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SUSTAINABLE DEVELOPMENT. CULTURE. EDUCATION.
Research and Implementation of Education for Sustainable Development

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Phenomenology of Education for Sustainable Development

Eco-phenomenology: the language of dwelling

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Abstract

This phenomenological analysis, the author considers possibilities of how we might, in educational settings, promote an awareness of, and active engagement into, sustainability activities. We are called to dwell. And in our dwelling, our Being is disclosed. But in a technological world, we are disclosed as being disembodied and disconnected from nature. We find similar disclosures in compulsory schooling. In schools, the language and power of institutional authority and efficiency has delimited the manner in which the world can be present. Our fundamental relationships with knowledge and nature have been altered. Pedagogical attempts to inform students and teachers about sustainability might suffer a similar delimiting fate. Perhaps we have forgotten how to dwell.

Key words: eco-phenomenology; instrumental rationality; dwelling; calculative thinking; school knowledge.

Introduction

Eco-phenomenology asks that we look, without prejudice, or pre-judgment, toward nature as it shows itself. “To the things themselves,” urges E. Husserl. “Into Being,” echoes M. Heidegger. We look toward the ontological. But where does this look take us when we are asked to consider nature and schooling together? What common ground might be shared by both nature and schooling? What origin might emerge? In this paper, these questions are explored in an attempt to discern how the language and power of institutional authority and
notions of efficiency delimit the manner in which the natural world can be present. For it is embodied presence that is required to truly understand and appreciate sustainability.
Origins

“Origin . . . means that from which and by which something is what it is and as it is” M. Heidegger says. “What something is, as it is, we call its essence or nature. The origin of something is the source of its nature” (Heidegger, 1971, 35). But concern for nature, and compulsory school, originate from two very different sources.

When we question the origin of nature as it shows itself to us, we look and listen toward the environmentalist’s experience. And in our listening we often hear the aesthetic response. We hear personifications, narratives, histories. We witness bodies enveloped, enraptured, in the sublime.

When we question the origin of schooling, and ask about the source of its nature, we look toward the activity of the schooled and those who school. When we listen to the language that contextualizes schooling practice we are quickly drawn into programmatic instruction. We hear less about personifications and more about deliberate objectification. Histories give way to a continuous present. Bodies are captured, if not eliminated completely by the emphasis placed on the techniques of schooling. The sentient human body that was once so necessary in the pursuit and achievement of understanding is shucked off in the name of abstract reasoning and relentless memorization. Instrumental reason prevails. We are now, with our programmatic instruction, programmed to program.

To Receive With Wonder

Can we find common ground within the narratives of nature and schooling? Perhaps W. Whitman (1965) finds an opening. He writes:

*There was a child went forth every day,*

*And the first object he looked upon and received with wonder, pity, love, or dread,*

*that object he became,*
And that object became part of him for the day, or a certain part of the day, or for many years, or stretching cycles of years.

The early lilacs became part of this child,

And grass, and white and red morning-glories, and white and red clover, and the song of the phoebe-bird,

....

And the apple-trees cover'd with blossoms, and the fruit afterward,

and wood-berries, and the commonest weeds by the road;

These became part of that child who went forth every day, and who now goes, and will always go forth every day.

To receive with wonder. Something so simple, and yet so profound. We hear W. Whitman speak of a child and the way the child looks upon and receives with wonder an object within his grasp. We hear of the object becoming part of the child.

Here is a poet who gives us glimmers of the appeal, or the call, of Being. We sense an engagement with, and a commitment to, the world. In this ‘becoming’ the distinction between child and world is blurred. W. Whitman allows a child and an object to come into being together. Perhaps W. Whitman understands the call of Being because it is the poet’s calling, or responsibility, to understand or recognize the call. Perhaps the same can be said for the environmentalist.

It is the teacher’s and student’s calling as well. Like the poet, we too hear that call. But perhaps only faintly because we have been told to listen for a different call. Programmatic instruction needs no wonder, pity, love or dread. Instrumental rationality asks not why.

Have we forgotten to make that appeal explicit in our schooling practice? Have we forgotten the appeal that presumably, or desirably, begins in wonder and so often ends in the procedural implications inaugurated by a
hegemonic, technological, discourse. In our schooling practice, objectification prevails. We are encouraged to maintain a distinction between knower and known, manipulating both.

**Objectification**

Whitman puts into question the boundaries between being and beings. “That object he became”. In the language of schooling, objectification is paramount. The school environment is one that relies on spatial visual metaphors – material is to be covered, objectives are to be measured. This thinking, or non-thinking, is of a world that has forgotten Being. This forgetting of Being cannot, and must not, be understated.

Let us be clear on this thing we call object. In that very moment, W. Whitman says, “that object he became,” we lose the sense of object as that which stands against us. And in its stead, we find one who dwells – one who enters in and through that which shows itself. We recognize quickly that the child about whom Whitman speaks dwells in and through a world, ultimately taking that world on as a perspective.

M. Merleau-Ponty says something similar when speaking of a work of art: “I would be hard pressed to say where the painting is I am looking at. For I do not look at it as one looks at a thing, fixing it in its place. My gaze wanders within it as in the halos of Being. Rather than seeing it, I see according to, or with it” (Merleau-Ponty, 1993, 126).

The educator shares a way of life with the artist, poet and environmentalist. Each reveals that which is obscure or unknown by presenting and presencing – through painting, poem, story, or example. But the educational discourse and the emphasis of instruction for pre-service teachers suggest that presenting has the higher status. In colleges of teacher education, we discuss the importance of presentation. How might one present something effectively, to the greatest benefit of the student? How should material be presented so that students with differing learning styles might come to understand? We seem to be fixed on the presentation – fixated on the movement and retrieval of data and information – on objects. However, if we give heed to M. Merleau-Ponty’s insights, we recognize that our non-objective gaze should not be fixed on the painting, the poem, or the example. By ‘seeing-with-it’ that we begin to arouse the presencing.
M. Heidegger describes this seeing-with in his analysis of Van Gogh’s peasant shoe paintings. By “bringing ourselves before Van Gogh’s painting,” M. Heidegger says, “that the painting speaks.” And, “in the nearness of the work we ... [are] ... suddenly somewhere else than we usually tend to be.” In this “somewhere else” we witness the “toilsome tread of the worker, ... the accumulated tenacity of her slow trudge through the far-spreading and ever-uniform furrows of the field swept by a raw wind, ... the loneliness of the field path as evening falls, . . . and the call of the earth” (Heidegger, 1971, 143). In our nearness, and our seeing-with, we enter into the peasant’s world. We are not asked by the artist to fix our gaze on the worn tread or the tattered sole depicted on canvas, treating this shoe as a thing in itself. We are, rather, called to “bring ourselves before the painting” – to “wander in the halos of Being” – to allow ourselves to enter into, or think into, or imagine into, that which allowed the shoes to appear as they do. What is at work, Heidegger explains, is “the disclosure of the particular being in its Being” (Heidegger, 1971, 161).

One sensitive to nature, in his or her ‘nearness’ to nature, in his or her ‘seeing with,’ enters into nature’s life. The environmentalist brings herself ‘before nature,’ allowing nature to speak, and soon, as experience attests, finds herself ‘somewhere else that she usually tends to be.’ Nineteenth century writer M. Fuller, when sharing her first experiences of the Prairies of Illinois, wrote:

_I began to love because I began to know the scene, and shrank no longer from ‘the encircling vastness.’ It is always thus with the new form of life; we must learn to look at it by its own standard. . . . But after a while I would ascend the roof of the house where we lived, and pass many hours, needing no sight but the moon reigning in the heavens, or starlight falling upon the lake, till ... [I] felt nearer heaven ... (Fuller 2002, 21)._

In that somewhere else, where personification reins, we hear E. C. Wright say:

_into the forests and grottoes where the air breaths poetry, and all the elements of grander dramas than ever we have enacted, are created and exhaled by rock, and tree, and moss – by cool spring and shady river – by many-toned_
birds, and bright-hued insects, and shy wild beasts – by fog, and cloud, and wind, sunshine, and rain, and dew. We had a mind to lie out under the skies and catch any divine ideas that might fall, with falling stars, on the soul not shut in from them by lath and shingles. We would lie on the bosom of Mother Earth and listen to her breathing, and thereby interpret her dreams. We would hush still the life that was in us, and listen for ‘the sound of growing things (Wright, 2002, 42–43).

Like the artist asking that we not look at the painting as a thing, or like the environmentalist asking that we see into and beyond the natural objects that present themselves, in our educational presencing the teacher might ask that students not look at the example as a thing. “I want to share with you a passage,” the English teacher says enthusiastically. The words suggest the objective, but within the enthusiasm we find the glimmers of a call to enter into the story. Or, “look at this,” the science teacher says, holding something up for view. The words spoken speak of the objective, but the call is to flow into a wondrous nature allowing that which is held up to be disclosed as it is. There is a call to be suddenly somewhere else than we usually tend to be.

“I will provide my students with examples,” the teacher says. But examples are already representations of something considered real and removed from us in space and time. Van Gogh’s shoes were not meant to be examples, any more than A. Comstock’s (2002) trees were meant to be examples.

One might say that we are obsessed with examples in teacher preparation institutions. Lesson objectives are rife with examples: “Students will be given a number of examples so that they might come to understand ‘such-and-such’ a concept, and will perform ‘such-and-such’ a task with 80% accuracy.” “Students will be provided with examples,” we hear repeatedly. The presumption here is that students will come to know the examples and develop the ability to manipulate those representations rather than dwelling within the Being of that which is re-presented.

If we take presencing seriously, one must understand something of the Being of that which is represented – that is, the Being that allows that which is meant to be shared to come into existence. Here lies the “somewhere else” that M. Heidegger speaks about. Here falls the poet’s gaze – “voracious,” reaching beyond the “visual givens.” The poet, artist, and environmentalist convey the “voluminosity of the world” (Merleau-Ponty, 1964, 166). However, in the classroom, example, painting, or nature become that to which we fix our gaze,
something to which we point – the ontic rendition. The viewer is situated and
fixed at a distance from that which is presented. By fixing our gaze we
potentially neglect the call to wander, disregarding the dwelling place shared by
those who understand that which is obscure. We disregard the Being of beings.
These objects are for our purposes, our manipulation. We are not for theirs. C.
Kirkland wrote:

The Western settler looks upon these earth-born columns and the
verdant roofs and towers which they support, as “heavy-timber,” – nothing
more. He sees in them only obstacles which must be removed, at whatever
sacrifice, to make way for mills, stores, blacksmiths’ shops ... ‘Clearing’ is his
daily thought and nightly dream; and so literally does he act upon this grinding
idea, that not one tree, not so much as a bush, of natural growth, must be
suffered to cumber the ground, or he fancies his work incomplete (Kirkland,
2002, 14).

Like the great tree in nature, students, too, have been objectified and
manipulated for purposes other than their own. We hear W. T. Harris, U. S.
Commissioner of Education from 1889 to 1906, pioneer of the common school
movement, speak of student experience. In “The philosophy of education”, which
was published in1906, it is written:

Ninety-nine [students] out of a hundred are automata, careful to walk in
prescribed paths, careful to follow the prescribed custom. This is not an accident
but the result of substantial education, which, scientifically defined, is the
subsumption of the individual. ... The great purpose of school can be realized
better in dark, airless, ugly places. ... It is to master the physical self, to
transcend the beauty of nature. School should develop the power to withdraw
from the external world (Gatto, 2006, 86).

Logistics
Prescription is the message, substantial education the medium, the subsumption of the individual the lived plan. How well we have done. But let us question the origin. F. Smith suggests we look toward logistics.

Logistics is the science of centralized planning, the systematic organization of people and materials. It works toward the accomplishment of a single clearly defined and distant goal – one step at a time. It is the epitome of attention to detail, setting up and following predetermined plans with ruthless quality control. People no longer [did] do things as individuals, or as communities, but as small cogs in a large system (Smith, 1998, 67).

System triumphs over people. Leaders organize, decision makers enforce, plans are carried out, efficiency privileged. Where is W. Whitman now?

There was a child went forth every day,

And he was forced to look toward that which was logistically determined.

He looked logistically.

And he became logistic for the day, or a certain part of the day, or for many years, or stretching cycles of years.

What matters is the plan. Nineteenth century efficiency, organization, and management in schools had already been encouraged by preceding events. The language of the Prussian schools is peculiar. Prussian schools knew the language of the Prussian army. The language, the metaphors, the ideas were there. Prussian schools, evolving from that same language and purpose as the Prussian Army, set the stage. We know of the Army’s success:
... mechanical standardization and meticulous attention to detail, selected recruits of the same age, height, weight, and experience, put ... into separate barracks, [and] subjected to remorseless discipline and drill ... and ... a standardized, predictable, and reliable product [was created] That being the Prussian soldier (Smith, 1998, 47).

Our militaristic W. Whitman might say:

*There was a child went forth every day,*

*And he saw the deployment of resources, the recruitment of teachers and students. The child advanced or withdrew with others.*

*He was promoted to higher grades.*

*He experienced drills, and saw strategies, was engaged in batteries of tests, was aware of word attack skills, attained targets, needed reinforcement, was a member of cohorts, a part of numerous campaigns and the war against illiteracy. Objectives, goals ... .*

*That object he became,*

*And that object became part of him for the day, or a certain part of the day, or for many years, or stretching cycles of years.*

And W. Whitman might continue:

*Now, teacher and student go fourth, every day,*

*compliant, non-thinking,*
Randall Dana Ulveland

without wonder or curiosity.

The child will wait for the teacher to tell him what to do,

and the teacher will wait for another authority to tell her.

They will wait together.

Beleaguered, but ready for command.

To receive with wonder would be tantamount to an enemy attack or at least an inconvenient interruption of any school programme.

Dwelling

“My gaze wanders in it,” we hear M. Merleau-Ponty say. To wander in the painting is to dwell with the artist in that enchanted moment, in that place or time previously discovered or created by the artist. To wander is to attend to, listening to a shared language, discovering a new way of being. Likewise, we are called to dwell with those who share the bounties of nature with us. As dwellers, to borrow a term from M. Heidegger, we attempt to get near, “to reside” or to be “alongside” in a familiar ‘way.’ This is a way of “being-familiar-with” the world. This is a way of “being-in,” “being-at-home-in,” “moving-” or “living-in,” not in the spatial sense, but rather in the experiential sense such as being in love. That in which we dwell is, according to M. Heidegger, ‘Being’ (Heidegger, 1971, 35).

We are invited to dwell consensually by the one who has been inspired. The inspired one, filled with thought and feeling, about something, calls out. “Look at that beautiful coast line” the environmentalist says rapturously, inspired, as if sharing a secret of human existence. This rapturous call is an encouragement to enter into a potential-for-being in the shared world in which we are situated. “Look at these shoes,” Vincent says to his brother Theo (and all others who might subsequently witness the painting). The revealer shares his inspiration, inviting us, calling us, into his dwelling place, revealing that which may be obscure – making that which is obscure, consensual. We are called to participate in the potential-for-being. To potentially be somewhere else than we usually tend to be.
We maintain “a pact” by which we “lend our body” to a potential-for-being. We live within a way of life that encourages an opening in which possibilities may occur or present themselves. We anticipate the “bursting forth of the mass of the body toward the things.” The poet, as revealer, recognizes and acknowledges the necessity to open oneself up to the revealing, waiting for the obscure to show itself. But to fix our gaze on the thing prevents us from sharing that unspoken secret that lies within the “flesh” (Merleau-Ponty, 1994). By fixing our gaze at the presentation, by maintaining our distance, by treating things objectively, the ‘flesh,’ or this general manner of being, becomes a mere pellicle of corporeal existence, superficially ontic.

