers tend to omit the subjects that are not included in the exam.
➡ Simplification of the lessons.

The pupils are taught to reach only the basic goals (for example understanding, usage), and not more demanding ones (analysis, evaluation), which the exams cannot embrace (Bracey in Plut Pregelj, 1993). Furthermore, there are fewer or none activities that demand creative thinking, project learning, cooperative learning, reading books, creative writing, etc. The teachers notice that the total approach is being abandoned and that the behavioural model of teaching prevails (ibidem).

One of the long-term consequences of the external evaluation of the knowledge on the lessons in the methical sense is therefore the reduction of the active methods and activities that are not connected with the external evaluation of the knowledge. Marentič Požarnik (1999b) finds out that the basic goals are easier to evaluate objec-

tively and therefore more importance is given to the tasks, which can be easily evaluated.

Talking about the impacts of the final exam on the pupils, we can say that the final exam represents the central motive for learning. After the introduction of the final exam the pupils are even more productively orientated (Šteh Kure, 1998). It has been indicated that (ibidem) learning for most of the pupils represents acquiring, accumulation and usage of the knowledge. Only few of them connect learning and knowledge with the changes of their points of view of the things around them and the changes of their character. In other words, the pupils do not connect learning and knowledge with happiness, reasonableness, and interest.

It is also important to emphasize the pupils' emotional experiences while preparing for and sitting the final exam. The researches (Drugi strokovni posvet, 1998) show that the final exam (the same as all the other ways of testing) is stressful for the pupils. Because of its importance the final exam is even more stressful than the other exams and tests in the school. The final exam (ibidem) has become a means of teachers' warning the students to reach better results and to be more disciplined during the lessons. This is understandable if we know that the quality of the teachers' work is connected with the results of the pupils at the final exam. On the other hand, the teachers should know that with the intimidation of the pupils they can provoke the resistance to the subject they teach.

To sum up, after the introduction of the final exam in high school with the external evaluation the lessons in high schools have changed. There have been noticed the impacts on the teachers as well as on the pupils (Rutar Ilc, 1995). Because they follow the demands of the exam that tend to the objectiveness of the evaluation and demand only basic tasks the teachers should ask themselves whether the pupils stimulate their pupils also to develop some critical, analytical, and creative thinking and whether they gain also some general knowledge.

2. The definition of the research problem

With the introduction of the external evaluation of the knowledge (with the introduction of the final exam) the warnings (Novak, 1995)

that our schools develop only formal knowledge needed for getting marks and certificates have been even more emphasized (Marentič Požarnik, 1999a, 1999b).

2. 1. The aim of the research

In the research carried out in the year 2000 we wanted to determine the endurance of the knowledge of the mother tongue and literature acquired in the high school and evaluated with the final exam.

2. 2. The sample

In the research 138 students were included from ten faculties – 56 (40.6 per cent) students of the natural sciences and engineering and 82 (59.4 per cent) students of arts and humanities. The chosen sample represented the population of the second-year students at Slovene faculties.

All the students included in the sample passed the final exam after finishing the high school. From the sample 58 per cent of the students passed the final exam in the year 1998 and were therefore successful as students, the rest (42 per cent of the students in the sample) passed the final exam before the year 1998 and were therefore less successful second-year students, because they either repeated the second class at the university or they changed the field of the study.

2.3. The research method

The research is based on the descriptive and causal-nonexperimental method of the empirical research (Sagadin, 1993).

2.4. The way of collecting the data

We collected the data by a test on Slovene language. The test consisted of six tasks taken from the final exam of the year 1998. However, these were the tasks that 58 per cent of the students already knew from the final exam in the year 1998. Besides, there were also seven additional tasks in the test, taken from the high school curriculum, which is supposed to show the general knowledge of the students.

The tasks were of heterogeneous types (selective questions, open questions) and of different Bloom's taxonomy levels (knowledge, understanding, usage, analysis).

2.5. Processing of the data

We handled the data quantitatively by using the computer and the SPSS statistical programme. We calculated the number of achieved points and the percentage (f%) Besides we used the χ^2-test to find the connection between the dependent variable (the groups of achieved points) and two independent variables (the field of study and the year of passing the final exam). We handled each task of the test also qualitatively.

3. The results and findings

We divided the achieved points from the tests into five groups according to the five-grade evaluation scale. In the first group there are students that achieved from 0 to 49 per cent of all the points (unsatisfactory mark), in the second group there are students that achieved from 50 to 60 per cent of all points (sufficient mark), in the third from 61 to 75 per cent (good mark), in the fourth from 76 to 90 per cent (fairly good mark) and in the fifth from 91 to 100 per cent (excellent mark).

Table 1. The achieved points as regards the field of study.

Number of points	Field of study					
	arts and humanities		natural sciences and engineering		altogether	
	f	f%	F	f%	f	f%
0–20	59	71.9	37	66.1	96	69.6
21–24	14	17.1	10	17.8	24	17.4
25–30	8	9.8	7	12.5	15	10.9
31–37	1	1.2	2	3.6	3	2.2
38–41	0	0.0	0	0.0	0	0.0
Altogether	82	100.0	56	100.0	138	100.0

The average number of points:
> of the students of arts and humanities: 17.30,
> of students of natural sciences and engineering: 17.82.

The comparison of the achieved points on the test shows somewhat better results of the students of natural sciences and engineering. However the difference is not statistically significant ($\chi^2=0.59$, $g=2$, $P=0.05$). 66.1 per cent of the students of natural sciences and engineering achieved less than half of all the possible points, among the students of arts and humanities there were 71.9 per cent of the students that achieved less than half of all the possible points. The percentage of the students that achieved from 50 to 60 per cent of all the possible points (that is from 21 to 24 points) is almost equal in both groups – that is 17.1 and 17.8 per cent. There are also more of the students in the group of the students of natural sciences and engineering that would get good or fairly good mark (12.5 and 3.6 per cent). Among the students of arts and humanities 9.8 per cent would get a good mark, and 1.2 per cent would get a fairly good mark. None of the students achieved from 91 to 100 per cent of all the possible points.

Table 2. The achieved points as regards the year of the final exam.

| Number of points | Year of the final exam | | | | | |
| | 1998 | | before 1998 | | altogether | |
	f	f%	f	f%	f	f%
0–20	49	61.3	47	81.0	96	69.6
21–24	15	18.8	9	15.5	24	17.4
25–30	13	16.3	2	3.4	15	10.9
31–37	3	3.8	0	0.0	3	2.2
38–41	0	0.0	0	0.0	0	0.0
Altogether	80	100.0	58	100.0	138	100.0

The average number of the points:
> of the students that graduated in the year 1998: 19.04,
> of the students that graduated before 1998: 15.41.

The comparison of the achieved points as regards the year of the graduation from the high school shows the existence of the statistically significant differences (χ^2=13.78, g=2, P=0.01). The students that finished high school in 1998 achieved much better results than the students that finished high school before 1998. 61,3 per cent of the students that graduated in 1998 achieved less than half of all the possible points, while in the other group 81 per cent of the students achieved less than half of all the possible points. Among the students that finished high school in 1998 18.8 per cent would get a sufficient mark (15.5 per cent of the students that graduated before 1998), a good mark would get 16.3 per cent of them (3.4 per cent). A fairly good mark would get four students in the first group (3.8 per cent), and none in the second group. None of the students would get the highest possible number of points.

The analysis of the tasks in the sense of their quality shows that:
➡ the students got the best results with the tasks containing selective questions and tasks
➡ that demanded knowledge (more than 70 per cent of correct solutions). However, most of the students were not able to explain their solutions (only 10 per cent of correct explanations);
➡ the results of the open choice questions (what, why, etc.) that demand understanding,
➡ usage and analysis were really poor. Here we found out the highest percentage of unsolved tasks or incomplete answers (from 45 to 55 per cent);
➡ the students often mix particular orthographic rules or literary periods. We can conclude that they gained their knowledge only superficially and that they only remember some basic terms.

4. Conclusion

The results of the research show that the students are better with selective questions and with tasks of lower Bloom's taxonomy levels. They are not that successful with the tasks that demand usage, understanding and analysis. Besides the students seldom form the answers with their own words and they rarely explain or interpret their answers.

The results do not depend on the field of study, but they depend on the year of the graduation. Through the years students forget more and more, so we can conclude that the quality of the high school knowledge is inferior.

Nevertheless, it is important to point out that the final exam is not the only reason for this situation. Here we should also consider the concept of knowledge (Šteh Kure, 1998). The latter is (unfortunately) still based too much on memorizing and transmitting the facts and patterns from the teachers to the pupils. On the other hand, the final exam itself does not lead to a better teaching, learning and last but not least qualitative knowledge (ibidem).

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Estonian teachers' ideas about key competencies

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Introduction

One of the national educational goals in Estonia is to develop the full potential of its human resources (The Law of Education, 1992; National Curriculum, 1996; National Curriculum, 2002; Learning Estonia, 2001; etc.).

As in most of the world, the educational trend in Estonia is to shift attention away from the teaching of factual knowledge towards the development of competencies – knowledge, skills, and personal qualities necessary to everyone for effective participation in social, cultural, economic and political life, (Definition and Selection, 2001; European Commission, 2001; European Council, 1997; Learning Estonia, 2001).

Faced with increasingly complex career paths, consistently high levels of unemployment, aging population, European Union enlargement, rising migration, and concerns about both basic-school drop-out rates and the associated risk of social exclusion, there is a need to better establish the key competencies for future adults in our curric-

ula. These attributes, necessary to all citizens/ residents of a country, may be represented in national educational policy documents (educational strategies, national curricula). Their representation is important – when listed in national policy documents, there is a greater possibility for these qualities to emerge in learning materials, external evaluation and everyday classroom activities.

Teachers and practitioners still have their own values that may or may not be in accordance with the national ones. This article is a summation of 712 Estonian teacher's ideas about the most important competencies every student should acquire by the end of secondary school.

The general **idea of key competencies**/key skills/essentials is not new for Estonian education. Some key skills (e.g., literacy and numeracy, etc.) and personal qualities (e.g., ethics, honesty, laboriousness, etc.) have been valued throughout the history of Estonian schooling, which is already more than 300 years.

At present, there are quite active **debates** about **the definition of key competencies** in Estonian education. Educational theorists have not reached common agreement about how to make the best use of these terms (and ideas) in Estonian education. Different working-groups in different universities and educational institutions as well as unaffiliated individuals refer to different international sources and theories. There is an active discussion how to define and classify competencies in the best possible way in Estonia (Läänemets, 2001; Krull, 2001).

The competencies have not yet been defined in the Estonian education policy. Therefore, to date, the use of the term "competencies" has been occasional in Estonian educational discourse. In official education policy documents, the use of the terms has also been inconsistent. The usage of the terms has substantially changed in the last two versions (1996 and 2002) of the National Curriculum. The system in National Curriculum 1996 was highly appreciated by Finnish experts (Finnish National Board of Education, 1999). In the National Curriculum 2002, changes in the classification of general competencies and subject area and subject competencies were introduced. However, some experts seriously doubted how could this new system make the idea of competencies easier for teachers to follow (Läänemets, 2001;

Krull, 2001). In addition, different from the official documents, definitions and classification of the terms have been used in supportive materials. This leaves every teacher, every user of the "philosophical" terms "competence", "competencies", etc., on their own. Probably this is the most important reason that the teachers have greeted the whole concept with such hesitation. However, the hesitation in using the term should not be a problem when talking about the ideas behind the qualities most of the European countries consider to be key competencies.

Results

The five to seven most important "things" (skills, qualities, etc.) that children should have after leaving the secondary school.

The Curriculum Development Center of the University of Tartu has in their seminars and workshops asked teachers, kindergartenteachers, educational administrators etc., from different places in Estonia (Tallinn, Tartu, Pärnu, Viljandi, Kuusalu, Jõhvi, Põltsamaa, Rõuge) for their **five to seven most important qualities**. (n=712).

The groups of four to ten members elaborated on the final answers. First, every teacher had to make his/her own list of most important competencies. Second, people worked in pairs and had to come to the list with 5 to 7 items that were supported by both of them. Thirdly, the pairs joined and the groups with four members discussed their lists and produced a common list. Every group introduced their final lists.

After gathering the answers the lists of all groups were combined into a large table. One possibility to work with these lists was to count the most often mentioned items and the list below is the result of this analysis.

The most often mentioned competencies were:
➡ communication skill(s);
➡ learning skill(s);
➡ wish to learn/ learning motivation;
➡ ethics;
➡ tolerance;
➡ collaboration/ teamwork;

➠ creativity;
➠ industriousness / working habits;
➠ systematic world image; and
➠ thinking skill(s).

Another possibility was to group items with similar meanings. Many surveyed teachers expressed almost the same ideas using different words. So there was possible to group the items that were nearly similar or closely related under a possibly general heading. After that, the competencies in this reduced list were classified in a frequency table indicating how often a specific competence was selected. The similar strategy of grouping the items was used in Flanders. (Definition and Selection, 2001) The following **list of key competencies** was obtained by grouping similar answers:

Learning to learn

The most important category (key competencies) involved the skills and attitudes connected with learning. In one form or another, "*Learning to learn*" was in almost all of the lists (98%). The following things were mentioned: the ability and desire to learn/ to develop; learning with intrinsic motivation; systematic and consistent learning; and an ability to learn and to enjoy the studies.

Social competencies

Social skills and attitudes were given almost the same importance as the learning skills (97%). Communication skill was the single most often mentioned quality. Also mentioned were the willingness and readiness to communicate and the courage to communicate; functional literacy; self-expression skills; collaboration skills (team-work, etc.); social maturity/ competence; and also having friends.

Ethics

In third place was put qualities connected with ethics. Almost all lists (92%) included qualities like ethics and honesty; valuing other people and the environment; empathy; sustainable lifestyle; not doing harm to other people and nature; following non-written rules; inner free-

dom; the sense of responsibility/ ability to take responsibility; the sense of duty; and law-abidingness. The teachers often suggested that these qualities could not be developed only with the help of schools. The role of the family and the society has also major importance.

Industriousness

The fourth important group of qualities mentioned were attitudes, skills and qualities connected with working (72%). Most often mentioned were the industriousness; working habits and the wish/ motivation to work; the collaborative skills (mentioned already with social skills); the will and ability to motivate one to study and to work; and skills to work independently, systematically and consistently.

Thinking and problem solving skills

Thinking and problem solving skills were mentioned among the five to seven most important qualities in 67% of cases. Thinking skills were most often mentioned. These skills were often also specified. The critical thinking skill was mentioned most often, other specifications mentioned were logical, systematic, creative and analytical thinking. The metacognition; skills of making connections; solving the problems; making choices; and decisions were also valued.

Today the competencies in data acquisition and proceeding include the ICT competencies. The ICT skills were especially mentioned by 36% of the groups. The following skills were mentioned: finding; storing; proceeding; analyzing; synthesizing; evaluating; and using information with the help of computers and other technologies.

The holistic outlook of the world

The applied (academic) knowledge, an ability to understand the nature of different phenomena and processes were mentioned almost as often as thinking skills (65%). The "holistic picture of world" was the term mentioned most often. However, in the lists were also included qualities like scholarliness; basic knowledge, etc.

Personal development

The qualities and skills included in personal development were mentioned almost by all teachers. However, these qualities are quite difficult to group and the number of different (sometimes contraversial) items mentioned was the highest among groups of "important things". The personal qualities mentioned the most often were ethics/ honesty/ responsibility; tolerance/ openness/ flexibility/ adaptability; and creativity.

These qualities were followed by independence; initiative/ activity/ entrepreneurship; curiosity; and motivation. In addition, the learners positive self-image; self-trust; self-confidence; courage to dream; ability to be happy; ability to set goals on one's life; ability to fulfill one's potential were also listed.

Discussion

Although the surveyed teachers were not specifically referring to the key competencies (only a very small minority of the surveyed teachers referred to competencies – communicative and social competence both were mentioned in one case), the results indicate that Estonian teachers value the most skills and attitudes related to the idea of Life Long Learning (e.g., learning to learn, motivation and ability to learn, learning skills); and interpersonal qualities (e.g., communication and collaboration skills). Most teachers also mentioned problem-solving and/or reasoning skills, functional literacy, etc. The Lutheran work ethic and skills and attitudes connected to work were also important. Personal qualities like creativity, motivation, responsibility, honesty, self-esteem, etc., were other features often mentioned. These results show similarities between Estonian teachers' ideas and international studies about key competencies (e.g., EU documents, national curricula and policy documents of different countries) (European Commission, 2001; European Council, 1997; European Council, 2000; OECD, 2001; Definition and Selection, 2001; etc.).

In the Estonian Educational Strategy "Learning Estonia", four *basic competencies* – (learning skills, readiness for lifelong learning, communicative and technology skills) have been listed (Learning Estonia, 2001). The first three categories of qualities in the strategy

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"Learning Estonia" and the list done by the teachers were the same. Furthermore, many competencies mentioned by surveyed teachers have already been introduced in Estonian National Curricula (National Curriculum, 1996; National Curriculum, 2002).

Although the ideas were similar in national policy documents and teachers' lists, the terms used to describe these ideas were not. The concept of key competencies is still not widely understood. One reason for this might be the fact that Estonian cultural and linguistic background causes some problems in finding the best Estonian equivalent to the term *key competencies*. It might be useful to use different terms to distinguish between *basic knowledge*, *key* or *basic* or *generic skills* and *personal qualities* when dealing with key competencies in Estonia.

At present, Curriculum Development Centre of the University of Tartu is developing the system of competencies on the following basis:

➡ Theory and practice of curricula.
➡ The international and EU educational policies.
➡ Estonian (educational) strategy documents.
➡ Estonian teachers and other groups (politicians, economists, etc.) ideas and discourse.

Our goal is to make the idea as widely understandable as possible. Even more important is the development of system that can easily be implemented in Estonian schools. The competencies should be defined better and the assessment system should also be developed. It seems that Estonia could learn from the experiences of other European educational systems (e.g., Flanders Belgium, United Kingdom, Slovenia, Latvia).

Conclusion

Estonian teachers' ideas and international studies about key competencies are quite similar as our teachers understand the importance of life long learning, personal and social development, etc. However, the concept of key competencies needs to be more specifically defined as it is not widely understood among our teachers.

At present, the work with educators/ teachers and other groups (industry, welfare, culture, etc.) is in process. The lists of competencies in our curricula and educational policy documents are still the items of discussion. A public debate has to be held on this subject in Estonia.

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The role of the teacher inside the curricular reform of the educational system in Slovenia

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1. The goals of the curricular reform in Slovenia

In the last years the system of education in Slovenia has undergone
serious changes. An ongoing process of curricular reform aims to
change the role of the teacher as well as that of the students, the edu-
cational process and its content, goals, methods and approaches to
teaching.

Many factors have affected the reform of the educational system.
Thus we are facing new challenges in our practice:

➠ the lengthening of the duration of obligatory education and the
integration of an ever larger number of youth into secondary edu-
cation,

➠ the widening of differences between students as regarding their
cultural background, interests and abilities and the integration of
children with special needs into regular schooling,

➠ the growing and ever more demanding curriculum due to new
knowledge and founding of new areas of study as the result of so-
cial and technological development,

➠ new information and communication technologies,

➠ the integration of school into its environment and
➠ the pluralism of values accompanying the disintegration of traditional values (Bela knjiga – White book, 1995, p 121).