To experience the presencing, we are called to experience that which is being felt. We are called to feel in common. We are called to be exposed. “When reading me,” says I. Layton (1965), in his poem “Whom I Write For”: “I want you to feel as if I had ripped your skin off.” I. Layton gives us the impression that poet and poem are one and that the response be corporeal to the core. Just as the presenter who lays herself open in the presencing, it is this that the presenter asks of those who are to enter into the work. I. Layton intends to penetrate the flesh, to reveal the depths of our existence. This is the communion and penetration that we must also strive for in educational presencing. We sense this communion in the words of C. F. Grimké. In her personal journal C. F. Grimké wrote:

Salem, 1862

Wednesday, June 22. Yesterday A., I., C., E., and I went to Marblehead Beach. The tide was coming in, and never have I seen Old Ocean more gloriously beautiful. We had an afternoon of rare enjoyment; and it seemed to me as if I really could not tear myself away. I think I should have stayed all night if anyone would have stayed with me. It was too much happiness to sit upon the rocks, and see those breaking waves, again. As they receded, my whole soul seemed drawn away with them, then when they rushed back again upon the steadfast rocks my being thrilled, glowed, with joyous, exultant life. Strange, strange, old sea, how something in the deepest depths of my nature responds to you, how the very fibers of my being seem to cling to you. But how can I describe the emotions which you awake in me? Words cannot do it. They fail, and are worthless, absurd (Grimké, 2002, 77).
Conclusions

The American school experience, as it currently exists, does not lead one to experience the natural world in the same way as those who experience nature deeply and corporeally. We find these differences in the language of dwelling. Perhaps, for the schooler, curiosity’s and wisdom’s inherent lack of boundary, and the inability to measure the boundless, make the call to dwell within the natural world difficult at best. No unified vision of the marvellous or sublime exists. To dwell within nature has more to do with perspective than with measurable skill.

In school we seek behaviours, not experiences. To talk of wonder or curiosity is to look for a visual behaviour of such. The value is in the measurable behaviour. Students are quick to note and disregard this as school knowledge acquisition.

There is no need to wonder corporeally into the world, the wondering has been done for us. Schools re-hash the old, not pursue the new. There is no revelation of the hidden. Schools do not have time to encourage, or even trust, new revelation or rapturous admiration. Schools are not equipped to talk about body or spirit in the world.

In school we are enframed and drawn in to specified content, procedure, standards, and methodology – not love of life, wisdom, or purpose. We are held captive by “way” of technique. We are enframed by a way of thinking that obscures wonder. In schools, in a manic effort to assess and objectify, something as simple as ‘receiving with wonder’ is lost – forgotten. And, in this forgetting, we alienate and disenfranchise those who might otherwise experience nature corporeally, wondrously, and caringly. In the forgetting, students and nature share a similar fate.

This is a call to remember Being-in-the-World, for a return to Being will be required to transition from sustainable practice to sustainable understanding. “To the things themselves”. “Into Being”. So sounds the call of eco-phenomenology.

References


**Cosmopolitanism and education: sketch of a methodological conversion**
Abstract

The article discusses the opportunity of methodological cosmopolitanism in human sciences and education, in the context of global expansion of political, social and economic interactions. A “cosmopolitan approach” is described in its methodological genesis and main features, as a pressing necessity for human sciences in order to understand the context of individual actions and thoughts. Defined in such a way, methodological cosmopolitanism helps theorists and practitioners to grasp the contemporary dynamics and to reorient theories and practices consequently. First of all, the article considers the partial crisis of nation-states as central political subjects; the following step argues the shift of the methodological framework from a nationalistic toward a cosmopolitan one. Finally, the article outlines the advantages of reorienting theory and contents of sustainable education and human sustainability theories according to a cosmopolitan view, which also implies some universalistic conception of the relations among different cultures. The entire article is based on the idea that sustainable development cannot be established without combining education, normative conceptions and social-economical trends.

Key words: methodological cosmopolitanism; culture; development; education; universalisation.

Introduction

The link between the structure and dynamism of society, economy and methodological approach to education is well known: educative practises and organisations reflect needs and ideals of a peculiar historical form of community, like normative theories try to compose both the ideal value orientation and the adherence to effective dynamics in society (culture, economies and policies). In these pages, we would like to touch this theme by exposing the very general features of a debate arisen in political philosophy and sociology, by sketching some possible consequences regarding the educational methodology and the cultural orientation of an “integral” ideal of development. The central question which arises from these brief reflections can be resumed as follows: how the
A methodological approach of education should modify itself. And what the contents and aims of education should comprise as to situate critically and efficaciously in a context of world-extended possibility of communicative interaction and in a global “hyper-capitalistic” economy? The article argues that these questions are strictly connected to these other two: how does – or should – education (and educational institutions) change while the nation-state political power declines? And, how culture, through education, should reorient itself in a more vivid context of interaction? Assuming these questions is unavoidable for an approach to education that is devoted to the promotion of an integral flourishing of human beings, society, and non-human natural beings (that is what we recognise as the essential sense of an integral sustainability of social and individual action) (Mandolini, 2007), in as much as it aims to be critically related to value orientations, mentality, economical relations, and to reorient people’s motivations towards appropriate issues. In this light a third group of problematic issues appears, regarding the interconnection between generally cultural and social dynamics on one hand, and the practical methodology of a sustainable pedagogy on the other.

Involving primarily the socio-economic ground of education, the problematic issue will be considered here not directly from a pedagogical point of view, but from a socio-political and philosophical one. The analysis starts with considering the meaning of the historical transition from the national political and economic pattern to a global one; it continues by exposing the proposal of a new methodological “cosmopolitan” approach, in its possible application to education. In this last step, the central (and new) question will be: how does the methodology of sustainable education should change, as to be “up to date” with the transnationally-based dynamics of many main cultural processes? This problem has not sufficiently been studied, nor yet examined in relation to the methodological requirements of the idea of sustainable development and to the possibilities of efficacy in teacher education.

The proposal of methodological cosmopolitanism

One of the main problems in social sciences nowadays is the partial crisis of the so-called ‘nation-state’, which implies, on a methodological level, the need to elaborate new categories and concepts to understand social relations (Dunn, 1995), work organisation (Totaro, 2004), inter-subjective interactions, and all cultural aspects. We can remark the proposal by U. Beck (Beck, 2006) to shift from nationalism to cosmopolitanism, intended not primarily as political ideals, but as methodologies of human social sciences (sociology, economics,
education), which have been originally constituted on nationalistic frameworks. U. Beck notes that methodological nationalism is no longer capable to grasp the new crucial political actors of society, nor its economic trans-national determinant factors. Nationalism is not denied here in its potentially “universal” purport, which holds that political legitimacy can be virtually extended to all peoples of the world, sustaining cultural diversity and pluralism (Gellner, 1993). In its ethical universalistic valence, nationalism can be probably thought to be still alive and powerful, capable to catch benevolence of a large part of the people, also as a response to globalisation itself (Kaldor, 2004). But, even if the influence of nationalism as a political category is even today strongly affirmed, nonetheless its concrete explicative force and methodological suitability for a research of the real political dynamics is significantly decreasing, together with the political crisis of nation-states. This is due essentially to economic reasons, consisting mainly in globalisation and markets opening, but also to the dynamics of mass communication.

Historically, nationalism has been the cultural reflex of industrialisation, like egalitarianism was a cultural consequence of essential modifications in work relations: nationalism appears to be a “response”, at the level of ideal social auto-representation, to the egalitarianism factually required by the structure of economy, when it changed from the rural to the industrial form. The affirmation of nationalism appears simultaneously with a new division of labour, in which all workers can potentially substitute each other with a minimal training. Thus, nationalism originally requires a specific pattern of education: while agrarian society is based on food production and population increase, the industrial one depends on cognitive and economic growth and requires, together with political centralisation, individual working mobility, more widespread literacy, a strong, diffused and quite homogeneous education (Gellner, 1993). The industrial structure of work requires a widespread basic literacy, the capacity of a standardised communication, an accentuated working mobility, all these made possible by the capacity to learn new tasks and skills, to relate with people from different social layers. The realisation of such a cultural linguistic standardisation, instrumental to the process of economic growth, has required the implementation of a complex educative system (equivalent to the degree of employability), which could be assumed only by a sufficiently strong actor, the Nation-State, capable to realise the connection between national economy, structure of the division of labour, political legitimacy, and form of education. What we argue here is that this connection, personalised by the Nation-State, is nowadays less strong and perspicuous, because of the shifting of work and economy to a more “immaterial” and cognitive communicative productive
structure (Farchy-Froissart, 2006), because of the increasing amount of risk (Beck, 1992), global openness of the markets, world-widespread diffusion of imagines and sensorial experiences; nonetheless, a new fluid connection between education – as institution – and society should be enhanced.

The problem is then clear: nationalism, as an implicit historical-social and educative framework is no longer valid to catch the central features of the contemporary trend, since the economic and political structure of societies has shifted from a national industrial context of action to a global, trans-national, hyper-capitalistic one (Beck, 1999). Even if many central functions of society are still in the political “hands” of the states, the leading processes and phenomena both in the economic and in the cultural context have already been assumed by other actors, whose operative power is not restricted to the national sphere, nor to the official political one (Beck, 2006); an example of this is the spreading dynamics in economic crisis. U. Beck directly faces the problem of the declining appeal and centrality of nationalism, seeking for a solution which could be suitable to the social and cultural process of globalisation of the beginning of the twenty-first century. By analysing some main characteristics of this society, especially the changed work organisation, the political relations, the relevance of economic trans-national factors, the change in mentality of the people, communications, mass-media role in realising a global imagination (Beck, 1997), he notes that the main determinant factors in society are not any more based on a national level, but on a transnational and global one. Consequently, he highlights the necessity to find a new criterion to understand the reality which is not based on the categories and methods inherited from the “old” national social science and politics (Beck, 1997), but updated with the multi-national form of economy, the weakening of political traditional procedures, the globally widespread information fluxes, the large phenomenon of intercontinental migrations, the rise of the problem of multiculturalism (Beck, 1999) in some national democracies. He identifies the appropriate methodological criterion with cosmopolitanism, seen as a “universal” paradigm suitable for the global horizon in which economic, cultural, social facts arise and are determined. Cosmopolitanism – like also a cosmo-politics appears then as a perspective freed from the assumption of the relevance of political and economic supremacy of the Nation-State (Held, 1988); therefore, it claims for a research of political and democratic procedures, capable to concretely face the supra-national field of interaction (Tundo, 2004; Archibugi-Held, 1995; Held, 2003, 1996). This link between the institutional and global political dynamics and the discussion in environmental ethics and ecological thought appears now clearer to a wider range of researchers in this domain, namely in the university network (Salomone-Fornasa, 2007).
Methodological cosmopolitanism and education

The relevance of the proposal of a methodological cosmopolitanism is motivated not only by its better appropriateness to the social and economic context, but also in its eventual ability to adapt to the possibility of an “integral” development and of an education oriented in that direction. It seems hard for education to face the complexity and contradictions that are implied in the conception of human development (in its ecological aspect as well as in the cultural and political ones) without a suitable methodological pattern for a situation in fast and deep transformation by globalisation (Russo, 2001). Let us briefly examine how the idea of a methodological cosmopolitanism can be “translated” in the educational field. This issue requires to discuss primarily not only the content of education but its approach to culture and society itself, and the way in which it is reflected by chosen contents: the important issue for education theory is to be more aware of the global relevance of its consequences, of the cultural “typology” that it promotes, of the form of development that it contributes to generate. There is no doubt that a particular culture, even in a cosmopolitan approach, should continue to exist and to be taught with its local and spontaneously national characteristics. Cosmopolitanism is not intended as destruction of vernacular, local, national cultures: on the contrary, it is thought to underline the peculiarity of cultural issues, face to global standardisation, and their importance in the formation of identity and morality of the individuals.

In particular, by referring to a context of mutual interaction among cultures, a cosmopolitan approach grasps the importance of transmitting cultural values, sense of equality (even at an inter-generational level) in distribution of goods and actions’ and development’s opportunities for individuals and societies. It assumes the imperative of promotion of liberties, democracy and decentralisation (Perucca, 2004), as means of empowering the solidarity values of the different cultures (Perucca, 1998, 2004), and their universally-openness resources. In the cosmopolitan approach, education could be naturally directed toward an empowerment of the cultural aspects that are common to cultures, toward the harmonisation of the views about what each culture, in its ontological implication, share with the other ones. In other words, the cosmopolitan methodological “revolution” seems to open two different, but coherent opportunities for education (both of children and adults): on the one hand, it encourages the mutual comprehension of cultures and of national traditions, so as to configure also an improved pedagogical strategy in the era of globalisation; on
the other hand, it stimulates the meeting of cultures in what they have in common, as human cultures: the relation man-nature, the necessary value of environment as background of human life. In this light a methodological shift to cosmopolitanism can cope both the exigency of a better efficiency of educational institutions and the platforms for sustainability. Being strictly linked, in this approach, to social “actuality”, education could then address itself also to a more comprehensive context of human social and even ecological practise: going deeper into the contradictions of growth pattern, cosmopolitan education would then be also a cultural device of a global political development, by trying to sustain alternative practices and broader value horizons. These are only few of the hoped consequences on educational content of what we have been calling “cosmopolitanism”. However, the methodological shift to cosmopolitanism, if applied directly to education, leads to a further, and more important, consequence. Let us examine in brief this point.

Applying to education the “wideness of sight” of a cosmopolitan methodological approach would mean, above all, to recognise the limits and the crisis of traditional education (Acone, 1994), as based on a national system, on an organised and “official” schooling structure. In particular, by considering the modified features of the cultural industry, we notice the crisis of traditional actors and places of education, intended here as cultural formation of people. The essential point is played by the modified structure of communications and cultural media that influence behaviours. While school and family still remain essential places and actors in education of new generations, other actors and places are involved in the process of acquisition of experiences and skills, but also (and more importantly) of values and attitudes to life and other beings. Even if these new actors (such as the web-media, trans-national and non-governmental organisations) are not essentially devoted to education, anyway they are powerful means to diffuse and instil cultural orientations. It is easy to notice that these contents are determined not totally on a national base. Their “formative” cultural power is essentially due to their diffusive technological and social role (due to their capacity to configure “fields” of interaction among people), which is determined on a supra-national dimension, without any easy or possible democratic or direct institutional control (Beck, 1999). In this light, the only possibility that national schooling structure has to be efficacious consists precisely in reformulation of its methods according to the cosmopolitan research methodology. Nonetheless, we should remark that cosmopolitan methodology does not coincide simply with a cosmopolitan “ideology” or “cosmopolitan education”, in the sense that M. Nussbaum suggests and some authors criticise (Nussbaum, 1994; Papastephanou, 2002; Lamont-Aksartova, 2002). She writes:
“Through cosmopolitan education, we learn more about ourselves. One of the greatest barriers to rational deliberation in politics is the unexamined feeling that one's own current preferences and ways are neutral and natural. An education that takes national boundaries as morally salient too often reinforces this kind of irrationality” (Nussbaum, 1994). At the level of content, a cosmopolitan approach naturally claims cosmopolitanism as a cultural horizon; this issue is the last step of our reflections: the problem of the relation of the different cultures (and educative formation of culture) to the process of the internationalisation of societies.

On the specific educative field, this methodological-theoretical “shift” to cosmopolitanism implies to reconsider the actual “power” and “weight” of the traditional educative and culture-making institutions, such as school, associations, universities, social groups. According to the cosmopolitan point of view, these institutions, obviously and mainly dependent from strictly national dynamics, should be seen in their possible integration, conflict, cooperation, dependence, with the supra-national “institutions” and educational actors, such as Internet-based interconnections, globally wide associations, trans-religious networks, where people and young generations take effective cultural perspectives.

Cosmopolitanism and the cultures

Cosmopolitanism, therefore, includes, in its modern interpretation, a form of cultural “universalism”; in its political valence, it can denote an instance of egalitarianism, adapted to the global extension of cultural interactions. Cultures and values – even through their particular and local tradition – are thought to show a “spring” to universality, by referring not only to their geographical or social original context, but to all humanity, like to a whole polis. Let us examine briefly these concepts in order to see how cosmopolitanism can really represent a good cultural (and educative) response to globalisation and its problems (such as environmental decadency), seen as the opening of a “universal” horizon of actions and thoughts and of sustainable practices and cultural exchanges.

Cosmopolitanism seems to be based, above all, on the idea that some – or almost all – human cultures, potentially, could dialogue with each other. This preliminary assumption is very important: there could not be no universal horizon without an effective comparison among cultures, traditions, lived experiences. In turn, the stage of dialogue and mutual determination is not
possible without the transcendental possibility of their confrontation. In regard, the radical communitarian thesis that no culture can be translated into another (being just the difference their original essence), seems to lead to the conclusion that a cosmopolitanism, which proposes itself as an universal horizon for cultures, is an impossible and maybe even authoritarian approach, which reveals, behind its good “intentions”, a cultural imposition, secretly allied to a cultural and economic domination. In this case, how could cosmopolitanism guard itself from the risk of becoming a form of simple homogenisation of cultures, with a loss in terms of cultural diversity (what concerns languages, values, life-styles, aesthetic sensibility and even cultural conditions of a good social life)? According to this objection, cosmopolitanism would be anything else but an expression, partial as all others, of one culture, even if based on the idea that there should be a common horizon for every one of them. It is necessary to see how cosmopolitanism should be defined face to these objections.

Essentially, cosmopolitanism must be understood not as the universal expansion of a culture, but as the possibility of a universal reference for all cultures. Assuming methodological cosmopolitanism (Sádaba, 2003) would mean to let emerge, of all cultures, the possibility of their universalisation, their intrinsic universal reference to all humanity. In this light, cosmopolitanism would be the exact contrary of a cultural domination of a specific culture, intended as a cosmopolitan possibility for any human culture of meaningfulness for mankind.

But is this idea really possible if cultures are not comparable one to another? This objection falls if cosmopolitanism is considered not as a content, but as a condition, even in different degrees, already present in all cultures (and once this condition has been recognised, it can generate contents). This idea can be affirmed by referring to what a culture is, being always a human culture. It leads to recognise, under all differences and non-translatable issues, a radical condition of intrinsic communicability of cultures, which coexists with the principle of their internal difference (Wieviorka, 2001).

The potential “cosmopolitan” condition consists in the radical, constant, and common being referred, of cultures (that is ideals, languages, values, arts, symbols, interpretations of the very meanings of life itself), to man. In this light, all cultures have in common the fact that they are, essentially, meanings for men’s life, responses to the dilemmas of existence. This does not mean that a culture is like a “monolith box” of values and visions of life, that in any case and in any period of history could be said to be suitable to “speak” to all humanity (for example, considering women as not-so-human-as-men). Rather, this means
to recognise the possibility for any culture, at least potentially, to consider all people as subjects of meaningfulness and value-sources. This thesis seems able to preserve both the peculiarity of a culture and its transcendental possibility of universal meaningfulness for all humanity (the idea of “brotherhood of mankind”), in what humanity shares as human, that is the essential relation to nature. Far from representing, in this light, a form of simple anthropocentric standardisation, cosmopolitanism, as the universal opening of cultures to the basic human “constituents”, can be an instance of universality for the different views about the relation man-nature: hence, not the becoming one of all, but the potential universalisation of the different perspectives, in which differences could be not absorbed, nor eliminated, but understood in what they can mutually teach. In this perspective, methodological cosmopolitanism acquires its full sense precisely as a pedagogical methodology: not as an imposition (homogenisation, homologation) of one culture – that would be the subordination of cosmic diversity to the local-particular conventions of one polis –, but as acknowledgement and promotion, in cultures, of their survival conditions, in their heritage of knowledge, values, history, are immersed in a global context of interaction like in one polis.

**Conclusions: sustainable education and cosmopolitanism.**

The cosmopolitan “perspective” lets us see the inevitability of a deep cultural transformation, emerging from a global extension of industrial society and its forms of unsustainable development. In further specifications, it should be able not only to describe the negative consequences of it on culture and political relations, but also to draw the positive and efficacious routes to follow, both on the social and on the educational-environmental field. This more constructive moment of cosmopolitanism has to be strictly linked to the reflection on the direction and the sense of economic development (and to criticise it in its contradictory or absolute destructive outputs) and on the (limited but essential) power of education and cultural becoming.

Cosmopolitan research attitude highlights a double possibility of universalisation, in the opposite directions of homogenisation and of mutual universal openness of cultures, not necessarily leading to the disappearance of local cultural dimension (Schiavone, 2004). In fact, as the industrial mode of production has caused a demand of cultural homogenisation and educational standardisation, in the same way, its global expansion concretises the risk of an even wider and deeper cultural homogenisation, instrumental to an extreme empowerment in communications and information’s diffusion. It is easy to show
how this process, already begun, would lead to an extremely harmful extension of the absolute ideal of economic growth “at any cost”, of economicism, of disregard of a suitable preservation of a good environmental life. In this light, education for sustainability can be seen as a potential “cosmopolitan” human science, since it includes, in its very starting intention, the consideration of social, ecological, economic, and even cultural conditions on the configuration of a global form of the relation man-nature. The cosmopolitan methodology in human sciences should then be seen as a means of the more complex formation of a “global civil society”, conceived as the only way to reorient activities and rules toward a “global” aim and political-economical dynamics (Kaldor, 1999, 2003a, 2003b).
References


Research for Education for Sustainable Development

Intercultural dialogue and Europeanization of education – research initiatives supporting education for sustainable development

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Abstract

The paper presents methodological concerns and selected results of a research project that deals with religion in the context of a Europeanization of Education. Its focus is on intercultural dialogue as a European issue and takes account of increasing recognition of religion as a cultural fact on the European level. One of the issues of research is intercultural dialogue including the religious dimension and education. Findings show that a more differentiated perspective on religion and culture provides grounds for a renewed approach to intercultural dialogue and education on a European level. This can be related to current aspects of education for sustainable development.

Key words: Europeanization; intercultural dialogue; grounded theory; discourse analysis; religion.

Introduction

This paper presents selected results of a research project that deals with religion in the context of a Europeanization of education (Schreiner, 2006, 2007). Its focus is on developments in the Council of Europe to redesign intercultural dialogue and intercultural education during the recent years. The term
Europeanization covers developments of a penetration of the European dimension in national arenas of politics and policies concerning education and is used in our study as a research agenda. (Featherstone et al., 2003; Radaelli, 2003; Graziano et al., 2007) The methodology of the project is based on Grounded Theory (Corbin & Strauss, 2008; Strübing, 2004) and discourse analysis (Rogers 2003).

A special emphasis is given to the White Paper on Intercultural Dialogue “Living together as equals in dignity” (WP) that was launched by the Council of Europe’s Committee of Ministers at their 118th Ministerial Session on 7 May 2008. (Council of Europe, 2008). The document marks an important step toward a new concept of intercultural dialogue. In 2005, the Third Summit of the Heads of State and Government identified intercultural dialogue (including its religious dimension) as a means of promoting awareness, understanding, reconciliation and tolerance, as well as preventing conflicts and ensuring integration and the cohesion of society. The declaration encourages “intercultural and inter-faith dialogue”. This was fleshed out in the “Faro Declaration on the Council of Europe’s Strategy for Developing Intercultural Dialogue” that suggested preparing a WP on Intercultural Dialogue. One of the mentioned aims of intercultural and inter-faith dialogue is directly linked with sustainable communities: “We shall endeavour in particular to create the right conditions for the emergence and development of sustainable communities where people want to live and work, now and in the future.” Before that, between 2002 and 2005, a project was organized by the Council entitled “The challenge of intercultural education today: religious diversity and dialogue in Europe” (Keast, 2007). The project developed a new dimension on intercultural education in Europe by addressing the religious diversity inherent to our multicultural societies, schools included, from the human rights and intercultural learning perspective. Other documents in the process of developing a new concept of intercultural education are recommendations of the Parliamentary Assembly such as “Education and Religion” in 2005.

The shift in the perception of religion in these documents is remarkable. The religious dimension is now seen as an important part of intercultural dialogue. The need of inter-faith dialogue is expressed. In former years religion was rarely mentioned at all. Religion is seen as a chief element of the European culture and religious communities as bearers of the same values as the Council of Europe (CoE).
In the WP Intercultural dialogue is recognized as a concern for the whole of society. Therefore, a wide-ranging consultation on intercultural dialogue ensued between January and June 2007 by the Council producing rich responses that helped to design the paper. The document is seen as “one step on a longer road” (p. 50). Even if the CoE has viewed itself as a platform for intercultural dialogue since its beginning in 1949, intercultural dialogue gained new weight on Council of Europe’s agenda in 2005.

**Context and content**

The White Paper is a political document that brings together the summarized perspective of a political organisation concerning a specific issue and provides proposals for further action and activities.

The paper is organized in six chapters including an introduction with a short presentation of the CoE and intercultural dialogue, the process of creating the WP, the major concerns and key terms.

The aims of the paper are to:

- foster respect and promotion of cultural diversity on the basis of the CoE values;
- argue in the name of the governments of the 47 member states;
- promote mutual understanding;
- appreciate diversity while sustaining social cohesion;
- provide a conceptual framework and a guide for policy-makers and practitioners;
- achieve inclusive societies.

It is especially the need for respect, mutual understanding and also the appreciation of diversity while sustaining social cohesion that are longstanding
Clara Mandolini aims for the policy of the Council. These aims have shaped many activities in the past, e.g. in the field of education for active citizenship or intercultural education.

But new challenges like increasing cultural diversity and uncertainty as to what intercultural dialogue means in practice came up and need a new approach. There is a vague definition in the paper about what intercultural dialogue means.

“For the purpose of this White Paper, intercultural dialogue is understood as a process that comprises an open and respectful exchange of views between individuals and groups of different ethnic, cultural, religious and linguistic backgrounds and heritage, on the basis of mutual understanding and respect” (p. 16).

Respect and mutual understanding are key terms in this definition laying ground for a concept of interculturalism that is understood to overcome old approaches (multiculturalism; assimilation) that are no longer seen as adequate to manage cultural diversity. The problem with “multiculturalism” is that the concept underpins a scheme of segregation in society between immigrant minorities and the “host” majorities. The problem with assimilation is that its focus is on the individual merging into a new environment. Interculturalism develops both concepts further in taking the recognition of cultural diversity from multiculturalism and the focus on the individual from assimilation. It adds the new element of dialogue on the basis of shared values and equal dignity.

The concept of culture in the WP

The WP does not clearly define the meaning of culture, but the text indicates a more process-oriented, dynamic concept of culture and not an essentialist one.

Culture and religion are often seen as a closed system of symbols, as the collective heritage of a group, a catalogue of ideas and practices that shape both the collective and the individual lives and thoughts of all members. These essentialist theories of culture assume clear rules and norms to fix the difference between right or wrong, between ‘We’ and ‘They.’ Opposed to an essentialist understanding, we find a process-oriented perspective where the focus is more on the dynamic aspect of culture, the “making of culture” and its changes. G. Baumann, a sociologist from Amsterdam, has done research among young migrants in England on how they think and “act” concerning their culture. His results prove that these young people are familiar with the dominant discourses
of their culture, reifying the value of their ethnic or religious community while at the same time taking part in a ‘demotic (of the people) discourse’ in interaction with others on a personal level which creates ‘new culture’ on the ground. G. Baumann uses a metaphor to describe a process oriented concept of culture:

“Culture (...) is not so much a photocopy machine as a concert, or indeed a historically improvised jam session. It only exists in the act of being performed, and it can never stand still or repeat itself without changing its meaning” (Baumann, 1999, 26).

It seems important to discuss the basic concept of “culture” when one offers “a forward-looking model for managing cultural diversity” as it is written in the preamble of the WP (p. 3). This is a crucial perspective also for the target groups like policy makers and administrators, educators and media, civil society organisations, including migrant and religious communities, youth organisations and the social partners that are mentioned in the document.

**How religion is approached**

Some selected quotes from the WP are used in this part to give an idea about the main line of the paper and especially how religion is dealt with.

The chapter on the conceptual framework starts with the mentioned definition of intercultural dialogue and introduces identity-building in a multicultural environment and prior approaches to cultural diversity. As conditions of intercultural dialogue, the three pillars of the CoE are mentioned: human rights, democracy and the rule of law, complemented by equal dignity and mutual respect, gender equality and combating the barriers that prevent intercultural dialogue.

A special focus is given to the religious dimension (p. 21–33). This is a new development of the Council’s policy as already mentioned. Whereas in former years religion was exclusively seen as a private matter without any importance for the public discourse, now a more complex understanding of religion is used:

“Part of Europe’s rich cultural heritage is a range of religious, as well as secular, conceptions of the purpose of life. Christianity, Judaism and Islam, with their inner range of interpretations, have deeply influenced our continent. Yet
conflicts where faith has provided a communal marker have been a feature of Europe’s old and recent past” (p. 21).

The influence of religious traditions are mentioned, their inner plurality and their ambivalent image. No longer does a negative image of religion dominate but the ambivalence of religion is respected and a complex understanding of religion is introduced.

There are considerable overlaps between the Council of Europe's agenda and the concerns of religious communities: human rights, democratic citizenship, the promotion of values, peace, dialogue, education and solidarity (ibid.).

This is a crucial point of the WP. It confirms a close relationship between the CoE’s agenda and the concerns of religious communities. A common agenda includes the promotion of the following values: peace, dialogue, education and solidarity. Also a clear differentiation is made about the responsibility of both levels. It is not on the Council’s agenda to foster interreligious dialogue, but it is a concern of the religious communities themselves to organize interreligious dialogue. “The important role of religious communities with regard to dialogue means that efforts should be undertaken in this field between the religious communities and public authorities” (ibid.).