The introducing of the intended changes is being influenced by various factors, such as: organization of the educational process, the qualification of teachers and providing of adequate textbooks and other conditions of education.

The basic goals of the curricular reform are as follows:

To increase the autonomy and professional responsibility of schools and teachers

The quality of education and schools as the institutions of education is largely dependent on professional autonomy and responsibility. Professional autonomy and responsibility are strongly intertwined. It is imperative to look into the conditions, methods and quality of work, into the qualifications that people have for performing the work of teachers, into the process of education and professional growth. For the largest part, the new curricula include goals, which are to be reached in the process of education at individual levels, while the curriculum, methods of work and textbooks leave the teachers with a high level of autonomy, meaning a wide selection to choose from.

The autonomy of teachers and schools also increases with the possibility of optional subjects in elementary education. Thus schools can offer those optional subjects for which they have the appropriate staff and will meet the interest of pupils.

To attain better cooperation between different disciplines

To prepare pupils for taking part in everyday situations and to transfer knowledge into actual problem solving, it is necessary to combine various kinds of knowledge. It is important to promote holistic knowledge. An interdisciplinary approach to different subjects and cooperation can be attained by various teaching methods, like problem and project types of approaches and cooperation between teachers. Students also gain a large amount of knowledge outside of school

and the role of teachers is changing accordingly. Teachers should rather combine different kinds of knowledge and direct students when looking for information.

<u>To encourage a balanced mental and physical growth of the individual</u>

It is necessary to ensure that school can provide diverse services, not only the transfer of knowledge. Delors (1996) emphasizes that education in the 21st century should be based on four pillars: learning in order to know, in order to be able to work, in order to be able to live in a society (one with another) and learning how to be.

<u>Other goals of the curricular reform are also:</u>

➡ to increase the importance of school in social integration;
➡ to prepare pupils for quality life, for education for life and for a given profession and to develop abilities for an independent, creative and critical thinking and judgment;
➡ to qualify pupils in order to be able to face and solve problems with confidence;
➡ to prevent overtaxing and dropping out pupils (Curricular reform, Svetlik, 1997, 18).

The time spent in school should really represent quality time. It is necessary to assure a plurality of methods and approaches to education. In reaching the goals of education, quality should come before quantity.

The unburdening of pupils also depends on the organization of work, that is, on the organizational culture present in a given school. It is imperative to realize the conditions for good integration into school, as this is the only way to increase the quality of education.

2. The principles of the curricular reform

I proceed from the principles proposed in Marjanovič – Umek, (Curricular reform, 1997).

1. Balancing and interaction between different scientific areas

It is necessary to establish an appropriate balance and determine the presence of different scientific areas entering the curricula through different school subjects at various levels of education. While setting the standards of knowledge, it is important to assure the continuity, vertical interaction and coherence at the level of a given scientific area as well as the interaction between different areas (horizontal interaction).

2. The level of fixedness in the curriculum

It is necessary to determine an appropriate balance between the number of compulsory, non-obligatory and optional classes in the curricula at individual levels of education to allow for a higher share of optional subjects and a school of the more open type.

3. The disburdening of individual subjects or subject areas

The selection of material is very important, especially in the areas demanding an encyclopedic knowledge and sheer reproduction of facts. A higher amount of attention ought to be given to the type of teaching encouraging critical judgment, creativity, argumentation, inference and evaluation, problem oriented learning and experimental methods of learning. Therefore the disburdening of curricula does not stand for lower standards of knowledge. It represents a step towards higher quality knowledge. Here the material is essentially linked to learning methods and the forms and types of knowledge evaluation.

4. The quality of knowledge and its types

It is a question of fulfilling higher cognitive and pedagogical goals. During this process, we must take into account the principles of development and appropriate learning methods, allowing for longer lasting knowledge and better skills for using this knowledge to combine the insights with everyday problematic situations. It is necessary to select appropriate models of knowledge transfer and motivation of students to take part in the formation of the learning process. The integration of teaching about learning (meta-learning) into the curricu-

lum and the development of skills for lifelong learning is also an important factor in this process.

5. Flexibility in the selection of the methods and manner of work

This principle relates to the need for defining the standards of knowledge. In selecting the methods and types of teaching, it is important to choose the ones allowing us to reach the set goals with the best results possible. The principle presupposes an appropriate level of qualification of teachers to confidently use the appropriate approaches and simultaneously evaluate the attained goals with the help of selected methods.

6. Equal chances

Special attention ought to be given to children with special needs (extremely gifted children, children with specific learning impediments or special needs due to physical handicap – the blind and the weak-sighted, the deaf and the partially deaf, the children in bilingual environments etc.). We must integrate their specific needs at the level of planning as well as at the level of organisation and implementation.

7. Experimental checking and implementation

Critical verification of individual solutions at various levels is a necessary condition for the reform, continuous evaluation and introduction of changes resulting from this evaluation. It is necessary to assure the appropriate education of human resources and availability of textbooks, didactic instruments and facilities.

3. The role and responsibilities of teachers

The role of teachers in modern-day school is becoming ever more important and with the changing of the educational goals, teachers have to change as well. "If a teacher used to be considered a "Mr. Know-it-all" or "a walking encyclopedia" and the like, such roles should be abandoned in the future and teachers should redirect themselves into combining different kinds of knowledge, finding new

ways to choose and use knowledge in a creative way and to make sense out of a mass of information that is flooding the pupils. /.../ the teacher's duty is not to go through the prescribed teaching matter with pupils, but to allow them to reach a given level of knowledge and develop certain skills with an appropriate selection of subjects and teaching methods. This grants teachers a higher level of autonomy and at the same time increases the complexity of their work' (Curricular reform, Svetlik, 1997, 17).

Numerous laws and regulations define the responsibility and the role of the teacher. Nevertheless, even good teachers can only do quality work in an appropriate environment, in an encouraging school culture and atmosphere, which also enables them to constantly reflect upon and evaluate their own work and to change on the basis of these reflections of their practice. In the reformed school, the teacher is the one who changes and adjusts the content and goals of the teaching programs to the needs of the students and the educational situation. Thus it is necessary "to qualify the teacher for planning, guiding and evaluating learning/teaching processes, stressed the importance of teacher's independence, professionalism, creativity and his/her responsibility" (Adamič, 1999, 26–27). It is important that teacher find his/her role inside searching the following qualities:

➡ to emphasize the importance of partnership in an educational process,
➡ to take over the role of encouraging and orienting, not only the principal source of knowledge,
➡ to allow an active cooperation of the students,
➡ to orient his/her work not only towards the final goals, but also towards the processes,
➡ to look for and encourage the inner motivation of the students,
➡ to enable and teach the abilities of a reflective teaching/learning process and interpersonal relationships.

Teaching is understood not only as the conscientious performance of duties determined by the official curriculum, but as a complex whole of living in school: a combination of active and reciprocal relations between the pupils and their teachers, the curriculum, informal (extracurricular) activities, required textbooks, the marking system and a symbolic frame of (moral) principles and rules determining the local

regulations of the school community. For all the listed elements of living in school to become successful pedagogical factors, the expert workers in school should design a consistent pedagogical-educational concept taking into account not only the official curriculum, but also a balanced interaction of the factors of the so-called tacit curriculum (Curricular reform, Kroflič, 1997, 203).

Teachers are a crucial element in the attainment of the goals of the reform of education; therefore they must be qualified to carry out these changes. This should be done during the time of pre-service study as well as during permanent professional education. Unfortunately, in this area, we only too often remain limited by obsolete concepts, content and approaches.

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Zelena knjiga o izobraževanju učiteljev v Evropi: kakovostno izo-
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Teacher as an agent of change: reflective development at schools

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1. Introduction

In 1962 Hilda Taba considered teachers as agents of change, when
she suggested the planning of specific units of instruction, which
could provide a basis for a general design. The recognition that teach-
ers must act as knowledge producers and researchers focuses on the
role of teachers as decision makers and constitutes the key to educa-
tional change and professional development.

It is well evidenced, i.e. (Hargreaves, 1994; Smyth, 1995, Fullan,
1982) that curriculum change and reform can not be realized without
changes in teachers thought and practices. Furthermore teacher col-
laborative contribution, active involvement and reflection on action
are considered crucial for curriculum reform and educational change
(i.e., Fullan, 1982; Keiny, 1993; Hargreaves, 1994). The shift from
instrumental, linear, algorithmic approaches to curriculum develop-
ment by experts in technocratic procedures, to a heuristic, reflective,
cyclic endeavor of all participants indicates the shift from modernity
to meta-modernity (Koutselini, 1997a, 2002a, b), a shift that sought –
beyond the post-modern critique – to personalize schooling and
learning processes.

Emphasis on teachers as agents of educational reform presupposes improvement of the status, power and knowledge of teachers through participation in action research in authentic, meaningful environments; these approaches are opposed to attempts to improve schools primarily through external prescription of what teachers should do and teach; they are also opposed to pre-defined curricula with strong framing (Ross, 2002), which impose on teachers objectives, processes and outcomes without entailing to teachers any option for differentiated instruction and reconstruction of knowledge. Thus, the following question arises: what are the appropriate reflective, collaborative processes for promoting teachers development? What does prevent teachers from change in teaching and learning? What is teachers' implicit understanding for school – based curriculum and how do they conceptualize their role as curriculum developers?

2. Theoretical framework

The epistemological foundation of this study is grounded on Habermas' (1972) emancipation interest as it has been opposed to instrumental positivistic knowledge as well as on critical pedagogy, especially its emphasis on the improvement of social conditions through action research (i.e., Freire, 1972; Grundy, 1987).

Guiding principles on teachers collaborative development are: Olson's notion (1988, 167) that "what is crucial in understanding thinking is not personal but interpersonal", Hargreaves's (1995, 153) assumption that collaboration promotes teachers' "situated certainty", which makes them feel confident to try new things and test their approaches and beliefs.

As Freire (1972, 31) put it, action research considers "the act of knowing" as involving "a dialectical movement which goes from action to reflection and from reflection upon action to a new action". In the core of meaning making is reflection. As Habermas (1972, 208) stated: "Self-reflection is at once intuition and emancipation from dogmatic dependence". Within this process improvement is not imposed upon participants but, rather, is generated by their active participation.

Deliberation from the implementation of a given curriculum allows teachers to reconstruct curriculum in their own context (school and classroom) and proceed to curriculum development at the micro-level.

3. Methodology

Sixteen teachers from five public pre-primary schools in Cyprus, one inspector and two principals participated voluntarily in this study. The project was entitled "Anticipation of pre-primary schools problems at the micro level".

Table 1. Incidents of the project – Reflection on cycles of learning. "Anticipation of students' problems".

Identification and description of school problems – Selection of topics

Analysis of the problem and data collection

Action Plan – Reflection-Group discussion

Action in Schools/ Diary keeping for the daily interaction between teachers – students/ students – students, teachers – parents/ parents – students

Enhancement of the rewarding activities/ procedures
Conceptualization of the action

School-based curriculum as a   collaborative endeavor

Weekly meetings with reports from the participants encouraged reflection on action. All participants were also instructed on how to keep a diary of events, thoughts and emotions or the daily interaction

with their students as well as for the group meetings. Discourse and practice constituted the main tools of action research, which supported the construction and reconstruction of meaning in a spiraling action (Grundy, 1986).

The incidents of the project are shown in table 1.

It is obvious that Reflection, Action, Reflection and Self-Reflection, Conceptualization of Action and new Action constituted the processes of learning in a collaborative contextualised environment. Participants were exposed to various contexts of reflection: the classroom context where they could try out new ideas, their schools where they could reflect on their and other teachers' actions, the meeting with all the participants of the project where they shared ideas and experiences.

During the meetings teachers were engaged in practical discourse of their actions about the meanings implicit in their acts. Audiovisual recording was also used as sources of observable data. Content analysis of their diaries enhanced the effort for understanding the meaning implicit in their actions and discourse.

4. Results

The "problem" that was defined by all the participants was "Language Difficulties in the pre-primary school". From the beginning teachers realized that despite the fact that the problem was the same for all the schools, the content of the problem varied:

Participants' first reaction to the group collaboration and work was strongly negative. Their comments indicated that the facilitator was expected to propose solutions, to direct them to concrete steps, and to give or approve teaching materials and curricular modules.

Reflection on the cycles of learning as well as content analysis of teachers' diaries revealed their implicit knowledge, which prevented the implementation of the "sound theories" that they possessed.

The diary entries and the group discussion showed that participants were initially externalizing their tacit knowledge, but gradually began to construct new knowledge. Elaborating on teachers' thought, one can reveal their implicit knowledge:

➡ Knowledge is a ready-made product in the "expert's" head.

- ➤ Knowledge must be transmitted and implemented in the same way in all the cases.
- ➤ There is only one correct definition of knowledge, which is well defined and unquestionable.

Participants' gradual change and growth in understanding was concentrated on two different concepts: knowledge generation, and the role of students and teachers with respect to curriculum.

<u>Students as consumers of knowledge Vs students as biographies</u>

Some extracts of teachers' diaries can be used as examples indicating their gradual conceptual change concerning contextualized teaching and low achievers.

<u>6th meeting</u>:

- ➤ During the group discussion I realized that problems acquire their specific context-characteristics with respect to each child's history.
- ➤ We know now that some of our actions can be tried out in other schools as well; but some are not appropriate beyond the context of our school.
- ➤ I was so anxious because I was not dealing with routine activities, but I had to communicate with specific children with such different personalities. I could no longer ignore their individual biography and problems.

Teachers were helped to conceptualize their actions through reflection, self-reflection and discourse as follows:
- ➤ Learning is built on children's biographies.
- ➤ Learning is not the transmission of curricular knowledge
- ➤ Students' development depends on teachers' professional development.
- ➤ Professional development includes reflection, action and conceptualization of decisions.
- ➤ Learning depends on school/ classroom/ group "ethos" (=the quality of relationship, the concern for equality of opportunity, the values illustrated in the way the schools work).

5. Discussion

Group discussion and teachers' writings were rich in insights about curriculum, teaching, and learning. Action Research processes highlighted the significance of reflection as a process of restructuring the acquired knowledge. Participants revised gradually the concept of the highly structured predefined curriculum and proceeded to view themselves as knowledge producers aiming at meeting the different needs of different students.

Enhancement of teachers' pedagogical autonomy was the main aim of this project. Teachers who view themselves as transmitters of curricular knowledge as well as their students as knowledge consumers depersonalize themselves and their students.

Theoretical knowledge is not enough for teachers' empowerment. Collaboration in action allows them test their routine activities and change their misunderstanding about "weak" students, teaching and learning, and the role of curriculum and teachers. The following extract of a teacher's diary confirm the above assumption:

"I don't believe that I was led away to a false judgement because of students' modest behavior and appearance ... I don't know ... I do not discriminate among children ... I am very sensitive to Pygmalion's theory".

What is still required is the enlargement of the participation of the teacher in the decision-making procedure and the re-examination of their role as the conveyor of the curricula. There is an extensive bibliography showing that teachers at the schools and the class are required to have substantial autonomy so that they can make the appropriate teaching decisions (i.e., Goodson, 1987, 1988a, 1988b). The role of teachers as curriculum developers helps them find their lost individuality and their pedagogical autonomy, which have been sacrificed to routine implementation of a given curriculum with strong framing. However, for this to be possible, it is necessary to meta-modernize teacher education, as well as the system of in-service training, support and evaluation of the teacher (Adams, 1976; Eggleston, 1980). In this respect, teachers will be able to view curriculum not in terms of content to be covered, but as a transformative process which support "the pedagogic good in a caring situation" (Aoki, 1992, 20).

The area of curriculum development in teachers' education programmes must not be considered as an area for technocrats with specialist technical knowledge on the processes of curriculum development but, rather, an area of decision making on topics which link effectively the curricula with educational policy as well as with teaching as pedagogy. It has been pointed out – for example by Lortie, Eaggleston, Ball – that the environment which currently prevails is not favourable to the exercise of the educational autonomy of the teacher in conditions of co-operation. "Situated certainty" is what Hargreaves (1995, 153) calls the collective professional confidence that teachers acquire in collaborative communities of teachers. In such communities teachers increase their capacity for reflection and reformulation of their decisions and practices. I remind what one teacher of our project said: *"It is easier to try new things if you know that you don't try them alone"*.

6. Conclusion

Meta-modern approaches on teaching and learning advocate emphasis on experiences of learning for both, teachers and students, and supports Van Manen's (1986) thesis that pedagogy is a child-watching process. A meta-modern paradigm of curriculum and teaching supports the view that quality and excellence in education is a function of teachers', students', and parents' collaborative invested energy.

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A growth model of teacher development for Hong Kong: from a curriculum perspective

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In search of a quality education

Hong Kong has been searching for a school curriculum over the past thirty years with characteristics resembling the views of contemporary Western thinkers in education. The introduction in 1972 of an "Activity Approach" (AA), which reflects a child-centered philosophy of teaching and learning, marked the formal beginning of this search by the Government. After ten years of struggling with its implementation in a modern city with a socio-cultural milieu that hardly accepts the concept of "play" as equivalent to "learning", it became obvious the new curriculum policy was only receiving lip service from its intended recipients – schools and teachers.

In 1982, a panel of educationalists from Germany and England, chaired by Lewellyn (Llewellyn et al, 1982), submitted a report to the Government reconfirming the value of a more child-centered approach to teaching and learning, and expressed criticism of the traditional forms of "didactic" teaching and "rote" learning. Both Western educational thought and the Government machinery of the day played an active role in offering to Hong Kong a "correct and suitable" form of education for its children.

The pressure of moving towards a Western style of education did not stop with these initial reforms. A reform proposal, Attainment Targets and Target Related Assessments (TTRA) was tabled in Education Commission Report Number 4 in 1990 and was renamed Target Oriented Curriculum (TOC) in 1994 (Clark, 1994). It is a curriculum with a strong pedagogical orientation couched in the most contemporary educational jargon. Unlike previous forms of innovation, which were relatively small scale and piecemeal, the plan of change this time was grandiose and fundamental. The aims of education, the selection of content, the delivery methods and assessment formats were all called into question. The educational practitioners

were invited to reconsider their educational approaches in line with a prescriptive set of clearly defined "targets" in each school subject. They were urged to adopt a "task based" form of teaching and learning. TOC had a strong resemblance to the objectives model of curriculum planning prevalent in the USA in the 60s and 70s, and was modeled on a competency-based curriculum popular in Australia in the 80s.

More recent reforms do not follow a TOC format or a competency orientation, but are more geared towards a school-based and teacher-led orientation. Structurally speaking, the movement towards school-based models of change started in 1998. At that time a Quality Education Fund was set up by the Government to inject billions of dollars of financial support into joint proposals and curriculum initiatives led by schools, teachers and in some cases university researchers across faculties. Information about the Government's school-based movement can be found in recent curriculum reform documents initiated by the Government (CDC, 2001).

The current reforms represent another image building approach (Marton, 2000). An image with flexibility, creativity, and continuity in curriculum decision-making processes is the priority of current policy makers. Though all these reforms have taken a different form or image, their underlying pedagogical theories share similarities to a great extent. This seems to have been the case for the last thirty years, i.e. an image of child, knowledge and schooling mirrored on Western concepts of free child development, an experiential approach to learning and individualism (謝振強, 1993; Education Commission No. 4, 1990; Clark et al, 1994; CDC, 2001).

Models of teacher development

All these curriculum reform initiatives seem to have impacted less than expected on actual teaching and learning in classrooms. At the heart of educational reform is the quality of classroom teaching and teachers. Recent complaints about falling standards of students' language competence led to criticisms and suspicion about the quality of teachers, and to the imposition of a language benchmarking policy by the Government for all language teachers. Underlying these criticisms and accusation of teachers' incompetence is the suspicion of the po-

litical intentions of the Government. It is the Government that has the ultimate authority in allowing teachers to teach in the classrooms and it is the Government through its various agencies such as University Grants Committee, that is in control of the level of training resources and their distribution (EMB, 1994).

Reflection on the education reform practices of the last 30 years reveals a significant gap between the image of an ideal teacher and that of most teachers in Hong Kong. The direction of reform has all been one way (imposed on teachers) and the initiatives have all been external to the school system. In other words, although some effort has been made in more recent years to address the conflict between imposed models of reform and those emerging from school-based practices, the fundamental issue of successful implementation of reform remains unresolved. This will continue to be the case until our reform objectives and plans are consistent with the strategies and efforts needed to secure appropriate support from teachers.

The reforms in Hong Kong for the last thirty years have been based on a model of teachers who are deficient in the execution of imposed idealistic models of teaching and learning. Teachers are simply viewed as inadequate and their needs have been decided from outside their profession through an inadequate understanding of educational reform. This model of teacher education is a deficient one, and therefore the strategies of teacher professional development include training and more training, resources and more resources, inputs and more inputs into the lives and minds of the teachers. This model of change and teacher development is a misleading one, though no one would bother to challenge the efficiency of having these resources albeit their impact on professional development of teachers, and is based on an inadequate model of teacher development (Connelly, 1980; Elliott, 1994; Shulman, 1985; Day, 1999). This model leads to professional dependency. I shall call this a Deficiency Model of Teacher Development. The following concentric diagram illustrates the nature of this model.

The problem with this model is inherent in its conceptualization of the reform issues which lies outside the teaching profession. Reform agenda seem distant to the immediate concerns and needs of school-teachers who have been overwhelmed with congested teaching

loads and student behavioral problems arising from the mixed ability groupings after the introduction of compulsory education in 1978.

*Figure 1. A Deficiency Model of Teacher Development.*
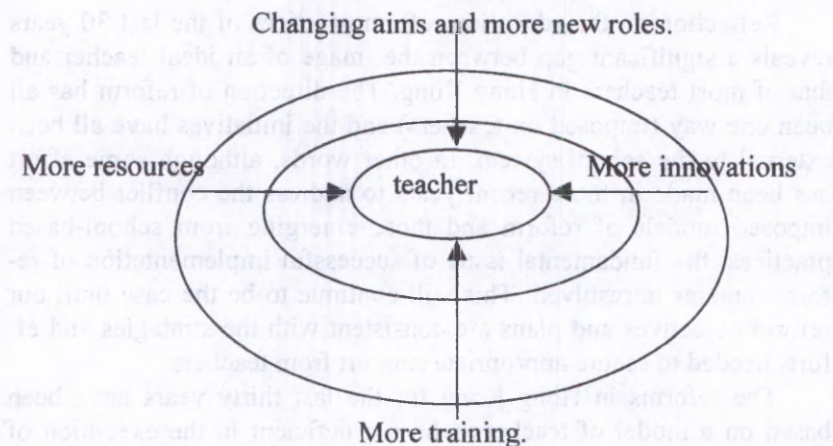
Another model of teacher development is proposed. This model is based on a humanistic view of human development. This model relies on the belief that people, given positive facilities and conditions, can think and develop themselves. This is inherent in human nature and human growth. This model of teacher development is compatible with a model of child development and curriculum based on progressive educational thought (Dewey, 1963). I shall call this a Growth Model of Teacher Development. This model leads to professional autonomy and extended professionality in Hoyle's terminology (Hoyle, 1983).

The following diagram (Figure 2) illustrates the relationship of teacher development with other variables and conditions in the professional development of teachers. The arrows pointing outward have special meanings, that the teachers are intrinsically motivated to look for development opportunities, and by engagement in these development activities that these teachers grow in professionalism and professional skills. With these skills and professionalism, these teachers

initiate changes and curricular adaptations to the traditional school curriculum.

Figure 2. A Growth Model of Teacher Development.

Changing aims

Fewer resources   teacher   More innovations

More training
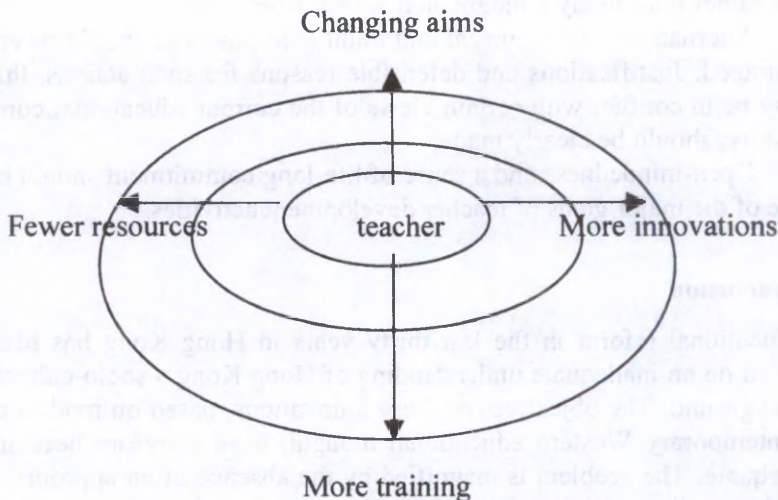
Implications for Field Experience

A growth model of teacher development is not only compatible with the underlying assumptions of the current curriculum reforms in enhancing schools' autonomy in making professional and curricular decisions but also with the nature of human development. The adoption of this model has fundamental and long-term implications for the conceptual understanding and practice of field experience.

Activities organized for in-service and pre-service education must be ones which encourage development of various types of higher order thinking consistent with human development and an inquiring attitude and mode of thinking;

Acquisition of practical skills should be based on a developmental and reflective model, rather than a technological model or pseudo scientific model of human nature;

Autonomy for making various curricular and pedagogical decisions should be enhanced in professional activities organized for teachers;

The role of practicum tutor must be one which facilitates professional growth and inculcates professional commitment among teachers, rather than solely a judgmental, supervisory one;

Alternatives to the current and traditional practices should be encouraged. Justifications and defensible reasons for such actions, that may be in conflict with certain views of the current educational community, should be clearly made;

Open-mindedness and a sense of life-long commitment should be one of the major goals of teacher development activities.

Conclusion

Educational reform in the last thirty years in Hong Kong has been based on an inadequate understanding of Hong Kong's socio-cultural background. The objectives of these innovations, based on models of contemporary Western educational thought, have therefore been inadequate. The problem is magnified by the absence of an appropriate understanding of the nature of human growth and the inherent capacity for people to learn. The current policy and practice of teacher development is a confusing one based on a deficiency model of thinking about teacher professional development. The practice relies heavily on outside experts who assume a superior role in terms of knowledge and practice about curriculum decisions appropriate for children. This model leads to professional dependency.

I argue that a growth model of teacher education based on an understanding of human development should be adopted. This model of teacher development leads to a form of professional practice which values teacher autonomy in making curricular decisions and this, in turn, enhances professional growth among teachers. Field experience activities organized for pre-service and in-service teachers, should be consistent with an enquiry model of developing reflective teachers with a life-long commitment to learning, and to the well being of children and the profession as a whole.

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Hilda Taba and the concept formation strategy

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Introduction

The purpose of this article is to point out that the modern teaching technique of concept formation as enunciated by Taba have an historical antecedent in the Herbartian steps of apperception. Originating in Germany, this idea was brought to the United States in the nineteenth century by certain American educators who studied Herbartian pedagogy at German universities. Prominent among these were two Brothers from Illinois, Charles and Frank McMurry.

Modern Concept Teaching

Since their beginnings in the educational literature of the late 1950's and1960's, the twin strategies of concept attainment and concept

formation have become widely accepted as the primary teaching strategies for the social studies. The basic design of concept teaching or inductive teaching, as it is sometimes referred to, is rather straightforward and simple to state. As enunciated by Hilda Taba, who is generally recognized as the originator of the concept formation strategy, the teaching method proceeds as follows: . . . *have students identify a number of concrete items they find in their experience . . . the students are then asked to group the items that belong together and to give suitable reasons for so doing, to then label their groups . . .(1971, p. 66)*.

The idea is for students to categorize data by grouping together the items with similar attributes. Throughout this process the mode of instruction takes the form of the teacher asking the students questions about the data and assisting them with the categorizing and labelling. Although concept teaching has become associated principally with social studies, this method obviously has wide applicability in all subject matter areas. Several social studies teacher training texts advocate the use of this teaching method. Bruce Joyce and Marsha Weil have been advocating the use of these dual approaches for a number of years and have devoted a chapter to each strategy in their *Models of Teaching* (1992). Joyce and Weil define each strategy carefully and credited Taba as the originator. Hanna, Potter, and Reynolds emphasized the importance of using these strategies and also credited Taba as the originator (1973). Banks and Clegg also utilize these strategies and refer to Taba as the source (1973). Hoffman and Ryan (1973) devoted a chapter to "Conceptual Teaching" and credit Taba as the pedagogical source.

In her first major work that discussed the use of "concept attainment" as a teaching method, Taba referred to the experimental work of Bruner, Goodnow, and Austin on concept attainment (1962). Joyce and Weil (1992) also refer to the work of Bruner and his associates. Bruner, Goodnow, and Austin (1956) refer to an early study by Fisher (1916). Fisher, in an historical sketch at the beginning of her monograph, refers directly to Herbart's, *Lehrbuch zur Psychologie*, Second Edition, 1834.

According to these theories ". . . abstraction consists in the mutual inhibiting of those part-contents which vary, together with the fusing and strengthening of those which recur" (Fisher, 1916, 2).

This appears to be the only direct historical link in the literature between the modern advocates of concept teaching in the school and Herbartian educational theory. None of the publications of Taba refer directly to any early Herbartian literature on concept teaching theory.

Apperception and Concept Teaching

The idea of concept teaching is not a recent one. Smoke observed that, "The recognition of the problem of concept formation goes back at least as far as Plato" (1932, 42). While Smoke's observation is undoubtedly accurate, it is also true that the problem of concept formation as a teaching technique goes back as far as the Herbartians and beyond.

Johann Friedrich Herbart devised the concept of apperception in the early nineteenth century. Generally, the apperception concept maintains that new presentations must be attached to similar presentational masses already in mind in order to stay above the threshold of consciousness (Dunkel, 1969). This sounds like the usual reasoning supporting the curriculum of leading the child from the known to the unknown, a truism going back at least three-hundred years to Comenius. "Teaching means leading from the known to the unknown, . . . " (quoted in Gundem, 1992, 49).

Herbart's vaguely defined steps in apperception were: (1) clarity, (2) association, (3) system, (4) method. Herbart sometimes used different names to refer to the steps (Dunkel, 1969. [Dunkel refers to Kerbach and Flugel, *Samtliche Werke in Chronologischer Reihenfolge*, 1877]). Tuiskon Ziller, a second generation disciple of Herbart's, utilized the concept of apperception although he revised it considerably by substituting analysis and synthesis for clarity.

Wilhelm Rein, a third generation disciple of Herbart's and a student of Ziller's, made a final revision of the steps.
(1) Preparation – Pupil recalls material.
(2) Presentation – Teacher introduces new material.

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(3) Association – Teacher and pupils combine old and new material.

(4) Generalization.

(5) Application – Pupil fits new material into general concept (Dunkel, 1970).

This final version of the steps in apperception bear scant resemblance to those of Herbart.

Apperception was introduced into the United States primarily through the work of one man, Charles A. McMurry, who studied Herbartian pedagogy at Friedrich Schiller University in Jena, Germany with Rein in 1887–88 (LeRiche, 1976). In 1892, while teaching at Illinois State Normal School (now University), he published the first edition of his, *The Elements of General Method Based on the Principles of Herbart*. Eight editions of this book appeared in nine years and the 1903 revised edition lasted until 1922 with total sales exceeding 115,000 copies (Dunkel, 1970). All editions contained a chapter titled, "Induction or The Concept Bearing Process". In this chapter McMurry described the concept learning process in detail and recommended its use as a teaching technique in the school (McMurry, 1892).

In another chapter titled "Apperception", McMurry linked the inductive process to apperception, one of the three identifying characteristics of Herbartian pedagogy along with concentration and culture epochs. In the final chapter titled "The Formal Steps" (of apperception), McMurry stated his version of the five steps. They differ only slightly from those of Rein.

(1) Preparation.

(2) Presentation.

(3) Association and Comparison.

(4) Generalization.

(5) Practical Application (1892).

McMurry then tied the third step directly to concept teaching. "The third step proceeds from the illustrations to the general notions (concept, rule, law). It is the course of induction" (1892, 189).

Charles McMurry's other major teacher training text, *The Method of the Recitation* (1897), co-authored by his brother, Frank,

was a detailed explanation of concept teaching or induction. Two editions were published in fifteen printings with the new edition alone selling more than 23,000 copies (Dunkel, 1970).

Charles McMurry continued to recommend the use of concept teaching throughout his professional career. In 1914 he published, Handbook of Practice for Teachers, in which he again suggested that the use of concept teaching or induction was the best teaching method.

The basis for . . . organization is a close logical series of main points for the whole topic, around which the necessary facts and ideas are grouped (1914, 42).

It is a process of evolving the new subject matter, by means of questions based upon previous knowledge and experience . . . in which the children are led to infer many facts and conclusions (1914, 43).

As soon as the important facts bearing on a subtopic have been gained . . . apt questions, to bring out the significance and grouping of these facts . . . are in place (1914, 46).

The inductive-deductive thought movement is basal for the intellectual processes that give mastery to knowledge (1914, 72).

The proper class discussion of such topics involves, first, the determination of the main heads in proper sequence; second, the grouping of details, facts, and descriptions around these heads; third, the reflective study of causal and logical relations; fourth, comparison on the basis of likenesses and differences (1914, 126).

The above quoted passages describe the concept teaching process in some detail. It can readily be seen that McMurry's version of concept teaching was highly similar to the modern version by Taba in that it also was based on the grouping of information based on similarities and differences to form concepts. A question that now arises is whether or not McMurry's concept teaching idea was advocated by other educators and, if so, what became of this idea in educational theory?

In 1905 Professor William C. Bagley of Columbia Teachers College published a teacher training text that was largely Herbartian in orientation with three chapters on apperception, one titled, "The Inductive Development Lesson". In this chapter, Bagley described

the concept teaching process in detail and referred to the McMurry's, *Method of the Recitation* four times in addition to other Herbartian references. In *How We Think*, John Dewey gave considerable attention to induction, describing the inductive process and maintaining that it was the basis of scientific method (1910). In his *A Brief Course in the Teaching Process*, Professor George D. Strayer, also of Columbia Teachers College, included a chapter titled, "The Inductive Lesson", that described inductive or concept teaching thoroughly (1911). He also referred to the McMurrys', *Method of the Recitation*, and to Dewey's, *How We Think*, as well. In 1915 Lida B. Earhart in her, *Types of Teaching*, a book dedicated to Professor and Mrs. Frank M. McMurry, also had a chapter called, "The Inductive Lesson". She indicated that the five formal steps of the apperception process were the steps of inductive lessons. She also acknowledged the "Herbartian school of educators" as the founders of the steps. Several years later, in 1929, Professor Lois C. Mossman, Columbia Teachers College, in her, *Principles of Teaching and Learning in the Elementary School*, advocated the use of induction as a teaching method and briefly described it. Mossman's doctoral dissertation had dealt with the Herbartian movement to a large extent and was chaired by Frank M. McMurry at Teachers College, Columbia University in 1924.

The question that next arises regards what happened to concept teaching or induction as a teaching method for the school after 1929, the year that Charles McMurry died. It disappeared from teacher training texts in the 1930's and was scarcely mentioned again until Taba began to recommend its use in the 1950's and 1960's. In 1934 Thomas Woody provided a reasonable explanation for the decline of concept teaching in the 1930's.

As Dewey's and Thorndike's psychology supplanted the Herbartian conception of the mind, so teaching by problems or projects has tended to supplant the five formal steps by which Herbartians were once wont to impart information (1934, 41).

It is perhaps safe to say that concept teaching fell into disfavor for a number of years. Only two social studies teacher training texts published between 1929 and 1960 were found by this writer that discussed concept teaching. Edgar Wesley dealt with concept teaching rather extensively in his 1946 text and Jarolimek also devoted consid-

erable space to concept teaching in 1959. Jarolimek has continued to endorse concept teaching in the several subsequent editions of his book.

Taba: An alternative route to concept teaching?

Hilda Taba was a doctoral student at Teachers College, Columbia University from 1927–1929 (Cattell and Ross, 1948). During this time she was probably subjected to two major educational influences. The Progressive movement had already been on the rise for ten years at Teachers College when Taba arrived there. The title of her dissertation, completed in 1932, – The Dynamics of Education: A Methodology of Progressive Educational Thought, indicates that the child centered influence was the stronger.

In the published edition of her dissertation, Taba acknowledged the influence of Kilpatrick, Dewey, Bode, Counts, Kandel, and Schneider, all of whom were considered to be progressivists. Nevertheless, Herbartianism was still present at Teachers College during Taba's tenure there even though Frank McMurry, one of the three original American Herbartians and Charles McMurry's brother, had retired in 1926, one year before Taba entered graduate school (Cattell, 1932). Bagley, Strayer, and Mossman, three Herbartian educators who strongly endorsed inductive teaching (see above) were faculty members at Teachers College during Taba's graduate studies there (Columbia University Teachers College Bulletin, 1927–1929). In fact, Mossman's book was published during Taba's final year of graduate studies indicating that it was written during Taba's tenure there and that interest in Herbartianism was still high during that time. Mossman and Bagley were the more likely Herbartian influences, teaching general required courses such as "Principles of Teaching" (Mossman) and "Techniques of Teaching" (Bagley), while Strayer taught "Educational Administration". Taba briefly defined concept development in her dissertation even though the major thrust of her thesis was progressivist in nature (Taba, 1932).

Conclusion

It is clear that concept teaching or induction as a teaching method was a well developed teaching strategy from approximately 1892 to 1929 as indicated by the teacher training texts of this period (see above). Its decline in the 1930's was probably due to the rise of the project method of the progressive movement. It should be remembered that concept teaching did not disappear entirely from the teacher training texts of the 1940's and 1950's, being endorsed by Wesley and Jarolimek, two well known social studies educators of that period.