Here a number of initiatives can be mentioned where the Council of Europe is already engaged in dialogue with religious communities through various initiatives of the Parliamentary Assembly and the seminars of the Commissioner for Human Rights, who since 2000 has brought together representatives of religious communities with the aim of associating them with the human rights agenda of the Council of Europe.

These developments underline that, “Religious practice is part of contemporary human life, and it, therefore, cannot and should not be outside the sphere of interest of public authorities, although the state must preserve its role as the neutral and impartial organiser of the exercise of various religions, faiths and beliefs” (ibid.).

The dialogue between the Council and religious communities is planned in a regular and sustainable way. A first exchange on the religious dimension of intercultural dialogue has been held in April 2008, on “Teaching religious and convictional facts” and will be continued in June 2009. The main aim of this
innovative and experimental event was to promote and strengthen the Council of Europe’s fundamental values – respect for human rights, promotion of democracy and the rule of law – thus contributing to fostering within European society mutual respect and awareness, tolerance and understanding. The exercise associated representatives of religions and other actors of civil society, including representatives of other beliefs, with this objective, by involving them in open, transparent dialogue on a theme rooted in those values.

Chapter 4 and 5 of the WP introduces five policy approaches to the promotion of intercultural dialogue that are specified in respective recommendations and policy orientations: (1) democratic governance of cultural diversity; (2) democratic citizenship and participation; (3) learning and teaching intercultural competences; (4) spaces for intercultural dialogue; (5) intercultural dialogue in international relations.

“Within the formal curriculum, the intercultural dimension straddles all subjects. History, language education and the teaching of religious and convictional facts in an intercultural context makes available knowledge about all world religions and beliefs and their history, and enables the individual to understand religions and beliefs and avoid prejudice” (p. 29).

“This is linked to the request to take into account religious and convictional diversity “regardless of the religious education system that prevails” (p. 30).

The more differentiated view on religion in the WP is in line with some of the current recommendations from the Parliamentary Assembly to the member states and their governments. One of the latest is the recommendation “Education and religion” (Parliamentary Assembly of the CoE, 2007). It starts with the statement – no surprise in the context of the CoE – that religion is seen as a strictly personal matter, but insists also that “a good general knowledge of religions and the resulting sense of tolerance are essential to the exercise of democratic citizenship” (ibid.). However, a concept of knowledge can be questioned that suggests a consequence of knowing religions leads more or less automatically to a “sense of tolerance,” but it shows that the consideration of religion is seen as important for creating social cohesion and promoting active, mindful citizens.

The recommendation lists a number of problems related to religion like intolerant fundamentalist movements, religious extremism, ignorance of
religions, misunderstanding of religions and political conflicts in the name of religion. This is a helpful exercise because religion is an ambivalent phenomenon. It bears the potential of reconciliation, love and understanding for each other but it can be also instrumentalised and misused for political reasons and other purposes. The understanding of religion in the recommendation and also in the WP goes toward an impartial, differentiated view. Not only is the negative side of religion mentioned but also positive aspects of religion.

“12. The Assembly observes moreover that the three monotheistic religions of the Book have common origins (Abraham) and share many values with other religions, and that the values upheld by the Council of Europe stem from these values” (p. 94).

Overall, a more differentiated concept of culture and religion gradually shapes the discourse of the Council of Europe. This development can lead to a more fruitful and sustainable dialogue with religious communities and other stakeholders of intercultural education about living together in a more and more diverse Europe.

The follow up process includes a number of initiatives on European and national levels to implement the mentioned principles into action. This includes a continuing emphasis on the crucial role of school e.g. in the fields of education for democratic citizenship, language, history teaching and teaching about religion.

**International collaboration**

It might encourage initiatives of the Council if other international organisations follow the same philosophy in developing more differentiated concepts concerning education, culture and religion. A good example for that is provided by the Alliance of Civilizations of UN with a concern for teaching about religion. Part of the implementation plan for the Alliance of Civilizations (AoC) in 2008-09 is to develop online clearinghouses in its main areas of implementation: youth, education, media, migration. AoC is a global organization explicitly involved with bridge-building, facilitating, and advocating trust and understanding between cultures. One of its aims is to serve as a prominent platform and resource “to enable the widest possible dissemination of information and materials that resonates with this objectives” (www.unaoc.org).
Among the recommendations of the High Level Group (HLG) that were appointed by UN Secretary General K. Annan in 2005 was also “teaching about religions and interfaith dialogue” (Alliance of Civilizations, 2006). The report containing the research base in this field confirms the need for “contextual solutions to accommodate the variety of legal and educational situations in Europe” (p. 18).

A special focus is given to “religion in textbooks” as exclusive content resource in many education systems. The aim is as follows: “The AoC can contribute to the climate of tolerance and education for diversity by calling for the development of standards for teaching about religious beliefs and practices, and their adherents. This process would be supported by existing best practices and frameworks for teaching about religions and for teaching tolerance” (19).

One of the established online clearinghouses is on “Education about Religions and Beliefs” (ERB). The reason for that is expressed as follows: “Education about different religions and beliefs and critically thinking about the nature of beliefs, enables populations to deal sensitively and tolerantly with the reality of globalization and multiculturalism in modern societies where one will encounter people who believe in many different religions, or people who may not believe in any religion at all”.

The clearinghouse will have the following areas:

(1) an overview on education about religions and beliefs; (2) a search function; (3) a section on education about religions and beliefs in elementary and secondary education (links to resources, collections of curricula, evaluations of curricula outcomes; relevant associations, organizations; (4) a magazine/journal; (5) a forum.

There is a need for linking up the different projects like the AoC initiative that comes from a global level with regional and even local initiatives to encourage each other and to continue projects and research for sustainable development. A careful analysis of already existing or needed interconnectedness of the different initiatives is of high importance when we strive for sustainable development.

**Challenges and consequences for education**
It is always a need and a challenge to link up the content and intention of a statement like the WP with initiatives and implementation on the regional and local levels. Otherwise the paper does not work properly. One step in this direction is a critical feedback to the content not for the sake of the paper itself but to continue dialogue and exchange related to the aims and targets of the initiative. Therefore, the Coordinating Group for Religion in Education CoGREE that brings together six organisations and networks in the field of religion in education in Europe (www.cogree.com) has worked out a statement as part of the follow up process. The statement suggests, “The openness of the document encourages our contribution to an ongoing discussion to establish intercultural dialogue as a continuing process at all levels”.

No surprise that CoGREE is pleased to note that religion is regarded as a significant factor, although it is more than a dimension of intercultural dialogue. Committed to the principle of freedom of conscience and religion and the need for democratic governance, we confirm that inter-religious dialogue is a related issue. It enables the religious organisations “to fulfill their role”, although it goes beyond the immediate competencies of the Council of Europe. An important concern in the statement is the place and value of religious education.

CoGREE underlines that teachers of religious education can contribute to interreligious as well as intercultural understanding and to the implementation of the thinking behind the white paper. In this respect, it is important to recognise that religious facts, though relatively easy to teach in the school curriculum, are necessarily defined by their reception within religious traditions. Religious educators in Europe have considerable experience of exploring knowledge and of encouraging young people to understand a range of beliefs in a manner that is free from sectarian indoctrination. Young people need to become “religiate” if their engagement in intercultural dialogue is to be complete. We also believe that education about, from and through religion is necessary to enable young people to make informed conceptual and spiritual judgments. Good education also aims to take account of how religious extremism may relate to unjustifiable assumptions.

Religious plurality affects many areas in day to day life in a school. It is not only a matter of teaching RE. The CoE publication: Religious diversity and intercultural education: a reference book for schools (Keast, 2007) includes a chapter on whole school issues of intercultural education and the religious dimension. It mentions the following areas of importance: (1) the learning environment; (2) promoting the valuing of religious diversity in different
educational settings; (3) phases and settings; (4) school ethos; (5) school policies; (6) school governance; (7) school curriculum. It also includes a checklist of key issues and questions that can be used for self-reflection of schools and their stakeholders.

The mentioned WP includes a chapter with recommendations, guidelines and policy orientations. The section on “learning and teaching intercultural competences” addresses public authorities, civil society organisations and other education providers. The importance of history teaching is mentioned. Concerning religion it states: “An appreciation of our diverse cultural background should include knowledge and understanding of the major world religions and non-religious convictions and their role in society”. It is clear that more concrete guidelines are needed.
Education for sustainable development

One of the key action themes of the UN Decade of Education for Sustainable Development (ESD 2005-2014) is “Cultural Diversity”. The main concern in this field is “promoting teaching which respects indigenous and traditional knowledge”. Culture must be respected as the living and dynamic context within which human beings find their values and identity. From the analysis of the WP and related documents, the need of a process oriented understanding of culture is evident as well as a differentiated perception of religions as a central part of culture. The participation in the ongoing process on working out a road map for intercultural dialogue is a crucial task for education at all levels. Sustainable development has to integrate the task of living together amid growing cultural diversity. While respecting human rights and fundamental freedoms, this has become one of the major demands of our times and is set to remain relevant for many years to come.

References


Education for sustainable development and hazard preparedness: a key to promote community engagement

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Abstract

Recognition that education programmes based on the dissemination of general information are ineffective has called attention for alternative approaches to hazard education. D. Paton (2008) developed a model predicting level of hazard preparedness which highlights a need for discussion of hazard issues within established community forums in ways that empower community members to identify the implications of hazard activity for them and to facilitate their ability to confront those issues. Education for sustainable development is multidisciplinary, lifelong and embraces a wide range of participatory learning experiences. The purpose of education for sustainable development is to ensure that anyone can benefit from quality education, and that the principles and values of sustainable development are incorporated in all forms of education. This paper discusses that D. Paton’s model can inform the development of education for sustainable development programmes in order to promote community engagement.

Key words: environmental education; education for sustainable development; hazard education; citizen participation.

Introduction

The December 2004 tsunami shone an intense spotlight on questions of early warning systems and preparedness (Basher, 2006), while government negotiations culminated in a major international agreement on disaster risk reduction at the World Conference on Disaster Reduction in Kobe, Japan, 18–22 January 2005, namely the Hyogo Framework for Action 2005–2015: building the resilience of nations and communities to disasters (UN 2005).
The development of risk management strategies is essential in societies that are susceptible to experiencing adverse impacts from, for example, the volcanic, wildfire, storm, flooding, tsunami and seismic processes present in their environment. Developing a societal capacity to co-exist with the potentially hazardous aspects of its environment through the proactive development of a capacity to confront hazard consequences is an essential component of emergency management planning (Paton & Johnston, 2006). Preparation reduces the risk of injury, death and property damage, as well as contributes to peoples’ capacity to address with hazard consequences and contributing factors such as people’s familiarity with the hazard, availability of information, trust, empowerment and community engagement (Paton, 2008). However, recognition that education programmes based on the dissemination of general information are ineffective has called attention for alternative approaches to hazard education.

This paper focuses on hazard mitigation and examines the potential of education for sustainable development as a primary measure to promote community empowerment, participation on decision-making process and progressively sustained adoption of preparedness.

**Hazard preparedness and implications for public education**

A disaster, precipitated by a natural hazard, can be defined as ‘a serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources’ (ISDR 2004). Although it must be acknowledged that all hazard events are unique, and may differ dramatically from one another on several dimensions, the human response may possess sufficient similarity for this process to be modelled (Creamer, 1994; Tobin, 1999; Van den Eyde & Veno, 1999). Consequently, risk management must focus on developing people’s capability to respond promptly and appropriately in advance of hazard activity occurring (Paton et al., 2008)

D. Paton (2008) identified a need to accommodate two processes. The first process involves a need for any model to be able to differentiate between people who decide to prepare from those that decide not to prepare (Paton et al., 2005). The second process entails accommodating how people’s social context influences how they construe risk and decide what to do about it (Paton et al., 2006). By integrating these perspectives, D. Paton (2008) developed a model that
describes how these interpretive processes interact to predict levels of hazard preparedness.

The model (Figure 1) highlights a need for risk communication process to be based on community engagement and to encourage discussion of hazard issues within established community forums in ways that empower community members to identify the implications of hazard activity for them and to facilitate their ability to confront those issues, including how to implement the solutions (Paton, 2008).

Growing recognition that public education programmes, based on the dissemination of general information (Lindell & Whitney, 2000; Duval & Mulilis, 1999; Paton, McClure & Bürgelt, 2006; Smith, 1993) are ineffective, has called attention to a need for alternative approaches to hazard education (Paton et al. 2008). The Hurricane Katrina disaster is a case in point where the meteorological warnings of wind speed, storm surge and rainfall were accurate and frequently communicated many hours in advance, but the public and official engagement and responses to the warnings were inadequate (Basher, 2006).

![Figure 1. Model of the relationship between dispositional factors, structural factors, trust and intention to adopt protective measures (Paton, 2008)](image)

The model discussed here can inform the development of public education and community engagement strategies. To facilitate preparedness, strategies must address information content (e.g., outcome expectancy), social context (community participation, problem solving) and community-agency relationship (empowerment, trust) factors (Paton et al., 2008).

**Environmental education and education for sustainable development**
Environmental education was developed in the decades of the 1960s and 1970s, during the evolution of the environmental movement and it was considered as one of the most effective measures for environmental problems. Environmental education questioned the dominant anthropocentric system of values, focused on education of all citizens and aimed at fundamental changes in environmental attitudes, behaviours and values of citizens of all age groups. The Tbilisi Intergovernmental Conference on EE objectives (awareness, sensitivity, attitude, skills and participation), which was held in 1977, serves as a major guidance for working on building environmentally effective human behaviour.

The basic principles of the Environmental education mandate envisage that environmental education (Skanavis & Sakellari, 2008):

(a) should be a life-long process and accessible to people of all age groups and cultural backgrounds. It should be extended well beyond school systems, covered by means of non-formal and informal educational procedures;

(b) has to be interdisciplinary, employing concepts from natural, social, political sciences and economics;

(c) should be as holistic as possible, emphasizing the interdependence of humans and nature;

(d) should empower students with the necessary tools to critically analyse environmental issues and to exercise the right to choose the best-case scenario;

(e) should invest in technological based instruction which allows through simulations from computer based programmes, the analysis of environmental conditions, prediction of side effects and understanding of the importance of our active participation in the environmental decision making process.

Environmental education programmes focus on developing programmes, which will enable citizens to behave in environmentally desirable ways. All these educational attempts focus on promoting responsible citizenship, in particular, behaviour-arming citizens with the appropriate skills for critical thinking and with the ability to actively participate in the environmental decision-making processes. Environmental education suggests that people can live in
harmony with nature and act in a fair way with each other and that they can make
decisions based on interest and care for future generations. Environmental
education aims at a democratic society where active environmentally-literate
citizens participate in a responsible way (NAAEE, 1996). Environmental
education prompts citizens to realize the connection between the various policies,
their way of life and that of future generations, and the importance of active
participation in the political process constituting people as catalysts for political
change. As active participants, they can recognize, support, educate and raise
local issues associated with national policy planning (Scriabine, 1996).

Environmental education has mainly been established in formal
education; however, its importance has been recognized in the forms of non-
formal and informal education. Formal, non-formal and informal environmental
education programme objectives depend on the environmental educator, the
person who is responsible for the implementation of the educational process.
Informal environmental education includes any dissemination of information and
knowledge through mass media, libraries, social contacts or the internet
(Tsampoukou-Skanavis, 2004).

Citizen participation constitutes a fundamental goal of environmental
education. Going back to the international conferences on environmental
education, environmental participation is presented intensely. In 1975, the
declaration of the conference on environmental education, organized in Belgrade,
proclaimed that one of the environmental education objectives is participation
(UNESCO-UNEP, 1976). In 1977, the Tbilisi Declaration noted that citizen
participation continues to be the main objective of EE by providing social groups
and citizens with the possibility to participate actively at all levels towards the
resolution of environmental problems (UNESCO, 1978). In 1987, in Moscow, it
was agreed that EE should simultaneously attempt to increase the awareness,
transmit information, disseminate knowledge, develop customs and skills,
promote values, and provide criteria and directives for decision-making and
resolution of environmental problems (UNESCO-UNEP, 1987). At the 1992 Rio
Conference, it was formulated that environmental issues are better resolved with
the participation of all interested citizens, in a relative level (UNCED, 1992). In
the World Summit of United Nations for the Sustainable Development, which
was organized in Johannesburg in 2002, it was characteristically reported that
sustainable development requires a wide participation in policy planning and
decision-making, as well as in their application at all levels (UN, 2002). The 4th
International Conference on Environmental Education, which was held in
Ahmedabad, India in 2007, recommended changes in several areas of thinking
and practice, among them to change participation patterns and practices, and also to use education to empower and encourage people to actively participate in civil society and the development of capacity for democratic participation in earth governance (UNESCO-UNEP, 2007).

Citizen participation in environmental decision-making is of extreme importance in securing a good quality of life. Local communities know best what alternate solutions should be implemented for appropriate management of their area (Skanavis et al., 2005). Citizen participation is usually defined as the involvement of people, outside the official governmental mechanism, in the decision-making process process (Fiorino, 1996; Fulop, 1999; Siouti, 1998; Brohman, 1996; Osler, 1997) with any possible intervention in the processes of decision-making by the Administration, from juridical affairs up to letters of protest, mobilisations of organised groups or the direct action of citizens (Fiorino, 1996). The complexity of environmental problems has elected the process and the methods of citizen participation as important tools for the solution of environmental problems (Beierle, 1999; Monroe et al, 2000). However, although science and available technologies for the solution of environmental problems have presented important progress, citizen participation in the decisions that concern environmental issues is limited (Fiorino, 1996).

According to T. C. Beierle (1998, 1999) the outcome of citizen participation is reported in the final main decisions that have been taken and evaluated based on how citizen’s participation has achieved the social goals, which surpass the immediate interests of the groups that are involved in the process of decision-making (Beierle, 1998, 1999; Beirle & Cayford, 1999, 2001, 2002; Davies, 1998). Social goals (Beirle, 1998, 1999) as education and information of public, incorporation of values of citizens in the process of decision-making, improvement of essential quality of decisions, strengthening confidence in the institutions, alleviation of conflicts and cost-effectiveness, can lead to the improvement of public programmes of participation, support the evaluation of innovative methods, and promote the theoretical comprehension of citizen participation.

The dissemination of information facilitates the collective knowledge. Thus, the local societies comprehend better controversial issues and are able to resolve the problems that they face (Comfort, 1999). When all the members of a local society are allocated the essential tools and skills so that they can collect the information that they need in order to work towards their preferred change, their role in the decision making process is strengthened (Chopyak, 2001).
The concept of education for sustainable development has grown out of environmental education. Despite the fact that environmental education is known for the underlying concept that humans are part of nature and in contrast, education for sustainable education is centred far more on humans (Sauve, 1999; McKeown & Hopkins, 2007), environmental education and education for sustainable education share the following similarities (McKeown & Hopkins, 2005).

- The goals of environmental educators are similar to those of educators involved in education for sustainable education;

- Both environmental education and education for sustainable education envision a more just and equitable society in which citizens participate in community-based decision making;

- Environmental protection, society and economy are balanced in the pursuit of development and quality of life for all members of society.

Education for sustainable education is multidisciplinary, lifelong and embraces a wide range of participatory learning experiences and programmes in both formal and non-formal settings (UNESCO, 2005). The purpose of education for sustainable education is to ensure that anyone can benefit from quality education, and that the principles, values, and actions necessary for promoting sustainable development are incorporated in all forms of education for positive societal transformation (UNESCO, 2004).

In December 2002, the United Nations General Assembly adopted Resolution 57/254 proclaiming the period 2005-2014 the Decade on Education for Sustainable Development (DESD). The overall goal of DESD is to integrate sustainable development into all aspects of learning and to encourage changes in behaviour for a more sustainable one (UNESCO, 2005).

Conclusions

Environmental education is particularly important as it can educate and increase environmental awareness of local populations. Environmental education programmes focus on developing programmes which will enable citizens to behave in environmentally desirable ways. All these educational attempts focus
into promoting responsible citizenship behaviour-arming citizens with the appropriate skills for critical thinking and with the ability to actively participate in the environmental decision-making processes. Citizen participation in the environmental decision-making process constitutes a fundamental goal of environmental education. Environmental education prompts citizens to realize the connection between the various policies, their way of life and that of future generations, and the importance of active participation in the political process constituting them catalysts for political change. The concept of education for sustainable development has grown out of environmental education. Education for sustainable development ensures that anyone can benefit from quality education, and that the principles and values of sustainable development are incorporated in all forms of education.

In areas susceptible to natural hazard consequences, a key goal of risk communication is encouraging people to adopt protective measures. People living in communities at risk from natural hazards continue to demonstrate poor knowledge of risk mitigation procedures and a reticence to adopt protective measures (Paton, McClure & Bürgelt, 2006). When emergency management agencies engage community members about hazards, levels of trust, satisfaction with communication, risk acceptance, willingness to take responsibility for their own safety, and collective commitment to confront hazard consequences will all increase (Paton & Bishop, 1996; Pearce, 2003). This paper suggests that education for sustainable development programmes, embracing the model developed by D. Paton (2008), can foster people’s familiarity with the hazard, availability of information, trust, empowerment and community engagement towards associated risk mitigation.
References


Teacher Education for Education for Sustainable Development

Energy topic in non-formal education of Latvia

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Abstract

The given study represents a part of EU COMENIUS project that is focused on the energy topic in non-formal education in the context of education for sustainable development. The article shows the specificity of Latvian teachers and out-of-school experts’ views on non-formal energy education. The constructed tools focused on the study of energy topic in relation to: 1) teaching materials, 2) readiness to teach this topic and 3) out-of-school places for energy education. An 18-item survey with open-ended and closed questions and a structured interview with 14 questions were conducted with 20 experts of out-of-school places. Both qualitative and quantitative data analysis methods were applied. Different conceptual approaches, the best practice examples, challenges and needs, and the main chances for improvement and development in the field were inferred from the data.

Key words: non-formal education; out-of-school places; energy education; teachers; experts.

Education for future: non-formal approach to energy topic

The EU, as well as rest of the world, are at crossroads concerning the future of energy. Climate change, increasing dependence on oil and other fossil fuels, growing imports, and rising energy costs are making our societies and economies vulnerable. These challenges call for a comprehensive and ambitious response. We need a vision of Europe with a thriving and sustainable energy economy that
has grasped the opportunities behind the threats of climate change and globalization (EC, 2006; EC, 2007a; EC, 2007b; EC, 2007c). One way to respond to this challenge is through education, in this case, energy education.

To describe the situation in energy education, Education for Sustainable Development (ESD) has to be used as a background. ESD “is an essential part of a larger conversation regarding quality of life for all the inhabitants of Earth. Sustainable development offers a philosophic and analytical framework for educative enquiries in which economic, social, and environmental factors must be considered in relation to one another” (UNESCO, 2005, p. 8). Educational effort related to ESD (UNESCO, 2007) will encourage changes in behaviour that will create a more sustainable future in terms of environmental integrity, economic viability, and a just society for present and future generations. Pedagogical processes that follow from opportunities for deliberating and addressing complex issues require critical and open engagement. In practice that also means to conserve energy and become more energy efficient. In this way, a sustainable lifestyle will be attained, as well a sustainable management and response to global warming with education and promotion of alternatives such as renewable energy, energy efficiency, and energy conservation.

The Faure-commission of UNESCO (1972) stated that non-formal learning forms about 70% of all human learning processes. Thus, strengthening non-formal learning at schools is likely to improve the overall impact of school education (Carlson & Maxa, 1997; Cross, 2006; Bekerma, Burbules, Silberman & Keller, 2005; Fordham, 1993). There have been to date few studies which quantify and qualify the positive impact of non-formal learning, a learning which often takes place out-of-classroom and in learning locations such as museums, centres of environmental education or sciences centres, which are known to foster learning and knowledge transfer by means of entertainment and hands-on experiences (INSPIRE, 2009).

Considering themes of increasing relevance and great importance to pupils such as renewable energy or climate change, non-formal education can complement the traditional classroom based programmes. Drawing on the perceived need to foster non-formal learning on renewable energy and climate change the EU COMENIUS project *Inspire School Education by Non-formal Learning* (INSPIRE) has been conceived for years 2008-2009 in a partnership of Germany, Latvia and Poland. The project aims to create synergies and links
between out-of-school places of learning and curricular learning, thus improving
the base of knowledge of European pupils on matters related to ESD. The
approach of energy and climate issues covers also social and scientific
competences. In addition, INSPIRE aims to prepare a set of materials, which may
support teacher training on renewable energy and climate issues, as well as test
such materials with a view to a subsequent use in support of non-formal
education.

The project can be implicitly divided into three phases: 1) overview of
existing concepts of combining learning at out-of-school places with formal
learning at school in the participating countries, focused on the subject of
environmentally friendly energy use and climate issues; 2) design of training
modules for pupils; 3) design and testing of new training courses for teachers.
The presented study will cover only the first phase of the project regarding the
specific outcomes of Latvia.

The exploration reflected in this paper, to a certain extent, embodies all
authenticity criteria that determine goodness, reliability, validity, and the rigor of
qualitative research (Guba & Lincoln, 1989): 1) fairness that means adequately
capturing the voice of all stakeholders, 2) ontological authenticity that represents
the criteria for assessing a raised level of awareness among the research
participants, 3) educative authenticity or “the extent to which the respondents’
understanding of and appreciation for the constructions of others outside their
stake-holding group are enhanced” (p. 248), 4) catalytic authenticity that
envisages that participation in the study has lead to some action(s) taken or
decision(s) made by the participants, and 5) tactical authenticity that addresses
the degree to which stakeholders and participants are empowered to act.

While creating the research methods for the project, the following
aspects of aims stated above were kept in focus as individual tasks concerning 1)
the integration of formal and non-formal education: understanding of issue, out-
of-school places, needs and gaps, teaching materials and 2) the energy topic in
non-formal education: teaching materials, readiness to teach this topic, and out-
of-school places for energy education. Therefore, the legitimate research
questions for this study could be set:

What is a view of educators on the situation with integration of formal
and non-formal education in Latvia? What is a view of educators on energy topic
in non-formal education of Latvia?
Method

Sample

Two different samples were collected: a sample of out-of-school education experts was composed for the interview, while a sample of teachers was collected for the survey.

Interview sample of experts (N=20) consisted of 5 males and 15 females, with teacher training institutions (n=5), out-of-school education places (n=7) and different schools (n=8) from all regions of Latvia represented. The specialities of experts were natural sciences (n=15), social sciences (n=3), engineering (n=1), and agronomy (n=1). The work experience of teacher educators in average was more than 31 years. Teachers’ pedagogical experience was on average 28 years. Three teachers were doctoral students. The pedagogical experience of out-of-school experts was on average 11 years. The majority of experts had many years of administrative and research experience.

The sample of teachers consisted of 50 respondents (47 female and 3 male) from 24 to 66 years (M=41.8) of age, as well as 1 to 40 years (M=17.7) of pedagogical experience. The teachers represented different types of schools: primary schools (12%), basic schools (20%), secondary schools (58%), and other schools (10%). The majority of teachers came from Daugavpils, the second largest town in Latvia, and the Daugavpils region (58%). Approximately half of the sample were teachers of natural science, while the other half of the teachers were specialised in other disciplines, such as social science, housekeeping and technology. The collected samples, to a certain degree, respond to the criteria of fairness since the participants show quite large diversity of represented populations and groups of involved stakeholders.

Instruments, procedure and data analysis

Interview

The aim of the interview was to reveal the real situation concerning the integration of out-of-school learning places and school curricula in relation to energy education as well as to discover the impact of such places on students’
learning, especially on social competences, knowledge in Science, and the environment. The structured interview with 14 questions was created by the INSPIRE project team from Latvia. The interview contained questions such as “What eventual challenges and concerns do you see regarding the integration of school and out-of-school places specifically for the acquisition of energy related topics?”

While arranging the interview, the time, place, and length, up to 60 minutes, of the interview were coordinated. Permission was asked for audio recording of the interview. A high level of confidentiality of interview data was decided: the results of interview mainly appear in summarised form; in need of quoting, the respondents are depicted in the project reports only in coded form. The respondents were shortly introduced about project, research topic, as well as informed about the aim of the interview. Before the interviews, demographic data were collected from the participants. All interviews were audio-taped and transcribed to create a written protocol. The data were collected both on the premises of Daugavpils University and in out-of-school places.

Since the interview questions were designed focusing on the research aim and tasks, the data analysis was simple enough to allow the creation of sub-themes, as guided by research aim and tasks. Similar individual themes were clustered and appropriate language to describe them was selected. Interview data was later triangulated with data from teachers’ survey.

Survey

The survey conducted within the study was applied to obtain both quantitative and qualitative information from the teachers that could be used as the data complementing and adding some specificity to the main data obtained from the interviews with experts. The structured 18-item survey, with 9 open-ended and 9 closed questions, was designed by the INSPIRE project team from Latvia. The example of a survey question is: *Name the out-of-school places in your town (district) where your pupils could master the topics about energy?*

Respondents were consented about the confidentiality and anonymity of their answers prior to administration of the survey. The answers to the survey questions were collected both in hard-copy and electronic form. The respondents were quickly introduced to the research topic and informed about the aim of the survey. The data were collected during in-service courses for teachers at Daugavpils University, the National Meeting of Environmental Educators, and in
electronic form. The survey started with information about the demographic data of respondents. Both qualitative and quantitative data analysis methods were applied.

**Integration of formal and non-formal education**

Because of the limited space, the results of two research instruments are presented mainly in a form of an aggregated summary, using just a few quantitative indices to illustrate the most impressive findings or if it was impossible to avoid the usage of numbers.

**Results**

Understanding of issue

Teacher trainers, teachers and out-of-school personnel view the interaction of formal and informal learning differently, beginning from complementary relationships to the fully independent certified learning in out-of-school places. Teachers and teacher trainers see more problems with integration than representatives of out-of-school places that signify that, probably, the out-of-school places would not be the largest obstacle in this regard. All groups indicate that such integration would ensure the connection of students with real life, and enhancement of their knowledge, skills and attitudes in the case they are motivated to learn. Half of the teachers defined the integration in terms of the place where non-formal education takes place: one fifth of the respondents see it as hobby education and clubs at schools, an even smaller percentage define it through the attendance of some places outside the school. The other half of the teachers defined this integration through the deeper and more practice-oriented acquisition of school curriculum, special pedagogy of non-formal education and collaboration with out-of-school experts.