If Taba knew of the earlier literature on concept teaching when she began to develop her version of it in the 1960's, she did not refer directly to the Herbartian literature. There is a possibility that she deliberately avoided any reference to the hopelessly discredited, anachronous Herbartians in order to facilitate acceptance of her "concept formation" idea. In either case, it is perhaps safe to say that there was at least an indirect Herbartian influence on Taba during her graduate studies at Columbia Teachers College in reference to concept teaching. This is suggested by the presence of certain Herbartian oriented faculty at Columbia Teachers College from 1927 to 1929 and by Taba's brief reference to the concept teaching process in her doctoral dissertation.

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Transnational influences on curricular development: the case of Canadian elementary school science

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1. Introduction

This paper examines both the global and local influences in the construction of the school subject of science, focussing on the case of Canada since the 1950s. Using a neo-institutionalist theoretical framework, I argue that legitimate science curricula must be both global and local, and these pressures are manifested in curricular materials such as school textbooks. I first give a brief overview of neo-institutional theory, specifically as it applies to science as a global cultural frame. I follow this with a discussion of the role of international organizations and international testing regimes to promote global standards and expectations about elementary school science. I then describe ways in which science has been constructed to reflect

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local culture. For the purpose of this paper, local is taken to mean "national" as opposed to global or transnational influence.

Building on this general discussion, I will present an empirical analysis of how these processes play out (or fail to play out) in a historical sample of textbooks published in Canada for use in Canadian schools since the 1950s. How is school science presented as both modern (in line with global norms) but also, somehow, Canadian? How does this change over time? The historical patterns seen in the development of Canadian school science may be instructive to other countries that are relatively small in population and/or those that have historically experienced cultural domination.

2. Theoretical Background

Neo-institutionalism is a distinctive perspective on globalization, drawing attention to the formation of a world society and culture, which transcends nation-states (Meyer, et al., 1997; Thomas, et al., 1987). From this viewpoint, globalization is the rise and structuration of a world society with a shared culture – i.e., shared cognitive frames and understandings built through entrenchment in institutions. Boli and Thomas (1997) suggest that the culture pervading this "world polity," evolved out of the West and reflects dominant Western values such as rationalism, universalism, and individualism. Nations often adopt particular policies or models of governance supported by the world polity. This results in great worldwide similarity (isomorphism) of policies and behaviours despite the widely varying local circumstances that nations face.

Activities that are closely related to nation-statehood are most susceptible to the impact of this emerging global culture. For this reason, researchers in this theoretical tradition sought to apply it to the development of mass education, one of the central activities of modern nation-states. Educational policy, organizational structure, curricula, and even the physical infrastructure of schools are similar throughout the world, even though national economies (and thus functional labour force requirements) vary from subsistence agriculture to post-industrial societies (Meyer, et al., 1992; McEneaney, 1998; Rauner, 1998; Bradley and Ramirez, 1996). In short, the neo-institutional perspective predicts a long-term global homogenization

of core state activities such as mass education, as nation-states adopt approaches that for the most part resonate with world cultural principles. In contrast, economic globalization perspectives emphasize the divergent consequences of the variable material circumstances of countries around the world. I do not deny that economic globalization impacts the provision of mass education *in practice*, but I wish to draw attention to the potential for a homogenizing transnational influence shaping schooling in its *idealized form*, such as portrayed in curricular statements and textbooks.

How does the existence of a global culture relate to science and science education? According to Boli and Thomas (1997) one central element in the emerging world culture is rationalism. Modern societies are characterized by a high degree of both structural and cultural rationalization. The emergence of an expanded science is a major component of the more general process of cultural rationalization of society (Frank, Meyer, and Miyahara, 1995). Science, as a set of abstract principles, becomes one of the major conceptual yardsticks of progress. Drori (1997) describes the process as the "scientization of society," suggesting that its cultural potency comes primarily from a rationalist image of science as contributing to national development (particularly economic development) through the building of a skilful and more efficient labour force. In countries everywhere (with the possible exception of the fundamentalist Islamic world), science is seen as the most legitimate source of solutions for social and economic problems. Thus, science constitutes a powerful cultural framework that strongly influences political, social, and economic, as well as educational structures. As science becomes an all-encompassing *Weltanshauung*, we would expect changes in all aspects of the curriculum: general curricular frameworks, instruction, and materials, particularly in the areas of science and mathematics.

Neo-institutional theorists have greatly stressed the role of international associations in constituting and consolidating world culture. As Boli and Thomas (1997) have suggested, norms regarding legitimate policies and practices are communicated through these organizational ties to the world polity. Much empirical research has demonstrated that extensive organizational linkages catalyze social change. The typical argument is that all kinds of international organizations carry and perpetuate global norms such as rationalism, indi-

vidualism, and universalism. That is, it is not membership in any particular organization or programme that generates the isomorphism. Instead, it is a nation-state's broad and ongoing participation in international governmental and non-governmental organizations that plays a role in "inscribing rules of reason" (Popkewitz, 2000) about legitimate approaches to state activity.

3. The Case of Canada

With this theoretical backdrop in place, Canada is an interesting case to consider for several reasons. On the one hand, with a per capita gross national income of US$ 21, 130 (World Bank, 2001) it has enough material wealth to employ professionals to develop curricular standards thought to be roughly appropriate to the needs of the populations in each of its provinces and territories. It has enough material wealth to make teachers aware that these standards exist and to monitor curricular materials such as textbooks to ensure that they meet the standards. In short, Canada is wealthy enough to create its "own" school science.

On the other hand, Canada has a long-standing and broadly complex relationship to the rest of the world. As a former British colony and a continuing member of the British commonwealth, it shares elements of an educational tradition with many other countries[1]. Since confederation in 1867, however, the development of Canada's identity as an independent nation-state has struggled with the cultural, political and economic domination of the U.S., as that country began its rise to global prominence. Finally, Canada's place in the international community more recently has also been characterized by active and consistent participation in a full array of international organizations and conferences.

Canada is well connected to the web of international organizations that help create and support the world polity. In 1992, for example, Canada belonged to 1,920 international nongovernmental organizations. On a per capita basis, Canada's number of organizational memberships clearly outranks that of many European countries and

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[1] The British tradition is of course weaker in Quebec, which was a French colony for centuries prior to British rule.

the United States and Japan, which belonged to 2127 and 1749 international non-governmental organizations respectively (Union of International Associations, 1993). More specific to mathematics and science education, Canada has participated extensively in studies sponsored by the International Association for the Evaluation of Educational Achievement (IEA) and the Organization for Economic Cooperation and Development (OECD). Although Canada sat out the first, limited set of studies sponsored by IEA in the 1960s, it has participated in the Second International Mathematics Study (1982), the Second International Science Study (1984), the Third International Mathematics and Science Study (TIMSS) (1994–95) and the 1998 TIMSS Repeat (TIMSS-R) study. Canada has a long-term commitment to the OECD's Programme for International Student Assessment (PISA) which is an on-going data collection and analysis effort focused on math, science, and reading literacy.

4. Canadian school science: The global and the local

If world polity theory is correct, all of these kinds of international linkages should lead Canada toward adopting a school science that reflects global culture. At the same time, we should also see signs of a distinctly Canadian school science. To investigate these different influences, I have systematically coded 25 science textbooks, published in Canada between 1950 and the present. All of the sample textbooks were intended for students in grades 4–7. I developed a textbook coding form with open and closed-ended questions, and analyzed data using a constant comparative approach (Strauss and Corbin, 1990).

How are science textbooks recognizably Canadian in nature? There are four major forms in which textbook content reveals itself as distinctively Canadian: specific references to local features, multiculturalism, portrayals of Canada as part of North America, and portrayals of Canada as part of the international community. Throughout the time period covered in this study, textbooks can demonstrate their Canadian identity, as one might expect, through specific references to local flora, fauna, and geography. Other books highlight Canadian research capacity or the residence and educational backgrounds of ordinary Canadian scientists. A text by Longfield, Wells, and Richter shows the influence of the local by picturing a boy wearing a Toronto

Blue Jays baseball cap and a former member of the Canadian Olympic team driving a zamboni in a hockey rink (1986, 9 and 145). Other texts refer to the range of minerals mined in Canada (Gough and Flanagan, 1980, 220–233) and its universal health care system (Asseltine and Peturson, 1999, 121).

More recent textbooks emphasize multiculturalism. This is a core element in the contemporary conceptualization of the Canadian identity. Canadians often contend that their society is a cultural "mosaic," often in contrast to the historical notion of U.S. society as a cultural "melting pot." As a concrete manifestation of this multiculturalism, Canadian science textbooks published in the 1980s and 1990s universally picture people of apparently different races and ethnicities. Although this is a worldwide trend (McEneaney, 1998), Canadian texts portray a more broadly diverse range of people at earlier time points than most other countries. The book by Flanagan, Teliatnik, and Christopher (1983) is a relatively early example of a text that clearly highlights diverse representations of race and ethnicity. In the 1990s, textbooks begin to incorporate elements of aboriginal culture. Asseltine and Peturson's textbook is equitable in terms of gender representations, and includes portrayals of blacks, East and South Asians, as well as aboriginal people. After describing a scientist's interpretation of how a large boulder came to rest near Calgary, the text offers an alternative explanation: "According to Aboriginal people of the Blackfoot Nation, a mighty warrior named Napi chased the big rock to its present location (1999, 223)."

Canadian science textbooks also tend to manifest local character through portrayals of Canada as part of North America. In practice, this means depictions of the shared impact in Canada and the U.S. of both natural phenomena and scientific research. In contrast, none of the 24 U.S. textbooks examined as part of an earlier study made reference in this way to Canada (McEneaney, 1998). Some of these portrayals of Canada included descriptions of the impact of weather and sharing weather data (Gough and Flanagan, 1980, 347–348; Ingram, Herridge and Moore, 1993, 40–41; Asseltine and Peturson, 1999, 214). In much Canadian political discourse, descriptions of the bilateral relationship are tempered by the reality of U.S. dominance. The analogy of a mouse sleeping with an elephant is often invoked in the Canadian popular media to describe the country's tenuous position.

This is reflected in one book's sanguine description of acid rain: "Sometimes pollution that causes acid rain gets into the air in one place. The movement of air and weather carries the pollutants to other places. Acid rain can then form in these other places.... In North America most of the acid rain occurs in the large industrial cities or downwind from those cities. Some scientists think that the rain in those places may have 40 times more acid than normal (Beugger and Yore, 1990, 81)." Despite quite clear scientific evidence that acid rain originates in the U.S. and drifts northward, this textbook exemplifies a Canadian identity as it avoids placing blame on its neighbour to the south.

Finally, recent science texts increasingly highlight Canada and Canadian science as part of an international community. The earliest traces of this trend are seen in the late 1970s as textbooks adopt the metric system. More recent texts manifest this internationalism more directly in terms of content. Ingram et al.'s text describes how the International Air Transport Association's Live Animals Board developed guidelines so that animals might be transported safely to zoos around the world (1993, 65). Another text raises the issue of adaptation to environment with the following activity: "In a small group, choose a country that you think is very different than Canada. Imagine that you and your family moved there. What parts of life might be easier? More difficult? Why? (Asseltine and Peturson, 1999, 55)." Not only does this activity enhance awareness of life in other countries, it is also premised on a common notion about what life in Canada is like. Although one finds these kind of international references in some European textbooks, they remain rare in U.S. textbooks.

Hence, there are some common, identifiable devices in which Canadian school science textbooks reveal their local identity. But what about transnational influences? In what ways do Canadian science textbooks resonate with world culture? As I noted above, the core value of rationalism is manifested directly in the heightened emphasis on science education over time. More specifically in textbooks, the other core values of individualism and universalism are evident, as clearly in Canadian textbooks as in texts from other countries.

The primacy of the individual is shown historically, even since the 1950s, in dramatically more depictions of individual people doing science. Bruce and Carter (1953) picture people only a few times,

focusing instead on the natural phenomena or scientific equipment themselves. Another relatively early text in the sample downplays individuals in science by depicting only adult hands and fingers examining objects and holding tools (Gough and Flanagan, 1980). In contrast, in more recent texts, people (especially children) are pictured nearly every page or two (Longfield, et al., 1986; Beugger and Yore, 1990). This trend is clearly in keeping with broader global trends in school science (McEneaney, 1998). The individualism heralded in world culture is also embodied in the insistence on hands-on activities. A recent book invites broad participation from each student with frequent "Let's Experiment," Let's Observe," "Let's Investigate" features. Historically too there has been a shift away from the importance of science in a collective sense toward an emphasis on personal utility. While Bruce and Carter's 1953 text emphasized collective government efforts to improve research, a later book answers "What is science?" with the claim "Science is – for you)" (Longfield, et al., 1986, 6).

Individualism is embodied in the newest textbooks on another level. In textbooks around the world, and in Canada in particular, recent textbooks are much more likely to pitch material based on emotions. This contrasts with earlier constructions, which centred on the cognitive appeal of science. Writers of more recent textbooks invoke emotions that are motivating from a child-centred point of view. The cover of Ingram et al. is a vivid colour picture of a small marsupial climbing a tree at night. Looking directly into the camera, the animal's eyes are bulging, pupils huge. Vaguely human in its facial features, it seems to exude wonderment and surprise, but it's also mildly disgusting. The book plays on that tension: egg whites are described as "amazing," and students are invited to "get the lowdown on ooze)" (1993, 6–7). Asseltine and Peturson (1999, 228–232) devote an entire concluding chapter to this kind of emotion work. "Celebrating Science" has a section "Science on Parade" that outlines a small group activity in which students build parade floats to "celebrate [their] learning" in science. Other Canadian books convey the intended emotional message more subtly. The pictures of people that fill the pages of the textbooks depict adults and children who, by and large, are smiling and having fun. This contrasts with earlier textbooks, such as Bruce and Carter (1953), in focus and deep concentration are

depicted – science as serious business. This trend toward linking school science to emotional content is therefore evident specifically in Canadian textbooks from the last decade or so, which is consistent with the global trend I have documented elsewhere (McEneaney, 2003).

Finally, the global cultural element of universalism plays out quite dramatically in science texts with a reconfiguration of the concept of expertise. This development is global in scope (McEneaney, 2003), but Canadian texts in particular seem to follow the trend closely. Children and ordinary adults become experts, with much less emphasis on portraits of the "greats" such as Newton and Galileo. Children's lives become suitable objects of study. In Winkler, Bernstein, Schachter and Wolfe (1980, 55) students are asked to make a table of "Foods I Ate Today" as a starting point for analysis. Another book pictures a group of ordinary adults (a housepainter, a veterinarian, a baker, a pilot, etc.) in a feature called "Scientists in Action" with the explanation: "All of them have to know about science. They use science everyday in the work they do. (Asseltine and Peturson, 1999, 11)." Earlier texts remove science from an everyday world, with science depicted as occurring in specialized areas such as labs and using specialized language (e.g., Bruce and Carter, 1953; Gough and Flanagan, 1980). Later texts are more likely to extend the range of places in which scientists work, and to de-emphasize scientific terms. Bernstein, et al.'s (1980) text is an early example, with a regular activity feature entitled "Do This at Home." Bruegger and Yore (1990) employ noticeably everyday materials and equipment (e.g., wheelbarrows, water slides, plastic buckets) to demonstrate science concepts.

5. Conclusion

Educational researchers and policy makers these days read and publish internationally, subject education systems to international measurement and scrutiny, and criss-cross the world traveling to conferences. We imagine however that mass education in our individual countries remains solely under the sway of local influences. I have argued here that in Canadian elementary science, one can find both local and global influences. Even in science, a subject area that would

seem to rise above national or subnational cultures, a completely abstracted body of knowledge, one that is timeless and placeless, is not viable. Science textbooks published in Canada are discernibly Canadian in a variety of ways.

This localism is matched with equal force by the impact of globalization on the construction of school science. Canadian textbooks embody some trends that are seen in textbooks from a wide variety of countries. Fundamentally, science moves from a set of abstract principles to something that ordinary people can understand and do. It is no longer reserved solely for a high priesthood of university-trained practitioners. The classical questions are replaced in centrality by a kid's everyday questions about their own lives: how bicycles work, whether it will rain tomorrow, why spread salt on an icy road. This global change in the way in which we conceptualize science sweeps through Canadian materials as surely as it does those from many other countries. Thus, we find both clearly local as well as transnational influences on the construction of school science, not only in the broadly abstract curricular outlines, but also in the densely detailed portrayals of school science contained in elementary level textbooks.

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Importance of various teaching styles for designing transformation school paradigm

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Abstract

This paper is part of an evaluation study. The objective of the research is to find out to what extent the Slovene nine-year primary schools implement transformational model by using the new teaching style as well as how they try to implement global learning and holistic thinking as opposed to the thinking based on memorising facts.

In addition to the didactic innovations, this year we introduced a researcher to the last three years of the nine-year and of the eight-year schools so that he/she is present in the class. The evaluation was made by observing the progress of classes in the chosen subjects, distributing questionnaires for teachers and having interviews with them. A small number of classes in the eighth-year school served as a control group while those in the nine-year school were the experimental group. In planning the evaluation study on didactic improve-

ments of the advanced classes in primary school, the following hypotheses were set:

➡ by using all four teaching styles (of a waiter, constructor, alpine guide, gardener), teachers find it easier to consider the interests of pupils than by using only first two styles;

➡ the more teachers think independently, critically and creatively in teaching their subject, the more they encourage pupils to do the same;

➡ the more a teacher includes pupils in all class-work activities, the more they help pupils to develop their own learning and thinking styles.

These three hypotheses have been confirmed.

1. Premise of the concept, hypotheses, objectives and application of the research instrument

This paper is part of the evaluation study: *The importance of implementing new learning, thinking and teaching styles to ease the mind of pupils in the nine-year primary school*) of the Ministry of Education, Science and Sport of the Republic of Slovenia (2000–2002)). It is also an interpretation of observations made in class at one of the subjects of social sciences (history or geography), science (mathematics) and language (the Slovene or the English language) at three eight-year and three nine-year primary schools. The association of four teaching styles of teachers, three thinking styles and four learning styles of pupils were followed empirically in terms of transformation of school model/paradigm from transmissive to transformational[2]. This shift is regarded by the critics of the recent curricular reform (the result of which is the nine-year primary school) as a basic problem whereas its founding fathers do not see it as a basic objective of school development.

Under transmissive paradigm pupils mainly passively adapt their method or style of learning to the teacher's role of a knowledge transmitter (Drucker, 2000) – a style of a waiter – whereas in the transformational model, teachers interactively adapt their different teaching styles to the prevalent learning and thinking styles of pupils. A similar shift can be observed in teachers' lifelong education where

methods and styles of work of teacher educators are brought into line with the prevalent learning and thinking styles of teachers.

In planning the evaluation study on didactic improvements of the advanced classes in primary school, the following hypotheses were set:

- by using all four teaching styles (of a waiter, constructor, alpine guide, gardener), teachers find it easier to consider the interests of pupils than by using only first two styles;
- the more teachers think independently, critically and creatively in teaching their subject, the more they encourage pupils to do the same;
- the more a teacher includes pupils in all class-work activities, the more they help pupils to develop their own learning and thinking styles.