Out-of-school places
A majority of the experts (n=16) have participated in the integration of formal and non-formal education that was different in its content and forms: the majority of them are camps, projects, excursions, attendance of museums, and different hobby groups, which are a special feature of Latvia. Unfortunately, none of the mentioned places are specially created educational places. The most attended out-of-school places in Latvia are libraries, interest centres and sport/art/music schools. Higher education institutions, science centres, Zoo/botanic gardens have been attended quite rarely. The majority of the teachers would like to attend out-of-school places more often. Teachers mostly coordinate the visit some days before it indicating the lack of long term strategic planning for the whole year. Few respondents meet the out-of-school personnel before the visits.

Teachers (n=37) mentioned places they have close cooperation with. From all places, 11 places are connected with Science and environmental issues, namely, Daugavpils University, Latgale Zoo, Riga Zoo, Water Purification Station, Regional Environmental Administration, Terrarium in Rezekne, Riga School of Natural Studies, Leimaņi Forestry, Botanical garden, Nature Museum, and Statoil (oil and gas company).

Needs and gaps

Formally, topics connected with real life issues are included in the school curriculum; however, their implementation is problematic because of axiological issues, wrong approach to subject, limitation only to some disciplines, or lack of proper teaching materials.

All sample groups constantly recognized the lack of formal pre-service teacher training related to integration of formal and non-formal education, though there is some in-service training for out-of-school education personnel. Depending on personal interests, teachers can provide diverse contribution to the integration of formal and non-formal education. For students, their motivation and attitude should be improved. More out-of-school places are needed for those who are interested in science and technology. Schools need more info about the possibilities of out-of-school places, motivation and strategic planning. For
principals, parents, school staff the way to compensate for extra time, work and resources needs to be found.

Although the number of teaching materials has been raised lately, they need to be pooled in special places, popularized and research about the needs is necessary. Out-of-school places lack time, resources, fresh ideas on self-advertisement, knowledge how to integrate their offer with school curriculum and needs of students. Community needs to re-evaluate its values and be ready for children outside of school.

It is interesting that while everybody recognized the need for teacher training for this topic, the teachers evaluated the need for additional knowledge and skills as a lowest (probably because of their large pedagogical experience) while support and cooperation with parents, administration, colleagues as well as increase of salary were seen as the most necessary factors in order to promote the integration of formal and non-formal learning.

Teaching materials

Since teacher trainers are not involved in the integration of non-formal learning, they did not mention any specific materials. Teachers and personnel of out-of-school places named quite similar types of materials. The scope of materials included both printed materials (books, brochures, posters) and electronic media (CDs, video, movies). The problems mentioned were: adaptation of materials to local context, curriculum and students’ age and scientific and technical relevance of materials. Available teaching materials do not include students’ social (socially pragmatic) competences, knowledge on Science, and responsibility toward environment. Accessibility of teaching materials was evaluated in the middle among 12 factors necessary for implementation of integration of formal and non-formal education. The teachers see the teaching materials as the least important but initiative of teacher as the main factor determining what exactly topic will be mastered.

Energy topic in non-formal education
Teaching materials for energy topic

Majority of respondents think that there are enough materials for environmental education. However, only two specific items were mentioned regarding the energy topic. All groups think that such materials can be used both for formal and non-formal education.

While teacher trainers admitted that there are lot of teaching materials for energy topic as well as criticised their quality, teachers and out-of-school staff exposed their wish to have more materials in different forms (printed and electronic). Teachers wanted more technically advanced materials and exposed rather detailed view on the content and pedagogy of such materials. Only one out-of-school staff member mentioned materials that she wanted in relation to alternative energy topic.

All sample groups agreed that materials should:

- be complemented with methodological instructions for teachers and syllabi, comprehensive list of work materials, worksheets;
- be not too complex, in simple language, with illustrations, contain interesting facts, correct info, proper references to other sources;
- be relevant to students’ age;
- encourage students to know more about the topic, to show their personal attitude toward the topic, trigger the further discussion about the topic or solution of the problem;
- reflect all the system and processes holistically and also the place of each element and process in the system.

Readiness to teach for energy topic
Teachers evaluated their readiness to teach energy topic higher, while teacher trainers and out-of-school experts did not view the situation as good as the teachers. Teachers suggested many ideas on how to improve this situation. It was admitted that in order to organize learning of energy topic out-of-school places need proper equipment and time, teachers themselves need strong scientific background and they have to be prepared for this topic by visiting out-of-school places connected with energy education themselves.

Out-of-school places for energy topic

Teachers mentioned quite larger number of out-of-school places for students to get an experience in understanding of real life urgencies dealing with current problems. The universities probably would be able to provide more scientific info about the topic. None of the mentioned out-of-school places are educational centres created especially for energy topic. Some administrative problems would be anticipated regarding the visits to certain places since they usually do not see education as one of their functions.

From 121 topics, carried out in out-of-school places by 50 respondents, only 5 topics were connected with energy. However, the positive fact is that, from 17 topics that created the most noticeable changes in pupils, 13 topics were connected with nature and environmental protection. Ranking 11 topics that pupils could master in out-of-school places considering their importance for pupils, two topics connected with energy received 7th and 9th rank. Topic “Environmental research and monitoring” received the second rank that is a rather good sign considering that almost half of the surveyed teachers teach social subjects. Topic about regional history (1st rank) is easily acquired in museums that were the most often mentioned out-of-school place (40 times). The results, however, show that the topic of energy currently is not among the most popular for the surveyed teachers.

Speaking about the challenges and concerns regarding the integration of school and out-of-school places specifically for the acquisition of energy related
topics, Latvia does not have out-of-school learning places solely for energy topic. Other places dealing with energy among other topics have many problems and they should understand better the situation at school. Some solutions were suggested for the improvement of situation: development of cooperation, allocating extra time for visits, creating teaching materials, organizing in-service courses.

The participants were not too willing to offer some new activities for the students as to reach the versatile understanding of energy topic and development of skills for reasonable behaviour except of those that were already mentioned. Teacher training institutions showed larger interest in energy topic since they have all the necessary equipment and materials. Hydroelectric power stations are also willing to cooperate and use its possibilities for students learning and research.

The lists of places that teachers already have visited and places that they would suggest to visit do not differ too much. The only educational organizations on this list were Daugavpils University and Riga Children Nature Studies School.

**Conclusions and recommendations**

Presently the legislation and politics of non-formal education in Latvia is in its developing stage. Different ministries are responsible for non-formal education, which is still perceived as mainly the youth education or interest education. That is, on the one hand, the traditional approach in Latvia is having its positive results and, on the other hand, it is different from the approach other countries are using. However, as the research shows, non-formal education as visits to out-of-school places and usage of its educational potential are present in education of Latvia and are implemented successfully on different levels of education. The teachers attend museums, libraries, art/sport/music schools and also some out-of-school places on the environmental education and ESD topics. Though, in Latvia, out-of-school places work more autonomously from the in-school education. Besides, traditionally in Latvia, the social, cultural, and political environment is more favorable to out-of-school places oriented toward arts, social sciences, and humanities, not toward natural sciences and ESD.

Energy topic is included in educational guidelines of Latvia side by side with other important topics connected with environmental education and ESD. Since the educational legislation in Latvia does not place the ESD in the centre of educational discourse, this is still the further aim of advocates, politicians,
researchers and practitioners. Actually, in Latvia only a few out-of-school educational places could be mentioned that carry out educational functions regarding energy topic. These places mostly do not have yet the elaborated teaching units about energy topic. Specifically, there are no out-of-school places in Latvia with a specialization only on the energy topic. The activities on energy topic are not on a regular basis and, as the research shows, such topic is not among the most popular for teachers.

In Latvia, respondents stressed two good practice examples. The government-owned energy utility company LATVENERGO organizes many activities in different forms to educate pupils on the most urgent issues connected with power and its production. This is an example of initiative from enterprise that takes a responsibility to educate the population on energy topic. The key role of this company for Latvian economy makes these activities recognizable for a majority of teachers. Another example is Daugavpils University annual Science Festivals. It appears that in the countries without elaborated and well-developed structure of out-of-school places on science and technological topics, the universities and other higher education establishments could serve as the places where the relevant equipment and experts with adequate knowledge and skills are pooled before the other out-of-school places grows in number and quality.

The issue of teacher training for integration of formal and non-formal learning aroused doubts about the quality of such training and even more for mastering energy topic in out-of-school places. Besides, there is a need to stress the importance of energy topic among the teachers in Latvia. However, a good sign is the high importance of environmental education topics among the teachers in Latvia and hopes that the current global and local economic crisis will serve as a psychological and economic impetus for dealing with ESD topics in general and specifically with energy topic.

As it is seen from the research data, the common challenges and needs are associated mainly with the financial means, problems at the teachers’ level and wide range of the level of cooperation between/inside the school and out-of-school places. The project team from Latvia recommends focusing more on teacher training institutions to prepare teachers for the integration of formal and non-formal learning, cooperation with out-of-school places, and to create the readiness to be engaged in different educational activities aimed for sustainable development. The change for a positive development is seen with the introduction of updated curriculum in Science (Physics, Chemistry, Biology, and Nature Studies) and Mathematics for secondary school that will hopefully
connect the content of learning with the real life issues and accustom teachers and students to more research and experience-oriented learning.

At the end, it should be stressed that simultaneously with the clarification of the situation in the field, the given study carries also the ontological and catalytic authenticity. Both the results of this study and the participation itself were useful and relevant to the respondents, recognized in different occasions disseminating the project reports, at in-service teacher training courses, etc. Also, the educative, empowering and transforming nature of the obtained results for the educational community can be displayed as the educative and tactical authenticity of this research. During the study, participants were prepared to enter further in-service training, having stronger motivation and interest toward the previously not too familiar topic of energy education. The representatives of out-of-school places and teacher training institutions who participated in extensive interviews regarding the project theme were involved in the similar process. This participation enhanced their self-awareness and several interviewed educators expressed the wish to participate in the next stages of the project and, presently, they already are taking an active part in this work.

From the pedagogical point of view the approach used in the first phase of the INSPIRE project, in some way, constructed a case for educational action research when participants, together with the researchers, investigate the current situation and search for the ways to change it for the better. The teachers benefited from the project through self-reflection and analysis of their own practice and the practice of external institutions demanded, in order to fill out the project surveys while serving as an expert responding to the interview questions on the project topic. The respondents of the research evaluated their own practice and had an opportunity to better see the positive and negative sides of their current practice. Such self-reflection and analysis serve as a background for the further change of teachers’ professional planning and performance, as well as cooperation with internal and external bodies. Indirectly, as the experience and the data show, even the participation in research can foster the change of knowledge, attitudes and behaviour of research participants, as it is proved to be in action research.

Hopefully, the project INSPIRE and the presented study provide a basis upon which other projects focusing on ESD as a whole, with renewable energy and climate issues in particular, may be undertaken in the future.
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Didactical fractal as a conceptual model for sustainable science teachers’ education

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Abstract

Ensuring that the professional development of teachers includes an awareness of and ability to realize the main goals of education for sustainable development requires new didactical approaches. The aim of this paper is to investigate the views of experienced science teachers and experts in science education sphere about a new conceptual model – didactical fractal. This model focuses on the systemic interpretation of the essence of natural sciences education in order to discover pedagogically efficient means for organizing the learning process in a way that takes into account of the major categories of the educational process: context, learner, content and teacher.

Key words: sustainable development; teacher education; didactical fractal; contextual approach; competence.

Over the past decade, sustainable development and re-orienting education for sustainable development have become global concerns. Changes in the political and socio-economic sphere and the changing relationship between humans and the environment have impacted the direction of educational development. In a society characterized by production and consumerism saturated with information and new technologies, the aims and tasks of natural sciences education have grown wider. This has brought about changes in the content and methodological approaches to education for sustainable development. Along with acquiring fundamental knowledge and intellectual and practical competencies, contemporary science education faces the task of facilitating the young people’s continuing acquisition of meaningful knowledge, skills and competencies. Today, it is vitally important to promote the development of systemic thinking, value understanding and the formation of attitudes towards the human and natural environment and the world at large.
These educational trends require that all educators comprehend contemporary educational goals, contexts and methodological approaches. Teacher educators involved in pre-service training must ensure that future teachers are aware of the main goals of education and are able to realize them. Teachers must become flexible planners and diagnosticians who understand the learning process and have a large repertoire of teaching methods at their disposal. Development of different teacher’s competences is not possible without systemic vision of educational process in general. Along with the task to select appropriate conceptual, methodological and topical information for planning teaching and learning process, there is another very actual problem – we need to develop modern arrangement or classifications of already existing knowledge. For this purpose an innovative model – didactical fractal was worked out.

The didactical fractal was created on the bases system theory (Bertalanfy, 1968; Broks, 2000), the holistic and integrated approach of ESD (Miller, 2006; Clark, 1997; Salite, 2000) and this author’s previous research (Jonāne, 2008a). It highlights the wholeness and strong interaction between educational aims, strategies and content. The aim of the didactical fractal is a systemic interpretation of the essence of natural sciences education in order to discover a pedagogically efficient means for organizing the learning process in a way that includes each of the major categories of the process of education: context, learner, content and teacher.

A fractal is a rough or fragmented geometric shape that can be subdivided into parts, each of which is (at least approximately) a reduced-size copy of the whole, a property called self-similarity. Natural objects that approximate fractals include clouds, mountain ranges, lightning bolts, coastlines, snow flakes, etc. The systemic interaction among all of a fractal’s structural elements in nature is analogous to the complexity of the teaching/learning process. As depicted in Figure 1, the didactical fractal has a Sierpinski triangle shape. Each of the triangles represents fundamental didactical categories that can be analyzed from three aspects on two or more hierarchical levels. Each triangle (triangle of context, triangle of content of education, etc.) can be presented as a complex fractal whose form is similar to the general one.
According to J. Bruner’s constructivist learning theory, teaching must be based on experiences and contexts that arouse learners’ desire to learn and develop their abilities to do so (Bruner, 1960). Clark (1997, 58) argues that “without a context, meaningful understanding is limited and incomplete”. The triangle/fractal of contexts (Figure 3) at the conceptual level illustrate the subjective, social and global context of education content. Therefore, contextual approaches to organizing the learning process and the development of systemic
thinking should be the main focus of science education related to education for sustainable development. In other words, context is merely a tool, not the goal. Investigation of life situations and problems that are topical for learners and the society, building from their own experience and active learning processes lead to the formation of new ideas, attitudes and competencies.

![Figure 2. The context triangle/fractal of natural sciences education content](image)

In accordance with the contemporary constructivist opinions, learners construct their knowledge by interpreting new experience in relation to existing contexts. This means that this kind of approach facilitates the skill of transference...
– the ability to apply acquired knowledge in new situations. Only in relation to the context does the content of a subject/topic gain new meaning. This perspective emphasizes not only the acquisition of knowledge but also the importance of diverse aspects of educational action (teaching and upbringing) and the integration of educational content with meta-content. For example, during learning about motion, it is necessary to discuss security measures and risk factors in the movement of carriers; during learning about materials teachers can create learning situations which will make awareness of rational usage and necessity of sorting out and recycling waste. It creates the possibility to shape learners’ responsible actions on issues related to science, technology, economics and environment.

The methodological importance of the integration of the content and meta-content of education is suggested by human pedagogy, constructivism, the synthesis of integration and contextual approach (Clark, 1997) and other research ideas. The implementation of the contextual approach demands the formation of integrated learning process units proceeding from the dynamic of natural sciences development.

According to constructivist approach, learning has to be organized as a process that provides opportunities for learners to engage in the practice of life beyond classroom by using tools of problem solvers, scientists, citizens of society or family. Learners, doing complex task, encompass intellectual capability development such as critical thinking, logical reasoning, creative problem solving and decision making as a significant skills for daily life. In the world of growing speed of the creation, spread and accessibility of factual knowledge, the necessity to memorize knowledge is decreasing. For this reason, it is essential for education to develop the competences of understanding and literacy instead of teaching factual knowledge. Integration of content and meta-content gives issue for meaningful and wisdom centered learning and development attitudes to oneself, society, environment and global problems.

Education content triangle reveals its component parts – knowledge, skills and attitudes that are the grounds for competence development. Their systemic vision is depicted in Figure 3.
Alongside with changing of educational needs teacher’s role is changing too. Teacher becomes an active organizer of an efficient process of learning, the one who builds and provides the assessment of the learning environment (Figure 4).
The didactical fractal is a visual form of expression that interprets the systemic relationship between different categories of education on three hierarchical levels.

1. **In the conceptual aspect:** the teacher becomes aware of the strategic aim and context of natural sciences education (human – environment – community interaction and sustainable development) and plans and organizes the learning environment for a goal-oriented and efficient process of learning;
2. **In the aspect of selecting the topical content:** the contextual approach provides insight into the mutual interrelatedness of the human, natural, and technological environment; the teacher focuses on understanding natural processes taking place in daily life;

3. **In the methodological aspect:** the learning process is based on choosing goal-oriented information for actualizing existing experience and enhancing cognitive interest, cognitive processes, transference of skills, and personal significance of the learning content. The teacher/author of teaching materials selects and offers content for natural sciences education that is efficient for pupils’ learning, i.e. formation of ideas, skills and attitudes.

The didactical fractal ought to be interpreted as a holistic and synergic concept, a visual model and a metaphor. As a concept, it emphasizes a new approach to the vision and implementation of the learning process – a contextual approach. Contextual teaching and learning is based on situated cognition research which has found that constructivist processes such as critical thinking, inquiry learning and problem solving should be situated in relevant physical, intellectual and social contexts (Glynn & Winter, 2004). It focuses on building understanding about interactions among society, technology and environment and developing personal responsibility in collective decision making on issues related to science and technology (Jonāne, 2008a).

As a visual model, the didactical fractal depicts the major didactical categories of education in a single system and highlights their interrelations. The system reflects the synergy of system components or mutuality, i.e. the result of system action exceeds the sum of its component parts. Comparison to and analogies with previous knowledge (in this case, with natural structures – fractals) and the form of a united model make it easier for teachers to comprehend the new information and develop the skill of transference. Reasoning this way, the didactical fractal serves as a visual metaphor. Cognitive scientists (Lakoff & Johnson, 1980) have identified metaphors as a fundamental tool of human thought which we use so frequently and automatically that we seldom notice the metaphors unless they are called to our attention. Metaphors are used to structure our experience and thereby make it meaningful. According to D. Hestenes (1996), metaphors help us make sense of new experience (target domain) by mapping it onto the structure of familiar experience (source domain). The aim of the present research is to investigate the
views of experienced science teachers and experts in science education about the pedagogical value of this new conceptual model.

**Method, procedure and data analysis**

Interviews were conducted to investigate experts’ (science teacher educators and experienced teachers) views about the innovative didactical model. Structured interviews with 8 questions focused on the content and structure of didactical fractal and its potential use for promoting and developing teachers’ comprehension of the wholeness of the educational process in the context of sustainable development.

12 experts (3 males and 9 females) from Latvia’s teacher training institutions (n=5) and secondary schools (n=7) were interviewed during September, 2008. The specialty of the experts were natural sciences (n=11) and mathematics (n=1). Five experts held doctoral degrees in pedagogy or natural sciences, others held masters of pedagogy, science, or mathematics. All experts had at least 20 years of teaching experience.

The experts were interviewed both individually and in small groups after a presentation explaining the aims, structure and content of DF. They were informed about the research topic and aim of the interview which lasted approximately one hour. Permission to audio record the interview was requested. All interviews were audio taped and transcribed to create a written protocol. Before the interviews, demographic data was collected from the participants. Since the interview questions were quite focused, data analysis was guided by research aim and topic. The experts’ and experienced teachers’ answers on interview questions were analyzed considering three main aspects: 1) philosophy, content and structure of the didactical fractal; 2) didactical fractal as a concept; 3) usage of didactical fractal for teachers’ education. Qualitative data analysis method was applied.

**Results**

Having processed the results of the experts’ interviews several main statements were provided clearly characterizing the views of experts about the didactical fractal (Table 1).
Table 1. Experts’ expressions about the didactical fractal

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Experts initials</th>
<th>Statements of experts’ position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Philosophy, content and structure</td>
<td>V.B.</td>
<td>A united system of main aspects of educational process.</td>
</tr>
<tr>
<td></td>
<td>I.J.</td>
<td>Original idea of visualization the main categories of education process where everything is interrelated.</td>
</tr>
<tr>
<td></td>
<td>I.K.</td>
<td>A united model as a whole system which helps the teacher to evaluate education process more widely and deeply.</td>
</tr>
<tr>
<td></td>
<td>M.G.</td>
<td>Integration of familiar and unfamiliar concepts in whole system.</td>
</tr>
<tr>
<td></td>
<td>I.V.</td>
<td>Non-ordinary model which incite non-traditional approach in educational process.</td>
</tr>
<tr>
<td></td>
<td>M.K.</td>
<td>Model in which key concepts are systematized and put attention is put to education context for teaching process.</td>
</tr>
<tr>
<td></td>
<td>R.P.</td>
<td>Model encourages a teacher to think and work systemically.</td>
</tr>
<tr>
<td></td>
<td>D.I.</td>
<td>Model which puts attention to promoting more meaningful learning; different aspects of education.</td>
</tr>
<tr>
<td></td>
<td>I.T.</td>
<td>Powerful, systemic and efficient model.</td>
</tr>
<tr>
<td></td>
<td>I.S.</td>
<td>Non-linear model for introducing non-traditional educational strategy.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Model with deep philosophy for improving science education.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Systemic, visually attractive vision.</td>
</tr>
<tr>
<td>L.P.</td>
<td>Innovation, acceptable concept.</td>
<td></td>
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<td>------</td>
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</tr>
<tr>
<td>D.K.</td>
<td>Original explanation.</td>
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<tr>
<td></td>
<td>Acceptable concept.</td>
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</tr>
<tr>
<td></td>
<td>Unfamiliar concept: more time is necessary to comprehend it’s essence.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Concept which incites to evaluate contemporary education needs and methodological approach.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Novelty in didactics.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I am not competent enough to evaluate DF as a concept</td>
<td></td>
</tr>
<tr>
<td></td>
<td>As an example for planning of teaching/ learning process and improving content of education.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Potential for promoting teachers’ creativity.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Applicable for teacher training.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Model will be applied both in preparing young teachers and in the lifelong education of practicing teachers.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Model will be applied for introducing contextual approach.</td>
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</tbody>
</table>
As the results show, the most all experts characterize didactical fractal as a systemic model and accentuate the necessity and role of systemic approach in education. For example, expert Rita (a pseudonym) concluded:

“This model encourages a teacher to think and work systemically and find out ways of organizing students’ systemic learning for promoting their literacy and competency”.

Because “big ideas” often get lost in the mass of details, experts emphasized that any case must be treated as a whole, a part of the system where everything is interrelated. The systemic approach presented in DF makes easier the comprehension of professional information goals of action: Expert Inta says:

“There I see a united system and a whole picture. All categories included in didactical fractal are familiar. Included into non-ordinary and united system, these categories and model as a whole system help the teacher to evaluate education process more widely and deeply. It creates out new ideas and encourages finding out new approaches for its implementation”.

The didactical fractal was characterized as an innovative, non-traditional, powerful and efficient model for a uniform interpretation and analysis of the totality of education categories and education process. Experts concluded that the didactical fractal could help teachers evaluate the didactical aspects of science education context, content and strategies from an education for sustainable development perspective. The didactical fractal provides suggestions for innovative methodological solutions in concrete situations. It has a potential for promoting teachers’ creativity. For some teachers, the concept of ESD and the category of context included in didactical fractal were unfamiliar. This principle and contextual approach are innovative in education in general and particularly in science education. After these concepts were explained, teachers agreed with the significance of the contextual approach in science education. Experts agreed with the necessity of the contextual approach for promoting students’ motivation and the meaningfulness of science learning.

Most of the experts owned that the title of model attracted their attention. “Why was it called a fractal?” they asked. After discussion, they made sense of the metaphorical similarities between natural fractals and education. Natural fractals are created through a process of self-organisation according to
physical regularities. Likewise, in science education, teachers need to turn to organizing students’ learning and self-development according to pedagogical and psychological regularities. DF as a model encourages teachers and students to comprehend the general content of education categories and the context of contemporary education. It also encourages finding effective methods, educational contexts and content for each unit of education. Teachers’ educators concluded that DF was not complicated, but some teachers described it as partly complicated. This may be because teacher educators’ level of competence and ability to generalize are higher than those of the teachers. Experts recommended the model be applied both in preparing young teachers and in the life-long education of practicing teachers.

Conclusions

Education for sustainable development requires new ways of conceiving the goals, tasks and organization of natural sciences learning processes, teacher training and life-long learning. Interviews show that the didactical fractal as a conceptual model and an example for hierarchical planning of the teaching/learning process is recognized both by experts from teacher training institutions and experienced teachers. The didactical fractal provides a systemic vision of contemporary education categories (education context, learner, teacher and education content) and creates methodological grounds for organizing the natural sciences education process. Experts from teachers training institutions give a positive estimate of the potential of the innovative model for explaining theoretical aspects of contemporary education. According to experts’ assessment, didactical fractal is a powerful theoretical model for understanding the philosophy of teaching and improving teachers’ work system in general. As a systemic model, didactical fractal helps teachers more deeply comprehend the aim and structure of science education on a conceptual level and provides an example for designing the teaching and learning process in the context of sustainable development.

Experienced teachers’ responses indicate an insufficient understanding of innovative principles such as education for sustainable development and contextual approaches to teaching. Often, science teachers don’t pay enough attention to meta-content of science education. Therefore, the didactical fractal would be a powerful conceptual model for improving teachers’ professional competence and re-orienting science education in the context of sustainable development. As a model, it holds the potential for helping teachers comprehend
the multidimensional aspects of contemporary science education at school more deeply.

**References**


Ecological perspective on the prospective teachers’ education in the context of sustainable education

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Abstract

The sustainable development of today’s society can be promoted by providing the educational sustainability. Therefore, teachers’ education is the way to provide it. The main aim of the authors’ research is to substantiate the ecological perspective and ecological approach in the teachers’ education in the context of sustainable development of local community and school as an integral part of community’s educational and cultural environment. The authors of this article offer the results of their theoretical research: substantiation of the concepts – ecological perspective and ecological approach in prospective teachers’ education, basing on the cultural accordance principle in pedagogy and education. The research methods are the following: experience reflection; studying, analysis and evaluating of scientific literature.

Key words: cultural environment, ecological approach, ecological perspective, prospective teachers’ education, sustainable development.

Introduction

Sustainable development and sustainability are concepts, which emerged in modern science at the end of the 20th century. At that time there was the conclusion actualize that education should become the precondition and guarantee for the sustainable development. Already at the end of the 20th century there was the substantiation found for the concept ecological perspective in education. The concepts education for sustainable development and sustainable development of education emerged in pedagogy, social, natural sciences and the science of educational management.
Nowadays the problem of the preserving and sustainable development of balanced and diverse cultural environment and educational environment has become more and more topical. It is particularly topical in relation to the sustainability of the cultural environment of rural community, as well as that of the educational environment of a rural school. Our opinion is that ecological approach provides new perspective – ecological perspective – for teachers’ education in order to find the solution of this problem. On the basis of ecological approach there are new conceptions, models for the teachers’ education, and the positive experience of higher educational establishments gathered regarding the professional preparation of new teachers.

At the same time there is a lack of teachers of different school subjects at many schools in Latvia. Such situation endangers educational quality and sustainability of schools. Data provided by Central Statistical Bureau (Latvijas Statistika, 2008) show that within last 10 study-years the total number of teachers at schools of Latvia has decreased for 2570 teachers. There is a situation in Latvia that the mean indicators of teachers’ age increase, the teachers of older generation do not work at schools anymore, but the new teachers after the graduation of higher educational establishments do not hurry to start their professional career at schools. It endangers the sustainability of schools. Many graduates of higher educational establishments are not sure, whether they would be able successfully integrate into: the educational environment of a school or the cultural environment of a local community, life-long education process and the development and implementation of such process through successful cooperation with colleagues, pupils, pupils’ parents, the local community and by proving themselves as the new specialists and also as the respectable personalities. Therefore, when educating prospective teachers, particular attention should be paid to their readiness to adapt to the cultural environment of a city or rural school in any of Latvia’s cultural and historical regions (Kurzeme, Latgale, Vidzeme or Zemgale), where the community is looking forward to welcome the new teacher.

Ecological perspective in education provides higher educational establishments with an opportunity to deal with the above mentioned problem, namely, according to the authors’ (Katane, 2005; Katane, 2007a; Katane, 2007b; Katane, Krugļija, 2009; Roga, 2008; Salite, 2000, 2002; Salite, Salitis, Klepere, 2002) point of view, in order to ensure the sustainability of all society, local community and school environment of Latvia, ecological approach should become an imperative for the teachers’ education.
The aim of the research: the multi-aspect substantiation of the ecological perspective and ecological approach in the teachers’ education. Ecological perspective and ecological approach in the prospective teachers’ education had been scientifically substantiated in this article. Research methods: experience reflection, studies, analysis and evaluation of scientific literature.
Ecological perspective in the prospective teachers’ education

The substantiation of the ecological perspective in teachers’ education is based on the basic principles of interaction between a human being and environment, which results from the regularities of this interaction. Nowadays the significance of the context of cultural environment becomes more and more important for the teachers’ education. One of the aims in relation to the prospective teachers’ education is the integration of the cultural environment of Latvia’s cultural and historical regions, including the educational content of the diverse environment of regional city and rural schools, into the study programmes. The principle of cultural accordance in teachers’ education has become particularly topical nowadays.