These hypotheses were acquired through analysis of the existent educational practise before the curricular reform; however, they are valid even when it has already been implemented. The development of pluralism of educational interests has been tested by distribution of learning styles – classified by Kolb (Marentič-Požarnik, 1995, 77–107) as accommodative, divergent, convergent, assimilative. The questionnaire for pupils – applied in this year's evaluation study – is taken from the adaptation of Kolb's questionnaire on learning styles (Marentič-Požarnik, 1995, 77–101, 103–107). Kolb regards learning as a process whereby knowledge is created through transformation of experience. The criteria to evaluate styles are experience – abstraction, observation – reflection and active testing. Jarvis criticised Kolb's model of experience learning as it cannot be maintained for the mathematical truths. Therefore, we have taken into account other classifications of learning, especially in the interviews with the pupils.

Thinking styles are classified by Rancourt (Marentič-Požarnik, Peklaj, 1995, 109–132) as empirical, rational and noetic. The first one is based on logical inference and argumentation, the second on observation and collection of information and third on the subjective insights. Empirical thinking cannot be regarded as critical as it is not differentiated. Instead it involves, similarly to the basic learning, only

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memorising; it can become critical at the rational –differentiating and intuitive-associative or synthetic levels.

The following teaching styles can be differentiated:
➡ teaching as a process of transmission (transfer) of knowledge in a form adapted to the pupil;
➡ teaching as a process of forming pupils' capabilities and skills;
➡ teaching as a journey or guiding a pupil on the way to his/her goals: the teacher offers the pupil a possibility to be independent and helps him/her to stay on the track;
➡ teaching as an encouragement of the pupil's development by giving the pupil various sources, experiences and incentives (Fox, 1983, quoted in Marentič-Požarnik, 1998, 256).

For those four teaching styles metaphors[4] are used of a teacher as (1) a waiter or a delivery van (2) a constructor or a sculptor (3) an alpine guide and (4) a gardener. On the basis of observations of teaching in three eight-year and three nine-year primary schools, it can be said that the first two types, i. e. (1) a waiter or a delivery van (2) a constructor or a sculptor, prevail over the latter two (an alpine guide and a gardener).

The prevailing first two styles at school indicate the transmissive school paradigm whereas the latter two indicate the transformational one. But only the latter two – i. e. alpine guide and gardener – take into account the pupil's interests. The teacher can choose to teach by using different styles but one of them is his/her favourite. Until recently, teacher's teaching style was guided by the methods used at the faculty and by the transmissive school paradigm to the choice of the styles of „a waiter" or „delivery van". These two make them see as an expert but do not enable them to fully express the educator and human being in them.

The first two teaching styles (as a waiter and a constructor) pertain to the transmissive school model while the last two (as an alpine guide and a gardener) pertain to the evolving transformation model. It is clear that the last two styles are more difficult to put into practice in primary schools because some conditions have to be fulfilled – e. g. competent teachers who are not just experts but also educators, appropriate teaching material (more textbooks, workbooks, modern

teaching technology), level teaching, adaptation to various learning, thinking and teaching styles, expectations of parents and of school management.

2. The relationship between transmissive and transformational school paradigm in the development of the Slovene primary school

Before evaluating the level of the transformational development of the Slovene primary school, let us first give an overview of the differences between the transmissive and the transformational school paradigm.

Table 1. Differences between the transmissive and transformational school paradigm.

Transmissive school paradigm.	Transformational school paradigm.
School with small level of autonomy.	School with developed autonomy.
Effect-oriented school as a burden for pupils.	Relaxed school fulfilling the educational needs of everyone.
Rigid organisation of the school work.	Flexible organisation of the school work.
Poorly developed democratic school culture.	Well developed democratic school culture.
Priority of teaching over learning.	Priority of learning over teaching.
Prevalence of ex-cathedra teaching.	Prevalence of group and individual work.
Prevalence of teacher's explanation.	Prevalence of interactive communication and dialogue.
Prevalence of non-reflective learning.	Personally significant transformative learning.
Average pupil.	Pupil as an individual.
Prevalence of content knowledge.	Various forms of knowledge.

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Irrelevance of quality and effi-ciency of education.	Permanent development of quality and efficiency of educa-tion.
Teacher as an expert.	Complex professionalism of a teacher.
Teacher as a transmitter of knowledge.	Teacher using all 4 teaching styles.
Individualism of teachers.	Cooperation of teachers, pro-moting team teaching.
Empirical and rational thinking.	Flexible thinking (including em-pirical, rational and noetic style).
Teaching of learning contents.	Teaching how to learn.
Partial teachers' education.	Integrative education of teachers (workshops).
Traditional values of education.	Postmodern values of education.

The attempts have been made here to highlight the changes of school in accordance to the transformational model. The curricular reform brought about goal-oriented curriculum, attempts to ease the load of learning contents and underlined significance of developing inde-pendent and critical thinking of pupils. In 1999 the implementation of the nine-year school started with a view to easing the load of auto-matic learning and memorizing facts. The expression "transforma-tional model" has been put forward, in Slovenia, by some experts (Marentič-Požarnik, 1998; Novak, 2000; Bečaj, 2001). Erčulj (2001) advocates higher quality of education by promoting networking of schools.

Not long ago there was some criticism in Slovenia with regard to its school system remaining to be too selective which leads to the hectic competitiveness. The pupils have too much to learn, but they do not know how to do it efficiently. Therefore, they concentrate too much on memorising. As a result the pupils suffer from promotional neurosis too early and do not perform well in the functional literacy in comparison with other European countries. As a reason for the poorer performance, I have emphasised the transmissive school model which is too rigid (Novak, 2000).

Every institution including primary schools should consider a man as a rational and an emotional being. Primary school transmissive model can be illustrated by the fact that the (primary) school puts too much stress on the intellectual side. Consequently, it inspires negative emotions in pupils, especially in pupils with low self-esteem intelligence and in those coming from anti-intellectual environment.

3. Interdependence between teaching, learning and thinking

The transmissive model of mass school is gradually becoming obsolete as many methods/styles of carrying out school tasks are gaining grounds. Nevertheless, today teachers in classes of up to 20 pupils do not have time nor perhaps capacity to determine the abilities of individual pupils. All pupils have to do the same exercises in the same time. In observing the process of teaching, we have found out that despite different teaching areas the principle used is the same: one selected teaching style determines one learning style which, in short, could be called reproductive.

The mass public compulsory primary school has not yet been sufficiently oriented toward developing pupil's personality; therefore, it does not teach how to learn. As problem-solving was virtually unknown, memorised facts as a result of mechanic learning prevailed. Thus a pupil does not know nor does he/she select the special learning strategies. On the other hand, the pluralistic teaching, learning and thinking styles are only one of the conditions for the transformational school model and thus for a shift from the school with objective being knowledge as a result of learning, to the school oriented to the process of learning and communication. Teacher's chosen purpose and the selected didactical means enable relations perceived in the actual process of teaching through the chosen communication strategy.

Be it in social sciences, language or science subjects, pupils think critically and learn creatively when they look for the rules, definitions themselves, when they recognise general patterns in special cases either in a group or individually. In the ex cathedra teaching with the waiter style, the correct thinking is prevalent whereby a question, usually asked by the teacher, can have only one correct answer of the pupils. The ex cathedra style does not develop the variety of teaching

and thinking styles and is present to a greater degree in eight-year primary schools.

Modern tendencies in teaching can be observed with teachers of eight- and nine-year primary schools. However, teachers of nine-year primary schools gave more answers suggesting transformational school model than teachers of eight-year primary schools. Teachers of nine-year schools aim to a greater extent to achieving learning objectives and not only to passing learning contents as they have the support of the school and colleagues; therefore, they take into account more the interdisciplinary approach in teaching and assessing and discussions in classroom. All teachers have to consider the pupils' achievements in the subject-matter and in terms of development of their interests and they do consider it. However, nine-year primary school teachers consider the need of pupils to be familiar with the new learning methods – styles far more.

These two systemic incentives bring us back to the question how a teacher learns and whether he/she learns in such a way as to be able to help a pupil to acquire a creative attitude toward knowledge. Teachers should have used themselves a holistic and creative approach to learning as to be able to use it for choosing their teaching style. It is clear that the prevalent ex cathedra approach and, related to this, the waiter style cannot substantially influence the development of the capacity of research-like, independent and innovative learning of pupils or teachers. To this end, various forms of group as well as independent work of pupils can be used.

4. Conclusion

Both, the eight-year and nine-year primary schools aspire to creativity. But something hinders this. It is well known that the external tranquillity for being internally excited is an essential precondition for pupils' creativity. When they are noisy (shouting one over another), they cannot focus on the learning content treated in class. Noise is inevitably noticeable, disturbing and warning signal in the communication between teachers and pupils, especially when didactic innovations are being put into practice. No thinking style can fully be expressed if pupils are disturbing each other in using their own thinking

style. Noise distracts pupils' attention from learning content and problem solving.

As soon as teachers become aware that they have not yet achieved educational goals by teaching as if it were transposition of knowledge and development of presentation skills, they see that they can play their role of an assistant and facilitator of learning in the other two styles, directed mainly at encouraging the conceptual changes in pupils and the development of their potentials. Therefore, implementation of a variety of styles leads to transition from the transmissive to the transformational school.

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New framework curricula for Finnish schools

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Social Changes Lead to the Need for Change

From a global perspective, our society is still undergoing continuous change. Some important "megatrends" can be identified:

Technological Development

Technological development is extremely fast, as seen in the fields of information technology and biotechnology, for instance. New materials and energies are involved in this development.

Globalisation

We live in a "global village". Globalisation involves the efficient transfer of information and utilities, innovations and economic division of labour.

Networking

Networking is a key to success in the modern world. It includes supplier networks, increasingly wide learning communities and civil networks.

Sustainable Development

Sustainable development is no longer mere jargon. It ought to be a part of our everyday life. Sustainable development involves ecological, social and mental perspectives.

Aging Population

The population is getting older, a fact that cannot be ignored in schools either. The main features of this megatrend are youth culture, the problems of the baby-boom generation and the reflections of old age, for example.

Marginalisation

Marginalisation is a common phenomenon in our society. It can begin as early as in early childhood. When the child grows older, marginalisation may manifest itself in the use of drugs, violence, crime, mental illness and "new religions".

New Forms of Work

Work takes new forms and changes its meaning. Office work is reduced, and new means of interaction change work. Workers are expected to take responsibility for their work.

Young Finns Succeeded in the PISA – Do We Actually Need to Renew Our Curricula?

The literacy of young Finns has proved the best in the OECD countries in 2001. Their skills in mathematics and natural sciences are also excellent by international comparison. This can be seen in the results of a large-scale evaluation of education (PISA). According to this research, published at the end of last year, young Finns' skills are consistently good in comparison with other countries. National and international evaluations indicate that girls get better results in their mother tongue.

Success in Mathematics and the Natural Sciences

Whereas the high level of literacy is something Finns can have been proud of for a long time, success in mathematics and the natural sciences was a pleasant surprise. The PISA researchers regard this as a sign of uniformity in the teaching of mathematics and the natural sciences across the whole age group. In the light of this research, Finland belongs to the top quarter of the OECD countries in mathematics and the natural sciences

Small Differences between Schools – Great Differences within Schools

In Finland, differences in pupils' performance between different schools were smaller than in most OECD countries. Small differences between schools are typical of all the Nordic countries, which, according to the PISA researchers, can be explained by the fact that teaching is uniform and systematic. However, pupils' skills within schools vary a great deal in Finland as well as in other countries. The differences in the results in different parts of Finland were marginal, as were the differences between urban and rural schools.

Competent Teachers

The good learning results can also be explained by our high-quality teacher training. Teaching is respected in Finland, and talented young people apply for teacher training colleges. Successful teacher training has also contributed to the 1994 curricular reform.

Weak and Talented Pupils Need More Attention

Researchers and decision-makers are also concerned about pupils whose school performance is weaker. Strengthening these pupils' skills and fostering positive attitudes becomes more and more important in a society that values individual competence. The number of pupils with excellent performance was significantly smaller than the high general performance level might suggest. Thus, these pupils should be motivated and their self-motivated learning promoted.

Has Educational Equality Become a Reality?

Educational equality has been the central aim of Finnish educational policy. This equality implies providing everybody with equal opportunities and rights to study. The goals of this principle as well as the definition of equality and how to reach it have changed in the past. Nevertheless, everybody has a constitutional right to gain education. The central objectives of educational development for the next few years were set in the development plan for education and research for 1999–2004 conducted at universities. The plan has been accepted by the government.

Basic education is the starting point for educational equality, and it also forms the basis for further education. From the point of view of educational equality, it is vital that there are no great differences in the results of teaching and learning depending between providers of basic education. This calls for additional support for those who are slower learners and catering for the educational opportunities of different population groups. The promotion of regional equality aims at providing versatile high-quality education at the nearest possible school.

The 1994 curricular reform is no longer enough

The framework curricula for basic education have an important role in basic education and are central to national educational policy. They are used in defining teaching goals and content and in influencing decisions concerning the organisation of basic education in municipalities.

Valid framework curricula for comprehensive schooling were published in 1994. National control of curriculum content was subsequently loosened and local control increased. The aim was to motivate schools and municipalities to draft their own curricula and to stress the significance of the curriculum as the basis of everyday work at schools.

After the reform the National Board of Education collected feedback from schools, teachers and municipalities on the effectiveness of the 1994 framework curricula. According to the survey, the drafting of the curricula was welcomed by schools across the country. Many of the central ideas of the reform are reflected in the curricula of individual schools. The opportunities enabled by the framework were utilised extensively.

More Guidance Is Needed for Local Drafting of Curricula

The surveys have also revealed some defects both in the framework curricula themselves and in the local drafting of curricula. In the survey conducted by the National Board of Education, 85% of schools from which feedback was received found the framework curricula insufficient guidance for the local drafting of curricula. This partly explains why there is variation in curricula between different schools. Some school curricula detail the exact goals and contents of teaching for each grade, and deal with working methods and pedagogical solutions, while others are brief and simply list the main points of the curriculum.

The surveys also indicate that the curricula of municipalities and schools do not give guidance for practical educational work. 60% of teachers teaching grades 1–6 think that the curriculum provides little support for everyday teaching. Instead, teaching is directed by textbooks. When drafting the 1994 national curricula, textbook publishers were not involved in the process. (This is now no longer the case.)

It can therefore be said that the national guiding tool, the framework curricula, and that used locally, the individual school curriculum, are not functioning in the way intended. Surveys and feedback show this clearly.

Problems in Families and Children's Upbringing

In addition to learning-related problems, different surveys report on other problems in young people's lives. The number of children and young people taken into custody has grown, and more and more young people have problems with their mental health. Marginalisation can also be considered a threat.

Children's development requires a solid basis provided in the home. School communities are expected to help families in doing this. In a school community the child is given enough opportunities to participate, which trains them to take responsibility, for instance. The aim is that the child can safely develop into an individual who is able to take responsibility for their own actions but also for common affairs. Thus, it is important for schools to consider what kind of support the child needs for this development. Sometimes problems may emerge in a child's development. It is apparent that families have more problems nowadays.

Statistical Information on the Problems of Families

However, the statistics of STAKES indicate that the number of children and young people taken into custody grew by 10% from 1991 to 1998. At the moment there are 7,300 children in custody, 18% of these against their will. Children and young people not living with their own parents for social reasons number almost 12,900, which is 600 more than in 2000. The number of children and young people under non-institutional social care is increasing continuously (the number was 49,000 last year, which is about 5,700 more than in 2000). Non-institutional social care provides support in living, subsistence, education and in free-time activities.

The Use of Drugs Is Increasing

The number of drug-related deaths doubled from 1990 to 1996 (88 deaths), and the number of drug-related offences committed by young people increased sevenfold. Also, more and more children and young people need psychiatric treatment; at the moment approximately 12% of the age group need treatment. According to research into pupils' health of 1997–2001, the number of 8th and 9th graders suffering from depression has increased.

The Role of the Family in Upbringing Is Weakening

The significance of the family in children's upbringing has weakened, as interaction between generations has decreased. Grandparents have been separated from their grandchildren due to migration. The modern urban environment does not protect the child in the same way as it used to, and the situation at home is not stable because the adults in the child's life may change several times (because of divorce, for example).

Childhood Cut Short

Childhood has also shortened. Children and young people's activities take place outside the home more and more often. In Finland children are expected to be independent while still very young; much younger than elsewhere in Europe. Because so much time is spent outside homes, schools are expected to arrange excursions and activities, and models of thinking are adopted from friends. The most precious gift from parents to children would be to spend more time together, but unfortunately this does not seem to happen.

Signs of Marginalisation

Katja Kokko and Lea Pulkkinen have studied juvenile marginalisation. They have found out that possible problems occurring in the child's psycho-social development involve low self-esteem, emotional immaturity, social disability, aggression, loneliness and feelings of rejection.

The Role of Schools in the Development of Social Skills

Kokko and Pulkkinen have also discovered that it is possible for schools and teachers to promote children's development of social skills regardless of the conditions at home. The school can set the norms for the child, even if his/her home fails to do that, and teach the child how to interact with other people.

Free-time Activities Are Important

Psychological studies have shown that participation in free-time activities, such as clubs, is important to children who are at risk of marginalisation. One of the cornerstones of education is to pay attention to the child's personality, and to see him/her active in learning. What is equally important is the child's growth as a member of society. Involvement is a central concept in the prevention of marginalisation. Marginalisation is often closely related to lack of friends and sufficient care, cultural performance, and later employment and living. Interaction between different individual and environmental factors has an impact on marginalisation: one either succeeds or fails to solve the problems which he/she encounters in everyday life, e.g. in the learning environment.

Everyone Has Educational Obligations

As the provider of compulsory education, a comprehensive school has a special obligation to look after the whole age group. This obligation is especially stressed at times when parents, for one reason or another, have difficulties in bringing up their children, although it is the parents who always have the primary responsibility for their children. However, studies indicate that schools and teachers can help children who are at the risk of marginalisation to develop into the right direction.

The Starting Point and Guidelines for the New Framework

Allocation of Teaching Hours and Objectives in 2001

The government confirmed the new allocation of teaching hours for basic education in 2001. In the same regulation, national objectives for basic education were defined for the first time. This clarified the regulations given by the law of basic education and laid down general principles for the development of basic education. These decisions form the foundation of the reform.

The opportunities of the law of basic education and the new situation created by the introduction of pre-school are utilised.

Pre-school and Uniform Comprehensive School

The objective is to integrate pre-school and comprehensive school into a logically connected and uniform curricular unity, so that the pupil's development and learning can be supported more effectively.

Clarification

The goals and contents of teaching are clarified.

Description of Criteria

The framework includes description of the criteria for the definition of core competence and of the level of skills required in different subjects. The criteria are meant to define the level of skills required at certain stages of education (depending on the subject) and at the end of basic education.

The concept of learning is brought more clearly into the framework so that it would also show in working practices in schools.

Support Systematised

The notions of special teaching and remedial teaching are clarified. Support given to pupils is systematised so that it would form a uniform structure: remedial teaching, and part-time and full-time special teaching form a hierarchical support system.

Pupil Welfare Services

Curricula have so far only touched on the issue of pupil welfare services. However, from now on there will be a separate chapter devoted to this in the framework curricula. The aim of pupil welfare services is to prevent marginalisation and to take well-being into account when planning teaching. Pupil counselling will be enhanced and it will be started earlier.

Co-operation between Home and School

The new framework also lays down the principles for co-operation between homes and schools. Co-operation has to be increased in order for pupils to be more committed to their schoolwork.

The Drafting Process and Schedule for the Framework Curricula

The framework curricula will be drafted in extensive co-operation with municipalities and other interest groups.

Pre-school in 2000–2001

The framework curricula for pre-school were finished after a trial period at the end of 2000 and implemented in autumn 2001.

The trial framework curricula for elementary school (i.e. the 1st and the 2nd forms) were introduced in nearly 500 schools in autumn 2001, and the framework was confirmed at the end of March 2002.

Last autumn work started on the curriculum for the 3rd form upwards. The framework is prepared in teams consisting of class teachers, subject teachers, special teachers, pupil counsellors and experts in pupil welfare services. A network of municipalities has been created in the same way as for the pre- and elementary school curricular work. Municipalities and schools involved in the network prepare their curricula simultaneously with the national framework curricula and give feedback on them at different stages of the process. The aim is to finish the trial draft of framework curricula for basic education by the end of 2002. The framework for the grades 3–9 will be finished in 2003.

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Local Curricular Work

The framework curricula drafted by the National Board of Education form the national norm, which is a basis for drafting local curricula. Local curricula are expected to present the objectives and contents of teaching determined in the framework in more detail.

National and local decisions regarding pre-school and basic education form the basis for teaching:
➡ the law and regulation for basic education,
➡ the governmental regulation of the national objectives and the allocation of teaching hours for basic education,
➡ the framework curricula provided by the National Board of Education,
➡ a curriculum accepted by the provider of education.

The provider of education decides how the local curriculum is drafted. The curriculum can contain a separate part for a municipality, a region or a school.

In order to have as good educational results as possible, extensive cooperation is important in drafting local curricula. Thus, a drafting process should involve participants from different areas of education: teachers and other school staff, people who work with children and young people, and people from different local interest groups. In this way it is possible to utilise the know-how that municipalities have. In addition, families can take part in curricular work. To make the co-operation successful, parents must have an opportunity to familiarise themselves with a school's culture, and be given information on the school's curriculum and organisation of teaching. Parents should also be able to be heard when the school's educational objectives are discussed.

The Process Goes On: More Support for Teaching

The current reform is for the most part the continuation of the process started in 1994. It can be concluded that the framework of 1994 was going in the right direction, but was too restricted. Now the aim is to create framework curricula which provide more support for local drafting of curricula and for teaching, and which respond to recent changes in the school environment and society as a whole.

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Contents of school subjects in a curriculum and student intellectual development

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Summary

The paper considers the issues of teaching-content selection, the nature of knowledge and character, their role in the development of thinking, etc. Views on the knowledge acquisition process, students' age characteristics, and the possibilities of influencing student intellectual development all determine what, when and how much will be taught in each school subject. Knowledge acquisition in the teaching process is a condition for the development of thinking; however, the type of thinking that will be formed in students depends on the nature and character of knowledge acquired. Therefore, attention should be focused on the nature of the content of knowledge which is being acquired, i.e., on qualitative distinctiveness and characteristics of scientific knowledge (concepts). Students should be placed in a situation where they will discover and acquire features essential to objects and phenomena, i.e. the content of a concept, by means of a series of operations. Experience and research results in Serbia indicate that with primary school students everyday concepts dominate over scientific ones, that there is weak relationship between all of the concepts being learned at school and that students do not understand relations between concepts. Findings show that changes are to be made in curriculum contents and the teaching process itself.

Key words: teaching contents, nature of knowledge content, development of thinking, scientific concepts.

1. Introduction

The problem of the content of teaching is a fundamental task facing the science of pedagogy. Within the framework of this problem, issues such as the selection of education content, the process of knowledge acquisition, the nature and structure of thinking operations, the

role of teaching contents in student intellectual development and the like stand out and have to be solved as interrelated issues. Since it is impossible and unnecessary to acquire all knowledge, skills and values that mankind has been storing up for centuries, it is an overriding task to adequately select fundamental knowledge that will lead to personality development, its capacities and needs.

The majority of authors point out that it is necessary to acquire and understand essential, basic concepts and ideas in certain teaching disciplines. Investigations show that acquisition of single facts and principles in the teaching process leads to less efficient teaching, while education focused on development and understanding of general concepts brings about progressively higher achievement (Saranovic-Bozanovic, 1995, 100). A question is raised whether it is possible to identify in current curricula a conceptual scheme to be used as a basis for making primary school programs. The answers could be obtained if investigations were carried out on schemes by which universally valid ideas are arrived at within curricula.

Directly linked to the issue of teaching contents selection is one of the basic teaching tasks and it is student thinking development. Knowledge acquisition in the process of teaching does not lead straight to the development of thinking i.e. those two processes are not identical. In other words, acquisition of knowledge and other forms of human culture are a prerequisite for the development of thinking, however, the type of thinking that will develop in students is determined by the nature and character of knowledge acquired.

2. Possibilities of student intellectual development in teaching

One of the main ideas to be pursued in teaching content's selection is the possibility of student intellectual development. To interprete student thinking activity, teaching contents and modes of their acquisition are examined. Having in mind that teaching is an organized form of cognition, a question is raised about the interaction between teaching and development. Considerations of this interaction have had a long history but we would like to focus on the Vygotskian idea (Vygotski, 1983, 182–310) of a formative role of learning at school and training process in an individual's cognitive development, where the development of scientific concepts i.e. conceptual thinking takes a

prominent place. Unlike Piaget and his followers (Pijaze & Inhelder, 1986) who consider intellectual development to be a spontaneous, independent process with its own intrinsic regularities, with development proceeding ahead of teaching, Vygotsky (Vygotski, 1983) thinks that teaching must be oriented to those functions whose intensive development schools need to encourage, i.e. to thinking, and it is only in this way that individual's psychic development can be qualitatively influenced. Theoretical views and a volume of investigations made Vygotsky conclude that training precedes development and it is a creator of what is new in development. If learning goes ahead of development, then it generates a series of functions that are just beginning to mature and are found in the zone of proximal development. This view is closely linked to Vygotsky's thought that teaching realizes its leading role by means of knowledge contents, which should be oriented to the zone of proximal development. The problem of non-spontaneous, especially scientific concepts was viewed by Vygotsky as a problem of teaching and development. By acquiring the system of scientific concepts, the developing function of teaching can be considerably increased, i.e., the problem of interrelations between teaching and development can be adequately solved. No doubt, this author has set up some basic ideas whose elaboration lead to further and in-depth studies and understanding of the problem in the sphere of learning, teaching and development. Also, re-examinations were inspired of the up-to-then views on the nature and character of knowledge, knowledge acquisition process, principles upon which teaching is founded and the like.

Vygotsky's theory instructs us that contemporary curriculum conception must be based on the integrity of processes of mastering the systems of scientific knowledge and its outcomes. The most important outcomes of the concept formation process in the teaching of some school subjects can be considered to be the emergence and development of conceptual thinking, productive thinking, metacognitive abilities and student's view of the world (Lazarevic, 1998, 144–155). Therefore, modern curriculum content should involve systems of scientific concepts as a core of systems of scientific knowledge, and systems of values too.

Scientists following Vygotskian ideas have carried on, in some way, theoretical considerations of the problem of cognitive develop-

ment through learning at school and directed their empirical investigations to characteristics of teaching in respect of curriculum teaching content, teaching methods, student situation in the teaching process.

3. Formation of scientific concepts and student intellectual development

A broad interest in concepts derives from the fact that they pervade the entire cognitive process and serve as organizers of all intellectual and cognitive activities and all types of communication (between student and teacher, among peers and between student and teaching content). It is even stated that great differences in intellectual functioning between students of the same age are closely related to the type and number of concepts they know.

Teaching process should create conditions for scientific concepts development. It is Vygotsky's (Vigotski, 1983, 227–239) view that by acquiring the systems of scientific knowledge i.e. systems of scientific concepts through learning at school, a child changes, develops his thinking, while the essence of developmental changes this author considers through interrelations between scientific and spontaneous concepts in a child cognitive structure. Throughout the teaching process interaction arises between children's developing cognitive abilities and systems of knowledge bearing in themselves a certain model of intellectual functioning. Children acquire spontaneous concepts in a pre-school period too, but in logic-psychological respect those concepts can not be considered real concepts by this definition because they lack awareness, willingness of use and existence in the system of concepts. Scientific concepts develop in thinking process, are its result and also influence further development of thinking. They are formed while teaching a child a certain system of knowledge. They develop non-spontaneously, are placed in the system of concepts from the very beginning and are applied within the system. It means that from the beginning of schooling a child should learn concepts as real ones, i.e. within the system. The system of concept development, founded upon the relations between generality and understanding of relations between general and indivudal concepts, conditions awareness of concepts and willingness of their use. Also, concepts should not be acquired passively as ready knowledge but gradually in teach-

ing process. Acquisition of scientific knowledge in the form of accumulated volume of facts, instead of acquiring scientific concepts taken in the system of concepts of a certain science, results from inadequately organized teaching.

Today it is widely accepted that concept acquisition and conceptual thinking development require teaching where students are mastering concepts via their essential characteristics as well as relations between concepts. Klausmeier (1985, 275–315) considers concepts very important for cognitive structure development but also a basis for learning of principles, understanding of hierarchical and taxonomic relationships, problem solving and development of thinking itself. We would like to point out Klausmeier believes that it is very important to distinguish between defining and irrelevant attributes in the process of concept mastery and to learn concepts within the structure of hierarchical organization of knowledge. He makes a distinction between attributes (characteristics) concerning the degree to which they essentially determine a given concept (defining, critical and attributes of a variable).

A great number of authors agree that mastering the system of concepts cannot be based on the formation of individual, isolated concepts grouped according to similarity into complex concept structures. Murphy and Medin (1985, 289–316), for example, think that similarity can not be a sole criterion for category formation, because categories are frequently developed on the basis of dissimilarity and yet are coherent. In effect, according to Murphy and Medin, it is not similarity that determines placement into some category, but complex systems of explanations and relations or structures made up of concepts. And really, similar, joint sensory-perceived properties of objects and phenomena are not essential, basic properties, and therefore they can not be a basis for subsequent generalizations.

However, a distinction should be made between defining a concept as a generalization that enables classification and assuming the logic of the theoretical concept in the practice of teaching. Some authors think that the process of changing concepts should not be bound to any activity in teaching but to the one within which theoretical concepts in teaching are organized and successfully formed (Simina, 1981). It is a matter of the content-developmental approach to knowledge acquisition based on student-specific activities and of

appropriate performance of actions, whereby it is possible to discover concept content. When he analyzes the nature of concepts and the process of concept formation in teaching, Davidov (Davydov, 1986) is critical of the concept generalization process in current teaching. Namely, he thinks that in current teaching there are not clear generalization criteria in respect to subject content, i.e., from the viewpoint of the extrinsic and intrinsic, unessential and essential. Generalization usually proceeds from perception to concept, thus leading to knowledge content made up of knowledge about extrinsic, joint, sensory-available features of a phenomenon, i.e., concepts empirical in character are formed.

One of the important problems being studied in cognitive psychology concerns the changing of concepts during learning and development. Namely, in the teaching process students should acquire scientific contents, however, they are impeded by their intuitive beliefs and explanations belonging to the domain of common-sense experience, which leads to a mistaken understanding of concepts. Some authors think that if scientific information acquisition is in opposition to naïve ontological and epistemological assumptions, i.e., requires reconstruction of up-to-then knowledge about some concept, difficulties arise then in learning (Vosniadou, 1994, 45–69). Chi, Slotta & deLeeuw (1994, 27–43), considering wrong understanding of concepts in some sciences, conclude it is a consequence of non-coordination between ontological categories where students frequently categorize scientific concepts and ontological categories that those concepts really belong to.

Acquisition of the fundamentals of scientific-theoretical knowledge at junior school age can be rendered difficult and impeded by children's experiences acquired before starting school, i.e., by everyday experiences that initial teaching largely relies upon, and didactics recommends it. The knowledge a child possesses before starting school is based upon sensory experiences of the outer world, which means this knowledge is qualitatively different from scientific one. The concepts a child possesses in a pre-school period are not real concepts but, as Vygotsky (Vigotski, 1983, 155–158) puts it, complex or pseudo-concepts. It is the task of teaching, on the other hand, to build up a scientific, theoretical attitude towards objects and phenomena, undeveloped up to then. Didactics should find out the nature of

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scientific knowledge and how it differs from other kinds of knowledge, and this should provide the basis for changing the content of knowledge in teaching and acquisition process that will differ, in principle, from pre-school learning. However, traditional didactics foresees that knowledge acquisition in teaching be superimposed on previously acquired child's experiences i.e. there should be continuity in concepts development and type of generalization. But, if this process proceeds chaotically and spontaneously, without changing the type of generalization in teaching, acquisition of scientific concepts with their essential characteristics will be a very long process and some students may not learn them at all. Namely, immediately perceptible characteristics of objects and phenomena can not be identified with those essential ones, therefore cognition process should be oriented to discovering essential characteristics involved in concept content. Students' everyday experience should not be left out but should be qualitatively changed and what meets the needs of scientific knowledge and thinking should be used.

In Serbia, investigations on the level of concept acquisition and their quality show that scientific concepts development is proceeding inadequately, i.e., students do not identify the essence of concepts, everyday concepts dominate over scientific ones (Saranovic-Bozanovic, 1993, 89–105), in the majority of primary school leavers the process of concepts acquisition does not result in scientific concepts development characterized by mastery of concept's defining attributes and comprehension within the system of concepts (Lazarevic, 1999), concepts being learnt at school are weakly interrelated and students do not understand enough their interrelations and have not mastered concepts' defining attributes (Pesic, 1995, 283–302). Findings indicate that curricula contents should be changed, including changes in knowledge content and in accomplishing teaching process itself.

4. Concluding remarks
Throughout their schooling students should acquire a high level of scientific knowledge and creative skills, develop intellectual abilities, be trained to independently acquire knowledge etc. In accomplishing those tasks, teaching contents and knowledge acquisition process play

a great role. Studies on qualitative characteristics of scientific knowledge, thinking operations involved in it, its distinctiveness from other types of knowledge (empirical, everyday) constitute a basis for adequate selection of scientific knowledge as content of teaching and shaping of knowledge acquisition process. As to changes in contents of teaching, it should be pointed out that not only program themes but also content of concepts, rules, laws and other kinds of knowledge are all important. It is the matter of the nature of content of teaching.

Researchers dealing with problems of knowledge acquisition, irrespective of their theoretical orientation, agree that scientific knowledge acquisition during teaching process, on one hand, presupposes the ability of differentiating basic, essential characteristics of objects and phenomena as well as essential interrelations between them and the ability to apply acquired knowledge to new contents on the other hand. At the initial stage of knowledge acquisition, end results of scientific knowledge i.e. ready knowledge should not be presented, which is often the case, but students should discover the ways whereby this knowledge is being arrived at. In other words, students should be placed in a situation to discover via a series of operations and acquire basic features within a school subject, i.e., discover concept content.

Consequently, the teacher's role must be changed. In many cases teachers present ready information items, ask students to reproduce them, exemplify them etc. Conditions in which students are given certain generalizations (definitions, rules, laws etc.), illustrated by examples, lead to acquisition of ready solutions, thus ruling out the possibility of student independent discovery. Instead, a teacher should direct student exploratory activities, create conditions for student performing actions with objects (change them, place them into certain relations etc.), which will allow for isolating of objects' essential characteristics and their interrelations. Thus organized teaching entails changes in student motivation and cognitive activities.

From initial grades teaching should be oriented to developing scientific, theoretical attitude towards objects and phenomena a child is not familiar with and has yet to master it. Therefore, to master operations and structures of scientific thinking, i.e., to essentially influence scientific-theoretical thinking in students, we should make changes in curricula primarily in terms of teaching contents and di-

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dactic-methodic solutions too. Student thinking characteristics, necessary for acquiring scientific knowledge as content of teaching, are formed in the process of knowledge acquisition. Thus, teaching process arises in the function of child intellectual development, which is the task of teaching.

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Is there a "communist hangover" in Estonian education? Democracy as a way of life, not an ideology

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Introduction

Before I begin to speak about a sensitive subject like a continued Soviet influence on Estonian education, I must say a few things. First, I know from experience that there is great resistance to foreigners, particularly Americans, who come and claim to be experts with answers that "local" people should follow. I agree completely. John Dewey once said that democracy begins with a conversation. In my experience, a conversation of equals is the best possible education; in fact, I include my email address so that this discussion can continue beyond the conference, if you wish. Second, I will speak in generalities; they represent trends and my own experience, not absolute truths. I have been in Estonia for only a year, and my understanding of the language and culture is far from perfect, but I believe you will agree with much of what I see, and find the practical implications useful. Third, I certainly do not claim that my own country is a model for yours. Indeed, everything I learn here teaches me about my own country as well, and I believe that the opportunity for a very exciting transformation is very strong here.

I argue that education in Estonia has been purged of its Soviet ideology, but that the methods used to teach that ideology are still common, that there is a close relationship between teaching method and content (how we teach and what we teach.) In other words, even

if we have the right democratic content, we are teaching democratic citizenship as an ideology to be repeated as official truth, not as a way of life that we practice in schools.

1. Power and persuasion in schools

William Sheridan Allen's account of the Nazi takeover from the perspective of a small town shows vividly how a small, marginal movement used limited information – attendance at rallies, titles of talks, ticket prices, etc – to evaluate their effectiveness and therefore were able to develop extremely effective propaganda. By analyzing attendance figures at their rallies, they were able to decide which speakers were most effective, which topics were most likely to draw listeners, which nights were best to use, what time of day was likely to draw the best response, etc. They had a sophisticated system for changing people's attitudes and for tracking those changes.

As they grew they were able to require party members to attend rallies, speeches and meetings, thus undermining their ability to track their own effectiveness among their members. When they gained power and could impose their will on the population as a whole, the task became even more challenging. Analyzing attendance records no longer informed them about people's beliefs, it only told them about people's obedience. Attendance can be forced; beliefs are another matter. Under repressive systems of power, whether the Nazis, Soviets, or Taliban, the leaders need not be too concerned with what people actually believe, so long as they act as if they believe. The external behavior is what matters, the obedience, not the internal thoughts and beliefs.

It is an interesting paradox of the Nazi seizure of power and of the Soviet system that once they had power to enforce behavior, they could no longer easily judge people's beliefs, and they lost a lot of control over what people actually believed. Teachers knew that what they actually believed was less important than teaching what they were required to teach. And students knew that they would be evaluated according to their obedience: they would learn what they were told and repeat it. This system brings to mind B. F. Skinner's behaviorism, where everything people do is based on stimuli from the envi-

ronment and the mind is like a closed black box; even if something is happening in that box, it does not matter what it is.

The change to an education based on obedience, however paradoxically, can protect people's free beliefs. Before gaining power, these ideologies lived or died by their ability to persuade. Once the system was rooted in power, however, and the ideology was backed with force rather than merely appeal, its persuasive abilities were severely damaged. Some ideas had official support, and there was a strong attempt to control access to other ideas, but critical elements of persuasion were lost. With little freedom to express different views publicly, and little opportunity to defy the state openly, there was little room to know what people really believed. A system based on power cannot deal effectively with beliefs.

When the Soviet Union collapsed, many teachers could claim that they never believed in Marxism, in the official history, in what they were taught in school or in what they themselves had to teach students. Certainly, for many people this is true, for others, it is not, and for others still, it is a trick of memory. Because people were not free to express their views, and because people today often do not want to admit that they believed things that are rejected today, it is all but impossible to know exactly what people believed during these periods. Even the number of votes cast for socialists or ex-communists is not a trustworthy indicator.

Take a concrete example: with the real or implied threat of a gun, or a gulag, almost anyone would hand over money, say good things about Kruschev, join the military, march in a parade, do well in school, memorize the features of Marxist-Leninist philosophy, or simply vote: the person who makes the threat merely needs to tell them what they should do. But when people are free, what does it take for them to join the military, to do well in school, to vote? It requires that they be persuaded that the desired action is morally right, or that it will benefit them directly, or both. But because people have different beliefs and different experiences, we cannot simply apply one formula to everyone. Instead, we must lead each person along a journey, and that journey from where they are to where they need to go, and it can only begin from where they already are.

With this in mind, let us consider that many educators I speak with miss many aspects of the Soviet education system. They miss

the job security, for example, and they miss the guarantee that all their students would have jobs when they left school. In the countryside, they miss the fact families lived together, and were not broken up by parents needing to go to cities or travel great distances for work. Many people under 30 insist that they had very good childhoods in Soviet times. Many believe that, ideological content aside, the Soviet education was a very good one. And they miss the fact that students behaved much better during these times.

What explains the change in behavior in non-elite schools? Perhaps the implied threat is smaller; after all, the Soviet state is gone. Students then do well only if they believe that school will offer them something important in the future: a good job, opportunities, security, even good friends. I suspect that many students in the small rural schools of Vorumaa, where I live, do not see that school offers a future. It is the responsibility of the school system, nation wide, to convince children that school is their best chance at a future. If children do not know lawyers or business people or doctors or scientists or computer programmers, they are unlikely to see the future that education can offer.

Now consider one influence of the Soviet system. They could not definitively control what people believed, but they could limit the imagination by making it very dangerous to speak to people freely, or to share foreign books. We cannot be persuaded by what we do not see. They increased the probability that people would believe something by trying not to let people see other possibilities. In effect, the same thing is happening to many children because they do not see the possibilities, the options have not entered their imaginations, and they do poorly in school, harming the education of the students around them in the process. There are many ways to do this: one is a nationally produced series of videos about Estonian residents, their jobs, and what education they required to get there, that could be made in Russian and Estonian and sent to all schools.

2. Traditional teaching methods and absolute knowledge

For many teachers, the instruction style has changed little, if at all, in the last ten years. Teachers still teach what is right, but what is right is something new. In other words, the more open, democratic values

may be taught, but are often taught, still, as ideologies. Science teachers often feel that they are safe from these problems, because they can deal with objective truth, that there are exact, correct answers, and that their subject matters are little influenced by ideologies. There are exceptions, of course, but in general in Estonia and in the United States, science is taught more like dogma than like a story of human observation, inquiry, debate and discovery.

In the United States, there is a strong movement to teach that evolution is no better an explanation for the biological record than is creationism, or its contemporary manifestation, "intelligent design". Neil Postman, who rejects creationism, would love to see them taught side-by-side, believing that no one could deny the truth of evolution. The problem, as he explains, is that evolution, and every thing else, are taught as official truth rather than as victorious theories in a series of ongoing struggles to understand the world around us.

The issue is more difficult still in the social sciences. If we want to promote democratic values, we cannot do it through requiring right or wrong answers on a test. We cannot rely on power to persuade people of the responsibilities of citizenship. The things we do need are not controversial: freedom of speech, independent thought, tolerance, and so on. The question is, how do we develop our teaching to meet these ends?

First, we must come to grips with the notion of absolute truth. Whether from religious or political positions, Fundamentalists and communists alike knew that there was an absolute truth and felt that they possessed it. Against these ideologies, we need an education that emphasizes human fallibility and helps students to see multiple perspectives.

Teachers can play an important role here. Teachers have two kinds of authority, authority as the responsible adult who determines what students will do – political authority – and authority as the expert in the subject they are teaching – intellectual authority. Too often, these kinds of authority interact, and if students challenge their knowledge of something, it becomes a challenge to their political power. Yet for teaching to be truly persuasive, students must be free to raise objections.

In The End of Education, Postman includes a speech for teachers that explains that they are human, that they will sometimes make

mistakes, have incorrect or old information, accidentally mislead students, represent an opinion as fact, or otherwise error, and that they would be very sorry if students were mislead under these circumstances. If students ever catch one of these errors, they should ask for time at the beginning of the next class, explain the mistake, demonstrate how they knew that another explanation was superior, and provide the source of the correct information. What the teacher teaches, then, becomes not truth to be accepted blindly, but an honest and possibly faulty explanation that should be examined closely and critically before it is believed.

Because we need to encourage good "habits of mind," it is very dangerous to train students for 10 years to believe what they hear and what they read. Robert Proctor suggested a more radical method to get students in the habit of thinking critically: announcing at the beginning that during one class, everything you say will be incorrect, but that you will never tell them during which class it was. I think that it is difficult to overestimate the benefits of this approach.

3. Persuasion and experience

There is a story about the World Trade Center that people in the second building began to leave as soon as the first one was hit. A voice came on the radio telling them to return to their offices, that everything was ok and they were not in danger. An office of recent Russian immigrants, however, looked at each other and immediately left. They knew from Soviet times that if the authorities are saying everything is ok, you know that it is serious.

They lived, while those who trusted the voice died.

This story shows the power of experience and the difference between growing up with free speech and without. In the U.S., we were trained to believe everything we read. It was not explicit, and no one would agree with the idea if it was spoken, but in practice, we learned that our textbooks told the truth. Our teachers were experts and told us the truth. The newspapers had freedom, so what they told us was true. And if people could speak freely, why wouldn't god? Certainly the Bible was a source of truth. And many people believed the voice in the tower.

Clearly, experiences play a powerful role in our beliefs, and the same education could not easily persuade people with experiences as different as those Russians and Americans. Indeed, words and arguments alone seldom can overcome beliefs gained from experience. Or even from our friends' and families' experiences, because we have great trust in them.

Indeed, often only a new set of experiences will overcome old beliefs. This is where the work of John Dewey is so important. He argued that a proper education consists of an expanding set of experiences. Each person's experiences should build on what came before. It is very important, therefore, to know where a person "is," what their beliefs and experiences are, and to provide the next set of experiences. This is certainly true of students, but no less of teachers. How many teachers, who are responsible for providing Estonia with democratic citizens, have democratic experiences themselves? They often work in hierarchical structures where the school director has all the power. They must often work outside of school to have enough money, or they teach so much that they have no time. If teachers do not have democratic experiences, they can hardly create them for students; and if democratic experiences are not part of the daily lives of teachers or students, then democracy is no more than another ideology, the new right answer on the next test.

Teaching secondary students through their learning styles and humanistic and constructivist approaches

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1. Introduction

The research on learning styles explains why, in the same family, certain children perform well in school whereas their siblings do not.

It demonstrates the differences in style among members of the same class, culture, community.

Although some pioneers identified style as only one or two variables on a bipolar continuum – Dunn (1998), Kolb (1985), Keefe (1974); etc., learning style is a combination of many biologically and experientially imposed characteristics that contribute to learning, each in its own way and all together as a unit. Thus, learning style is more than merely whether a person remembers new and difficult information most easily by:

➡ hearing (*auditory* learner),
➡ seeing (*visual* learner),
➡ reading,
➡ writing,
➡ illustrating,
➡ verbalizing, or
➡ actively experiencing;

perceptual or *modality* strength is only one part of learning style. It also more than whether a person processes information sequentially, analytically, or in a "left-brain" mode rather than in a holistic, simultaneous, global, "right-brain" fashion; that is only one important component of learning style.

The Aim of the present paper is to investigate the constructivist and humanistic approaches to teaching secondary students in the light of the learning styles' theory.

The Object of the research is the constructivist and humanistic approaches to teaching.

The Method of the research is the scientific analysis of the theoretical pedagogical, psychological, sociological literature of the given problem.

During the 20th century, the teaching profession was introduced to a number of unconventional methodologies. Humanism and constructivism-these are the words that often come together in connection with the educational process of-today. These words reflect the author's belief that people need both rational and non-rational bases for actions, and that all of us function best when *faith*, experience, and intellect are in harmony. Although humanism in particular has been highly influential in both educational psychology and language teaching, constructivism had more limited impact.

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2. Humanistic approaches.

Humanistic approaches emphasize the importance of the inner world of the learner and place of the individual's thoughts, feelings and emotions at the forefront of all human development.

To the author's mind, these are aspects of the learning process that are often unjustly neglected, yet they are vitally important if we are to understand human learning in its totality.

Let's look first how the tern "humanism" has been employed in general discussion of philosophy and education. Dictionary definitions for **humanism** have included the following, taken from The Oxford English Dictionary (1989): *devotion to human interest*; *a system of thought or action in which human interests predominate; devotion to those studies which promote human culture; devotion to the study of the humanities, principles, or culture of the Humanists.*

Let's compare some humanistic approaches and its representatives in human education.

The first is Erik Erikson, who made an outstanding attempt to draw together Freud's views on human psychosexual development into a theory based on stages of development throughout a human's life with important implications for personal, social and emotional development.

The basis for Erikson's ideas, which he sets out in his work "Childhood and Society" (1963), is that *human psychological development depends on the way in which individuals pass through predetermined maturational stages and upon the challenges that are set by society at particular times in their lives.* Erikson calls this the fundamental *epigenetic principle.*

According to Erikson, every individual proceeds through eight stages from birth to old age, each of which poses a particular kind of challenge or crisis. If this challenge is handled well with the help of other significant people in their lives, then individuals can move relatively smoothly onto the next stage and will be in a stronger position to meet future challenges, but if challenges are inadequately dealt with, they will continue to reappear throughout a person's life, making it more difficult to deal with subsequent stages and challenges appropriately.

To the author's mind, Erikson's theory is important for educators.

Firstly, it provides a *life-span* view of psychology which helps us to recognize learning and development as lifelong, rather than restricted to a particular phase of one's life.

By focusing on important tasks at different stages of a person's life, it enables us, teachers, to see that real-life learning involves challenges which often require a particular kind of help from teachers, if we are to meet them successfully.

Secondly, Erikson's theory presents learning as a cumulative process whereby our resolution of one set of life tasks will have a profound influence upon how we deal with subsequent tasks.

Thirdly, education is viewed as involving the *whole* person, the emotions and feelings; it does not involve merely transmitting pieces of knowledge.

The next remarkable scientist, to the author's mind, connected with the *humanist* school in psychology, is Abraham Maslow (1970), who suggested a hierarchy of needs which is usually presented in the form of pyramid.

Maslow believes that there are two distinct categories of needs, *deficiency* needs, and *being* needs:

Maslow's hierarchy of human needs.

| Being Needs | Self-actualization |
| | Aesthetic Needs |
	Cognitive Needs
Deficiency Needs	Need for self-esteem
	Need for interpersonal closeness
	Need for safety and security
	Basic physiological needs.

The author of the present paper supports the point of view of Maslow, that if *deficiency* needs are not met, then it is impossible for a person to fulfill needs further up the hierarchy.

For example, a hungry learner will be unable to concentrate on, to give her/his full attention for learning, to meet her/his own aesthetic needs.

Only a few people ever realize their potential or achieve *self-actualization* in their life.

The author of the present paper finds the ideas of Maslow significant for educators:

➡ They point to the importance of establishing a secure environment where learners feel that they belong and where they can build up self-respect by receiving respect from others.

➡ Learners should be encouraged to think (cognitive needs) and not be penalized for being different and creative (aesthetic needs).

➡ Classroom tasks should be challenging and encourage curiosity in order to help learners realize their full potential.

➡ Maslow believes that the primary functions of education is to enable learners to develop them as individuals in their own right and thereby achieve self-actualization.

The author of the present paper shares the opinions of another great figure of humanist school of psychology, Carl Rogers (1969), who identified a number of key elements of the humanistic approach to education:

➡ Human beings have a natural potential for learning,

➡ Significant learning will only take place when the subject matter is perceived to be of personal relevance to the learner and when it involves active participation by the learner.

➡ Learning which is self-initiated and involves feelings as well as cognition is lasting and pervasive.

➡ When there is a perceived threat to the learner's self-image, resistance to learn is likely to occur.

➡ Independence, creativity and self-reliance are most likely to grow in learning situations where external criticism is kept to a minimum and where self-esteem is encouraged.

➡ The most socially useful kind of learning to prepare learners to cope with the demands of the modern world is learning about the process of learning itself, a continuing openness to experience and a preparedness to become involved in the process of change. This kind of learning best takes place in an atmosphere of "unconditional positive regard".

➡ It is essential that the teacher conveys warmth and empathy towards the learner in order to establish a relationship of trust.

According to Hamachek (1997), the following useful implications from humanistic approach should be in education;

➠ Learning should be *personalized* as far as possible, or, one important task for the teacher is *differentiation*, that is closely connected with the theory of learning styles.

➠ In order to become self-actualizing, learners should be helped and encouraged to make choices on every stage of learning.

➠ It is important for teachers to emphasize with their learners by getting to know them as individuals and seeking to understand the ways in which they make sense of the world, their learning style.

The author of the present paper supports the point of view of Hamacheck (1997, 149), who wrote: "Humanistic education starts with the idea that *students are different,* and it strives to help students become more like themselves and less like each other."

The author of the present paper, as an English teacher, would like to stress the value of humanism in language teaching. These are the following suggestions for teachers:

➠ create a sense of belonging;
➠ make the subject relevant to the learner;
➠ involve the whole person;
➠ encourage knowledge of self;
➠ develop personal identity;
➠ encourage self-esteem;
➠ involve the feeling and emotions,
➠ minimize criticism;
➠ encourage self-initiation;
➠ allow choice,
➠ encourage self-evaluation.

Thus, significant task for the teachers is to help learners to establish a strong sense of personal values. The author would like to draw reader's attention to this aspect of learning within the

3. Personal constructivist psychology

During the last 15–20 years the constructivist approach to education has become the most popular in European universities and schools.

Constructivism, in contrast to behaviorism, has the origins of cognitive psychology, concerned with the way in which the human mind thinks and learns, how people become involved in the process of learning.

As in a cognitive approach, the student is seen as an active participant in the educational process. The problem of the constructivist approach to education is very urgent nowadays, because contemporary situation shows that everybody is influenced by the necessity to acquire new knowledge and skills. There are many approaches, ways in which human thought has been explored, and these ways have themselves varied considerably.

At one extreme, there are *information theorists* who drawn the analogy of the human brain as a highly complex computer and who seek to explain its work in terms of rules and models of how different aspects of learning take place. Examples of this approach we can see in work on artificial intelligence systems and, particularly, in models of memory and reading processes.

At the other extreme is the so-called *constructivist* approach, growing mainly out of the work of the Swiss developmental psychologist, Jean Piaget, but also encompassing George Kelly's *personal construct psychology*. Psychologist taking this approach have been mainly concerned with the ways in which individuals come to make their own sense of the world.

The constructivist approach to learning means that students will be gathering information and analyzing it as they jointly explore topics and test theoretical ideas against real-life situations and their own practical knowledge (Burge & Roberts, 1998, 5). So rather than students listening to the teacher's constructions of knowledge, they will play an active role in being their own "knowledge architect". According to this approach, the students will:
➡ analyze concepts, theories, principles,
➡ apply them to real world problems,
➡ reflect on their own experiences of learning,
➡ assess the relevance of others' theories and practical experience to your own life contexts,
➡ contribute constructively to all kinds of class discussion,
➡ support and challenge class members in their explorations, and
➡ carry out some self-assessment of their learning.

The author of the present paper shares the point of view of many educational researchers (Haynes, Davis, Mckibbon and Tugwel, 1994) that *Learning is a constructive process in which the learner interacts with new information in order to establish personally relevant meaning from this information.*

Interaction with new information is the essential ingredient in the process of learning. The challenge for instructional designers is to organize learning opportunities to support such an interaction. Let's have a look to the constructivist approach in connection with learning more in details. Jean Piaget was the most dominant figure in the constructivist movement mainly because he was the first researcher who has done the main emphasis on the constructivist nature of the learning process.

In contrast to more traditional views which see learning as the accumulation of facts or the development of skills, the main underlying assumption of constructivism is that *individuals are actively involved right from their birth in constructing **personal meaning**, that is their own personal understanding, from their experiences.*

In this way the student is brought into ***central*** focus in the learning process.

Piaget himself was mainly interested in the way in which people came to know things as they developed from infancy to adulthood. Thus, his theory is one which is ***action-based***, what was also the base of Learning Styles' Theory. The constructivist approach by Piaget was more concerned with ***the process of learning*** than ***what was learned***. It suggests that we come to know things as a direct result of our personal experiences, but we make sense of those experiences at different stages of our lives.

Piaget's theory is based on learners passing through a series of stages. For the young infant, the most important way of exploring the environment is through the basic senses. It is the ***sensory-motor*** stage of learning. The next stage is the ***intuitive*** or ***pre-operational*** stage, it is between two and seven. The ***concrete operational*** stage is about the age of seven of the child, this stage is depended upon concrete examples. Finally, there is a move into ***formal operational*** thinking when abstract reasoning becomes increasingly possible. It happens, for Piaget, during adolescent years.

As for the author, the fact of existence of stages in human development leads us again to the Theory of Learning Styles which also supports such a point of view that *people learn and process information in different ways*.

The author supports the point of view of Piaget who defines cognitive development as essentially a process of *maturation*, within which *genetics* and *experience interact*.

The developing mind is viewed as constantly seeking *equilibration*, i.e. a balance between *what is known* and *what is currently being experienced*. This is accomplished by the complementary processes of *assimilation* and *accommodation*.

Assimilation is the process by which incoming information is changed in our minds so that we can fit it in with what we already know. *Accommodation* is the process by which we modify what we already know to take into account new information. Working together, these two processes contribute to what Piaget terms *the central process of cognitive adaptation*.

This is the essential aspect of learning.

The author of the present paper would like to draw the reader's attention to some central aspects which she believes to be of particular significance for education.

First, everybody can see how important it is to take account of the learner as an individual, actively involved in constructing meaning. When the students learn any subject, they are actively involved in making their own sense of the subject input that surrounds them as well as the tasks presented to them.

Second, the development of thinking and its relationship to the subject and experience become a central focus of learning.

Third, care should be taken to match the requirements of any task to the cognitive level of which the student is capable. These tasks set by the teacher in the Electronic Classroom should be neither too abstract for those who are not yet conceptually capable of functioning at this level, nor too simple in that the conceptual level is below the level of the student's competence.

Fourth, we can see the application of Piaget's notions of assimilation and accommodation to learning a new subject. When the students receives new input of the subject, they need to modify what they already know about this subject (accommodation) so as to "fit"

the new information into their existing knowledge (assimilation). In this way students' knowledge of how the system of the new subject operates gradually develops.

The next scientist of the constructivist movement, whose *personal-construct theory* has profound implications for teachers, teachers trainers and educational psychologists, is George Kelly (1955). Kelly believes that people as scientists constantly seek to make sense of their world, they carry out their own personal experiments, construct hypothesis, theories and actively seek to confirm or disconfirm them.

These personal theories or *construct* people place over their impressions of any new events or persons with which they come into contact in order to establish some kind of reasonable "fit". For Kelly, learning involves students making their own sense of new information. Students are actively involved in constructing their own personal understanding of things, this understanding is different for different people.

This statement completely coincides with the point of view of one of the creators of the Learning Styles' Theory – Rita Dunn (1989), who believes that people concentrate on, absorb, process and retain new information differently according to 23 elements of instructional environment:

➡ immediate environment (noise, temperature, light, design),
➡ emotionality,
➡ sociological preference (learning alone; with peers; with adults present),
➡ physical characteristics (auditory, visual, tactile/kinesthetic preference, time of day…),
➡ psychological inclinations (global/analytic, hemispheric preferences, impulsive/reflective).

All these elements define the learning style of the student and are closely connected with the main postulates of the constructivist movement. Kelly (1955) believes that students are active participants in deciding how to act and they made such decisions on the basis of what made sense to them personally.

Human individual construction of the world depends on their previous experiences, which will also influence how they anticipate, what will happen in the future.

The author of the present paper shares the point of view of Burge and Roberts (1998, 20), who believe that there are the following implications of applying the constructivist approach, the theory of learning styles in education:

Learning resources should have such characteristics:

➡ relevance to each learner problems and contexts,

➡ a variety of problems and contexts (breadth of information),

➡ controversial or complex problems (depth of information),

➡ conflicting ideas and attitudes in a context,

➡ personal practical knowledge held by the learner.

4. Conclusion

The author of the present paper can conclude that humanist and constructivist approaches to the teaching-learning process identify four key elements: the learner (his/her learning style), the teacher, the task, and the context (emotional, social, cultural, physical, political environment, the whole educational ethos) interact with and affect each other.

There has never been a time when teaching and learning was more in need of a systematic educational underpinning to its activities.

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The influence of context-dependent learning experience on the quality of knowledge in chemistry at secondary school level

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1. Outline of Slovene high school chemistry curriculum

1.1. Objectives

Education in chemistry comprises three major elements: learning chemistry, learning about chemistry and doing chemistry. Learning chemistry means acquiring and developing conceptual and theoretical knowledge. Learning about chemistry includes developing and understanding the nature and methods of chemistry and an awareness of the complex interactions among chemistry, technology, society and environment. Doing chemistry means engaging and developing expertise in scientific inquiry and problem solving. Therefore, chemical education at high school level should aim to (a) provide a body of knowledge, methods and techniques which characterise chemistry and technology, (b) enable students to apply and use a body of knowledge, methods and techniques relevant for chemistry and technology, (c)

develop an ability to analyse and evaluate scientific information, (d) develop experimental and investigative skills, (e) engender an awareness of the need for effective collaboration and communication during scientific activity, (f) raise awareness of the ethical, social, economic and environmental implications of using chemistry and technology, (g) develop an appreciation of possibilities and limitations associated with chemistry and chemists. It is the intention of teaching chemistry at the high school level that students should be able to (a) understand, apply and use chemical facts and concepts, methods and techniques, and chemical terminology (b) construct, analyse and evaluate hypotheses, research questions and predictions, scientific methods, techniques, procedures and scientific explanation (c) demonstrate the personal skills of cooperation and responsibility appropriate for effective experimental work and problem solving (d) demonstrate the manipulative skills necessary to carry out experimental work with precision and safety.

1.2. Approaches to teaching chemistry

An inquiry-based chemistry curriculum for the high school level is designed so that students would discover conceptual knowledge through activities designed to mimic scientific inquiry. Experimental (laboratory) work is a mean of obtaining factual information from which conclusions and eventually explanations, would be later drawn. In promoting the value of direct experience, chemistry curriculum introduces the model of discovery learning. Although there are a variety of approaches to teaching chemistry, most high school chemistry teachers have found "four-phase" approach (Hodson, 1996, 115–135) very useful for designing learning experiences that systematically focus on the particular characteristics and distinctive features of each phase: (a) design and planning phase, during which questions are asked, hypothesis formulated, experimental procedures deviced and techniques selected; (b) performance phase, during which the various operations are carried out and data are collected; (c) reflection phase, during which experimental findings are considered and interpreted in relation to various theoretical perspectives; (d) recording and reporting phase, during which the procedure and its rationale and the vari-

ous findings, interpretations and conclusions are recorded for personal use and communication to others.

1.3. Programme structure and syllabus details

High school chemistry programme consists of core material and options of maximum 210 hours of study. The number of hours of study depends on the type of high school: in grammar school (Gimnazija), chemistry is taught three years, 70 hours each year. The topics of core material are as follows:

Stoichiometry, Structure of Matter (atomic theory, bonding), Changes (chemical energetics, kinetics, equilibrium, acids and bases, oxidation and reduction), Elements in the Periodic Table, Structure of Organic Molecules, Properties of Organic Compounds, Reactivity of Organic Molecules (from hydrocarbons to alcohols, from alcohols to organic acid derivatives, from amines to aminoacids, from monomers to polymers), The Role of Organic Compounds (hydrocarbons and halogenated hydrocarbons, lipids and soaps/detergents, carbohydrates, proteins and polymers).

The selection of options provides flexibility to schools and teachers with regard to choice of content and number of options. It is compulsory to choose at least one option in an academic year. The topics of options are the following: Further Physical Chemistry, Examples of Chemical Technology, Selected Content of Analytical Chemistry, Selected Content of Environmental Chemistry, Determining Structure of Organic Molecules, Planning Synthesis of Organic Compounds, Examples from Heterocyclic Chemistry, Basic Biochemistry, Antibiotics, Colour and Dyes.

For the purpose of the external baccalaureate exam, the chemistry programme is built up with additional higher level material of 105 hours of study in the last (fourth) year of high school. National baccalaureate exam consists of five subjects: Slovene language, Mathematics (standard or higher level), Foreign language (standard or higher level) and two subjects, selected by students. Chemistry exam consists of two papers: Paper 1 (90 minutes) is made up of multiple choice questions aimed at student's overall knowledge of the material which forms the core of high school chemistry programme. Paper 2

(90 minutes) tests particular parts of core material in greater depth. The content of options is not included in exam papers.

2. The reasearch project: Comparison of the level of achievement of students learning in authentic and conventional environments

At the secondary school level, chemistry education has to fulfil two roles: to prepare future scientists and technologists and to provide all citizens with sufficient knowledge and understanding to enable them to make sensible decisions about chemistry-related issues that affect all our lives. The first of these has had a strong influence on school chemistry in the past but it is now generally agreed that in the future far more attention should be given to the second role.

Although the concept-based and inquiry-oriented secondary school chemistry curriculum promotes discovery learning, actual chemical instruction does not always follow the stated model: very often, it is too much teacher-directed and lecture-based. However, in the transmission approach to teaching and testing chemistry knowledge (where packed knowledge is transmitted and then the level of retention is tested) especially the talented students gradually lose their capability to plan learning because this approach does not represent an intellectual, social or motivational challenge for them. On the other hand, teachers still seek to separate knowing chemistry from doing it, treating chemistry knowledge as independent of the situation in which it is learned and used. In order to let students to use chemistry knowledge properly as they come to understand it, learning should be embedded in authentic and meaningful activity. If learning experiences in school are to be authentic, they should be designed to provide opportunities for students to test the robustness of their conceptual understanding in these contexts of use and to engage in activities focusing on describing, explaining, predicting, inquiring and controlling as a way of developing that understanding (Hodson, 1998, 118–119). In order to let each student progress at a speed that optimises learning, the teacher should become a facilitator of learning with an obligation to assist students when it is needed. An example of such learning strategy is project-based learning requiring from students a high degree of personal responsibility for the outcomes of the project (Thulstrup, 1998, 81–90).

2.1. Methodology

The research project is based on supposition that engaging in the processes of chemistry changes students' conceptual understanding as processes and concepts are interdependent. Therefore, students should understand procedural knowledge to the extent that they can use it themeselves and evaluate whether it has been used appropriately. In this way, students should acquire a deeper understanding of the nature of scientific inquiry by conducting scientific inquiries.

In order to emphasise aspects of chemistry that would give students the tools to recognise chemical/technological problems and to know how to find, use and analyse data to solve problems, "microencapsulation technology applied in chemical recording", was chosen for providing context-dependent and authentic learning experiences. In searching for pattern of knowledge on chemical recording students applied methodological strategy of structuring data into systems, based on the recognition of key parameters and their hierarchy. The results of data processing were concept maps constructed by students and supervised by the teacher to define reactions and reactants participating in chemical recording.

The project work was performed by 32 students (16–17 years old) working in pairs. Students work first individually and then combine their results, contributing to the success of the pair. For comparison, another 32 students of the same age and abilities were involved in teacher-directed and lecture-based conventional instruction dealing with selected curriculum topic on chemical recording in the absence of authentic learning environment. Both approaches were evaluated by testing each individual student: the test consisted of questions with incorporated Bloom's taxonomy.

2.2. Results

A comparison of the level of achievement of students in both groups indicated that context-dependent learning experiences significantly increased the quality of responses of higher taxonomy levels. From the social point of view, individualised group work should develop adaptability to the mixed ability group, which is usually the case in most working situation.

Table 1. Analysis of the answers of students learning in teacher-directed conventional environment and authentic environment providing context-dependent learning experiences.

Task	Bloom's taxonomy	Description of the task	Teacher-directed and lecture based instruction			Project-based learning/ authentic learning environment		
			% correct answers	% partially correct answers	% incorrect answers	% correct answers	% partially correct answers	% incorrect answers
1.	Recalling	Definition	59	3	38	69	0	31
2.	Understanding	Acid-base reaction	44	21	35	57	16	27
3.	Application of knowledge	a) Formulae of amines	82	18	0	92	8	0
		b) Basic character	47	24	29	57	2	41
		c) The strength of bases	18	35	47	76	8	16
4.	Analysis	Analysis of experimental observation:						
		a) Solubility	32	59	9	78	22	0
		b) Reaction with acids	56	18	26	76	22	2
		c) Azo dye synthesis	35	0	65	62	5	33
		d) Specific reactions of amines	26	6	68	70	3	27
5.	Synthesis	a) Empirical formulae determination	56	21	23	86	8	6
		b) Molecular formulae determination	88	12	0	95	0	5
		c) Data processing	65	12	23	76	3	21
		d) Recognition of compounds	65	12	23	57	22	21
		e) Recognition of chemical reactions	9	65	26	59	24	17
6.	Evaluation	Recognition of pattern of knowledge applied on chemical recording	0	45	55	27	70	3

3. Conclusion

It is highly desirable for the social importance of future role of chemistry and chemical technology to be understood and appreciated by the majority. The chemistry teacher at high school level should prepare students for understanding the world that awaits them outside the school, the world which sometimes seems unrelated to what is happening in chemistry classes. Therefore, it should be the intention of contemporary chemistry teaching at secondary school level to enable students to become scientifically capable. Becoming scientifically capable involves not only the acquisition of scientific skills, knowledge and understanding but also development of personal qualities and attitudes, the formulation of one's own views on a wide range of issues that have a scientific and/or technological dimensions and the establishment of a value position (Hodson, 1998, 3). Creating content-dependent learning environment is an example of providing opportunities for the development of students' scientific capability in chemical education.

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Issues relating to literature syllabus: idealistic intellectuality or practical knowledge and skills?

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The new syllabus introduced in the Republic of Estonia in the academic year 1929/30 (instead of the former temporary ones) changed studying considerably. The committee formed for preparation of the syllabus (Chairman **Jaan Roos**, members **Gustav Suits**, **Johannes Voldemar Veski**, **Mihkel Kampmann** and **August Anni**) finished the initial plan along with an explanatory part by autumn 1927. It was published in the January issue of the *Kasvatus* magazine in 1928. The new syllabus obtained its final form at the meeting of the Estonian Language Study Workgroup of the Estonian Association of Teachers. In this form, the syllabus was presented to the Ministry of Education for approval. Teaching Estonian language and literature was placed on a new foundation. The changes were so radical that they brought about opposition from some teachers. In 1930, **Jaan Roos** admits that teachers of the native language are divided into two groups.

One protects the so-called study principle upon teaching the language and literature, the other supports the work principle. The first group supports the old tradition where the teacher teaches and the students study, because in this way, both have it easier to work. The supporters of the changes, however, favour the approach according to which the studies of the language and literature must take place in mental cooperation between the teacher and the student. Undoubtedly, this approach requires much more knowledge, effort, will to work and education from teachers as well as students. However, the results are more extensive and better as well, and even more important, the joy of work and interest increase considerably. (Roos, 1930, 414–416).

The syllabus is characterised by the principle of free and mental work and the principle of self-study and active participation. The main requirement in connection with the Estonian language and lit-

erature is that it is the language and the literature that have to be taught, not linguistics, grammar or literature history or theory.

After the re-establishment of independence, political censorship with respect to teaching literature ended in the Republic of Estonia and Estonian authors living abroad along with domestic writers and international authors representing valuable works were included in literature syllabi. Literature is a very specific subject: in addition to traditional objectives its supplementary aims are to educate people, develop patriotism, teach cultural history, form moral, ethical and aesthetic values. For small nations literature in their native language is of greater significance than for big nations and therefore the expectations of literary teaching are remarkably greater and involve more commitment.

Besides teaching reading, text analysis and text creation, a person's value system is developed through literature as well.

It was the first task to create new syllabi in the course of reforming education in the Republic of Estonia at the beginning of the 1990's. Personal-oriented learning acquired an important role.

The literature syllabi for basic and upper secondary school which came into effect in the academic year of 1996/1997 offered lots of options and were not normative. The options mainly focused on the acquisition of knowledge, skills and competence, while cognitive values were less emphasised.

When putting together a syllabus a big problem arises: how can its vertical and horizontal dimensions be balanced?

There are two principles of preparing a literature syllabus:
➡ formation of idealistic intellectuality or the vertical dimension,
➡ providing practical knowledge, skills and competence or the horizontal dimension.

Some former syllabis emphasized the horizontal dimension, e.g. teaching students history and the present; models for solving possible life situations, deeper insight into different eras and cultures; knowledge about the regularities, means and methods of the composition of a literary work. Teaching literature enlarged one's erudition in the field of language and literature, but did not pay sufficient attention to a person's moral development, i.e. the vertical dimension. A great number of activities were suggested: discussions, debates, interpretations, communications, etc. All of them are necessary but they tended

to overshadow the essence – reaching the depths of a student's self-perception, moral improvement (vertical dimension).

The new national curriculum that enters into force as of the academic year 2002/03 attempts to unite the two main principles of teaching: development of an idealistic attitude, i.e. vertical dimension and giving practical knowledge and skills, i.e. horizontal dimension. (So far, the definitions of vertical and horizontal dimension have been used mainly when speaking about teaching literature) (Kuurme, 1996, 49).

Theoretically, such a combination can be formulated easily, but it is very difficult to realise them. The history of the educationalist thought shows that the ancient Greek and Roman philosophers racked their brains over the methods and extent of teaching and guiding shaping young people. Where is the line which the student must certainly be aware of, what subject knowledge is mandatory and what is not? Or, in other words: how can the volume of factual knowledge be joined with the sensitive development of personality in order to achieve balance between idealistic spirit and practical knowledge and skills? There is no single answer and there has never been one. It is important to move towards the achievement of balance.

Disputes over which side is more important lead nowhere because the history of humanity has shown that no educated or skilful people are developed without knowledge. This truth seems trivial, but nevertheless we see education officials in lively disputes trying to refute the main principles of teaching without seeing the big picture. We have to admit the challenges that we have faced since the very beginning of our existence, if we do not want to fight windmills like Don Quixote.

What would develop a personality better than reading valuable literature, digging into its riches and learning from there? The better the author's knowledge of the language, the more influential the work. For smaller nations the literature written in the native language is more important than for large nations and thus expectations related to literature and literature syllabi are much higher and obligatory. It is the linguistic expression (and not only) that makes a regular text a work of art. If the content is accompanied by skilful use of words the result is enjoyable. Literature classes at school can develop the student, but also destroy any interest in reading. By analysing literal

works the teacher can direct students, because the new syllabus contains an ample selection of the major Estonian and world literature works. Teaching literature carries a special spirit and values: ethnic, social, historical, world-culture-related, artistic, ethical, aesthetic, moral, etc.

The answer to the question put in the topic is as follows: the new syllabus that was approved in 2002 has to find the right proportions between providing knowledge and skills and shaping value systems which enhance a person's development. A substantive integration of teaching literature with teaching texts, poetry, history, sociology, music, figurative art and the history of religion are of great importance. Through literary works the history of the creative mind of both Estonia and the whole world talks to us.

Understanding fiction, opening texts, writing about them and preparing various creative texts are important fields of work for students and an opportunity to raise language-sensitive and idealistic people. To open a text and understand it the methodology provides interesting techniques of which the associogram is one opportunity (Vääri, 2001, 229–236). Students' linguistic skill of expression does not come from itself. It is the result of a constant, purposeful and conscious work. Values are shaped as a result of the co-effect of several factors as well. Again, there is reason to remind coexistence of the vertical and horizontal dimension upon studying and teaching. There is a clear connection between the values and language skill of students. A developed student with high values and diverse interests is demanding in his or her use of language and knows how to, is able to and wants to choose a language style. State examination compositions clearly indicate how the linguistic skill of expression is related to values (Vääri, 2000, 260–266).

As for documents that guide education, the syllabus is certainly the most important. The basic school and secondary school syllabus of the Republic of Estonia represents attitudes that the following generations must be smarter, more educated and be able to achieve and do more. A student is a learner, not a grinder. Along with knowledge a creator and a thinker who analyses the values of life, the truth, beauty, goodness and being a human and who takes care of himself or herself, other people, the homeland and the whole of humanity is shaped. Knowledge only is not enough as well as it is not possible to

do without the experience of previous generations. A literature sylla-bus has to support the development of a person with profound sub-ject-specific knowledge and high ethical, aesthetic and moral values. Both intellectual richness as well as emotional spaciousness help to see the world and understand it.

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