Any cultural environment has its own values, which should be preserved as the most characteristic forms of existence of a particular community comprising attitude towards the world, the forms of the world cognition and comprehension, based on the specificity of the world outlook characteristic to a particular community. Cultural environment influences knowledge, skills and the types of their usage in particular situations of everyday life. Attractive cultural environment and developed cultural infrastructure directly influences the quality of living conditions of the residents of any territory, providing well-maintained living environment, the opportunities for the lifelong personality development and perfection, as well as economical welfare. Culture is a significant resource for the regional development, promotion of employment and competitiveness. Culture has the potential to preserve and create new workplaces also outside the direct sphere of cultural activities — in other service sectors. Cultural infrastructure is important for the specialization of the activities of developmental centres and the mobility of labour force in centres and in the territories around them. The participation of all the groups of residents in the creation of cultural environment is one of the main factors, uniting the development of society (Nevalstisko organizāciju centrs, 2003; Burkhardt, 2008).

Variety makes our society rich; therefore, we should promote the preservation and strengthening of the cultural originality and identity of the communities from the cultural and historical regions, cities and rural areas. This aim could be achieved by respecting and preserving regional and local cultural traditions, spoken folklore, and dialects. The preservation, respecting of the
Latvian cultural heritage, as well as the creating of new cultural values will ensure the sustainable development of the cultural environment of our country.

Research shows (Katane, 2005) that in many places, particularly in the rural areas of Latvia, a school is not only an educational centre, but also a local cultural centre, where teachers have a particular role, because they continue the activities which were started by Latvian primary school teachers.

A teacher should be ready for the following professional activities: 1) provision of support for pupils and their family members; 2) participation in the development and ensuring of family education supply; 3) participation in the implementation of educational process for the community, including adults; 4) knowing and respecting the opportunities, how to spend the spare time in a particular community; to know and respect the resources of infrastructure and social services, traditions and attitudes, as well as behavioural norms, which influence the quality of a human life within a community. Thus, it is possible to state that alongside with the conceptions of environmental, including cultural environment, sustainable development, the necessity for the development and implementation of strategic programmes, nowadays ecological perspective becomes more and more topical in the teachers’ education (Roga, 2008).

Taking into consideration the above mentioned, it is important to pay attention to the conclusion drawn by J. Clancy (Clancy, 1995, 726) that “... the interaction between the school and the surrounding environment should be viewed as the relations between interconnected systems. It is important, when performing a teacher’s pedagogical activities, to see the pedagogical potential of environment. It can be characterized as a wholeness of ideas, traditions, values, attitudes, culture and nature, which serves as a socialization resource”. But, when viewed from the aspect of social reality, the development of no social institution, including educational institutions, cannot be separated from the individual’s system, which develops from generation to generation. Educational institutions implement the set of rules and principles, which determine the social life in the institutional system – personal or social. But social reality, according to M. Gonzalo (Gonzalo, 1999), is a process, which is a complex political and philosophical perspective. The circumstances and conditions of social reality influence the development of the social models of society and community activities.

Teacher’s work has always been related to the community life, because teacher’s profession envisages ongoing process of social interaction. Ecological
perspective in teachers’ education allows studying and characterizing the specificity of cultural environment of both urban and rural communities. In the teachers’ education it is necessary to promote the formation of understanding regarding the concept of ecological perspective. This concept offers unique view on different systems in the community, including education. Different resources of a community, social and economical development certainly determine and influence educational process, and vice versa – education influences different processes in the community.

For example, there is a direct mutual influence between the cultural environment of rural community and rural educational environment. In different rural areas there are different educational needs for the community. These needs depend on different factors: economical situation and residents’ employment, demographic situation, structure and age peculiarities of rural residents, already obtained education, values orientation, attitudes, self-realization wants and possibilities, etc. But the educational opportunities offered within the environment of a rural school considerably actualize educational needs of rural residents (not only those of pupils. Research (2000–2005) carried out at the Institute of Education and Home Economics of the Latvia University of Agriculture shows that rural schools already at the beginning of the 21\textsuperscript{st} century developed into self-assessing, self-organizing systems of educational environment, which, alongside with the attempts to maintain the balance with the external, changing environment, took care of the sustainable development of education in rural areas. Educational environment of a rural school ensures the exchange process of the experience gathered by society. Such process is implemented by facilitating the socialization and culturalization of interaction subjects. Schools self-complicate by increasing their target-audience, widening the range of their functions and the increasing the number of educational programmes, supplying not only the family education, but also lifelong learning opportunities for rural residents, thus facilitating the sustainable development of local community (Katane, 2003, 2004, 2005).

Ecological perspective in teachers’ education provides opportunities for the promotion of the formation and further development of teachers’ ecological competence.

Ecological competence is integrated set of knowledge, skills and attitudes on the social interaction between a human being and environment, the regularities of the structures of ecological systems. Teacher’s ecological competence is based holistic insight into the developmental ecology of a human
behaviour and the preconditions of social situation. Teachers’ ecological competence can be developed by deepening the prospective teachers’ insight into their role in the improvement of community’s life through their pedagogical work at school, as well as by offering to co-operate between different community groups (colleagues-teachers, parents and other groups), thus creating participation mechanism for the development of local community – devoting time, skills, ideas and other resources (Roga, 2008).

An ecologically competent teacher knows the environmental specificity and is able not only to integrate into the system of a particular environment, but also facilitates the sustainable development of both school and local community by showing his competences through carrying out professional activities, because ecologically competent teacher knows the social situation, needs and harmonizes them with the resources within a particular environment and with the developmental perspectives. The activities of an ecologically competent teacher ensure wider focus of professional activities than such activities are performed traditionally. According to the authors’ point of view, ecological perspective in education, including teachers’ education, offers new opportunities for the facilitation of the sustainable and balanced development of the diverse cultural environment of Latvia.

Ecological approach to the development of the prospective teachers’ pedagogical practice model and to the substantiation of basic principles

The accession of the Baltic States to the European Union made topical the problem of teachers’ education. Teachers’ education is closely connected with the graduates’ ecological competence, educators’ adaptation to the new working conditions. Teacher’s successful integration into the school environment is one of the preconditions for one’s permanent work at school. This problem nowadays is especially topical (Kopeloviča, Žukovs, 2005; Katane, 2004; Wastau-Schlüter, 2006).

Several scientists (Aboļeviča, 1998; Абдулина, 1990; Кузнецов, 1991) emphasize the idea that teachers’ professional activities depend on the adaptation to the school environment. In its turn, adaptation depends on inner motives, regular acceptance or non-acceptance of the personality’s internal and external existence conditions, as well as on the personality’s activities in order to change
these conditions according to the desired direction. It is a complex process, within which the actual needs of a personality come to life.

Experience shows that the image of a school, which has already been established in the students’ psyche as a result of their previously gathered experience during school-years, has its role within the process of professional development. The task of the university level supervisor of the pedagogical practice and the practice supervisors (mentors) at a school is, on the basis of mutual collaboration, to expand and, if necessary, to correct students’ view, developing the point of view that a school is a complex system of educational environment, directing students’ thinking, offering new knowledge and facilitating the development of skills, including social skills. When supervising students’ pedagogical practice, it is important to answer the following questions: What kind of inner images (perceptions) is formed in the student’s psyche during the process of interiorization? What does an individual want and what can an individual see and evaluate in the educational environment of a school? What kind of an individual’s attitude is developed in relation to this environment? When beginning the pedagogical practice at school, it is important to respect the peculiarities of students’ perception, thinking and values orientation in relation to a school as an environment, and at the same time implementing students’ ecological education. Students should learn to think in conformity with their new, social role to be acquired during the pedagogical practice – a teacher, they should clearly understand educator’s tasks and functions, the range of which has significantly broadened nowadays within the context of sustainable development. Ecological approach in teachers’ education facilitates the formation of friendly attitude towards a school as an educational environment, including pupils and their parents, teachers, various other specialists and people employed at school. In its turn, this friendly attitude promotes mutual understanding, respect and cooperation, including joint actions, the basis of which is the prospective teacher’s psychological readiness and readiness for professional activities. During the pedagogical practice students should develop the reflection skills at the level of meta-cognition, in order they could adequately view, develop and evaluate themselves as the integral parts of the educational environment of a school, the subject of an interaction system. A student should learn to think ecologically and to act according to the orientation _I in a school_, instead of _I and a school_. In relation to the above mentioned, our opinion is that particularly important for the teachers’ education is students’ pedagogical practice at schools. The main aims of the students as the prospective teachers’ pedagogical practice are: 1) the development of systemic ecological thinking; 2) successful integration into the educational environment of a comprehensive school; 3) the formation and
development of the competences necessary for the teacher’s professional activities. The process of formation and development of competences takes place in the educational environment of a school as an interaction system (Katane, 2007b).

In order to facilitate the achievement of these aims, it is important to respect the basic principles of educational environment in teachers’ education (Katane, Krugļija, 2009): 1) education on environment; 2) education in environment; 3) education for environment. These three principles in environmental education had been substantiated by J. F. Disinger (Disinger, 1993) and J. Palmer (Palmer, 1998; Palmer, 2001).
On the basis of the above mentioned conclusions, we have developed the multi-level model of educational environment within the context of cultural environment component and we have worked out the basic requirements set for the students' pedagogical practice (Katane, 2007a; Katane, Kruglija, 2009). During the pedagogical practice:

- the students should acquire knowledge about the diverse cultural environment of the schools of Latvia, and at the same time to be aware that the educational environment of Latvia is an integral part of global multicultural educational environment (Figure 1), but each school in Latvia (both city and rural schools) is a micro-system of this mega-level environment;

- there should be offered opportunities for professional development in the diverse school environment, acquainting with the peculiarities of the cultural environment of city and rural schools within the context of cultural and historical regions of Latvia (Kurzeme, Latgale, Vidzeme...
and Zemgale). This would enable obtaining diverse pedagogical experience already during the study period;

- in relation to the students as prospective there should be facilitated: the formation of an insight into the sustainable development of educational environment and its preconditions, aims and objectives; the development of friendly attitude towards the school environment, the balance of egocentrism and eco-centrism in the prospective teachers’ thinking and pedagogical activities; readiness to integrate into the school environment, where the new specialist is expected, irrespective of the fact, whether the school is situated in Kurzeme, Latgale, Vidzeme or Zemgale, in a city or rural area, thus ensuring the qualitative performance and sustainable development of the school.

The model is also based on the conclusions drawn by USA scientist U. Bronfenbrenner (Bronfenbrenner, 1984; Roga, 2008) that we could relate to the teachers’ professional development in the diverse environment of Latvia’s schools.

- Human development is not viewed as constant, “lifeless”, directly influenced by environment, but rather than developing, dynamic existence;

- Interaction between a person and environment is seen as an interaction process;

- Environment is not defined as a separate system, but it is enlarged, including into it the mutual relations with the larger systems of surrounding environment.

Readiness of prospective and new teachers to integrate and to begin their professional activities in the diverse environment of schools considerably depends on the competences: multicultural communicative competence (Dirba, 2006); socio-cultural competence (Tiļļa, 2005; Выготский, 2000); intercultural competence (Branden & Gorp, 2000; Byram, 2005; Koehn & Rosenau, 2002); ecological competence (Roga, 2008). Our point of view is that ecological competence is one of the most important components for the teachers’ readiness for the professional activities within the cultural environment of a particular school.
The school environment, which in our model is a micro-level environmental system (Figure 1), first of all, is a humanistic target-oriented interaction system (Figure 2) where there are several groups of subjects involved: 1) pupils; 2) pupils’ parents and other family members; 3) school teachers and other specialists; 4) local community. In its turn, the object of interaction is the content of formal and non-formal education within the context of lifelong learning (Katane, 2005).

In order such multi-aspect interaction would be possible in reality, higher educational establishment should find the corresponding co-operation partners for this purpose – the base schools for pedagogical practice.

It is important that the base school for practice would become open, inclusive environment. The environment should support the prospective teachers as personalities, their efforts, pedagogical activities and develop the prospective teachers’ professional skills. When starting their pedagogical activities at a school, the students as the prospective teachers need pedagogical-psychological, methodological support, as well as development facilitating attitude and
collaboration. The educational environment of the school should also become developmental environment, being consistent regarding setting the requirements, which at the beginning could be met by a new teacher, when collaborating with practice supervisors (mentors), and later – independently. School environment should offer to the student as a prospective teacher: 1) permanent work opportunities; 2) an opportunity to take responsibility for their decisions and actions; 3) an opportunity to solve independently the problem-situations and problem-tasks, during the solution of which there is developed the prospective teachers’ ability of decision-making, accountability, critical thinking and professional skills; 4) an opportunity to analyze, evaluate and adopt best pedagogical experience; 5) an opportunity to obtain competent, considerate and correct analysis of an individual’s pedagogical activities, as well as advice, suggestions for the further activities, taking into account student’s opinion, without creating any obstacles for a prospective teacher’s initiative and creativity in his/her pedagogical work; 6) an opportunity to analyze and evaluate both prospective teachers’ and school teachers’ experience. This would facilitate the professional development of prospective teachers, including formation and development of different competences. At the same time the integration of the prospective teacher into the school environment depends also on his/her readiness to: 1) become the competent subject of a school as an interaction system; 2) respect the peculiarities of the cultural environment of a school and local community, while performing teacher’s professional activities (Katane, Krugļija, 2009).

The prospective teachers’ professional activities and integration into the school environment significantly depends on their professional adaptation and integration into the school environment (Krugļija, 2008). It is influenced by their views on school. Such views were formed not only as a result of knowledge obtained at the higher educational establishment, but also on the basis of pedagogical experience, gathered during their lives, including study periods, teachers’ motivation to work at school, the peculiarities of the social environment and cultural environment of school and local community, real living conditions and life perspectives, desire to have favourable living conditions.

If the prospective teacher has developed ecological competence and he/she is motivated to work as a teacher, it is easier for the teacher to adapt to and to integrate into the cultural environment of a school and local community. Ecological competence will help the prospective teacher to form the view that the school is an integral part of a particular community’s cultural environment. Thus, there will be developed thinking and the corresponding performance which
would be oriented towards *I in the community*, instead of the attitude *I and the community*.

**Conclusions**

Sustainable development of society depends on the educational sustainability, including also the sustainability of teachers’ education. One of the aims of teachers’ education nowadays is to facilitate the balanced and sustainable development of Latvia’s diverse cultural environment, including schools as an integral part of this cultural environment. In order to achieve this aim, the ecological approach should be respected in the teachers’ education. This approach provides a new perspective – ecological perspective – for the development of educational content. Within the context of educational perspective community and cultural environment are significant terms.

Ecological approach in education will facilitate the development of teachers’ ecological competence, which in its turn would become the prospective and/or the new teacher’s readiness to start the professional activities and to integrate into the educational environment of a school, showing respect to the specificity of the cultural environment of local community.

Within the framework of the students as the prospective teachers’ pedagogical practice there should be respected three basic principles of environmental education: 1) education about the school environment in Latvia; 2) students’ education within the diverse environment of Latvia’s schools; 3) education which promotes the formation of prospective teachers’ friendly attitude towards the school environment and cultural environment of communities, as well as the prospective teachers’ environment-friendly, professional activities.

It is important to facilitate the development of teachers’ systemic thinking and the formation of holistic view, where a school is a micro-level cultural environment, which is a substructure of the cultural environment of urban or rural community, taking into account the contexts of the multi-cultural educational environment of a particular cultural and historical region of Latvia: Kurzeme, Latgale, Vidzeme or Zemgale, Latvia as a country or that of the global scale. Therefore, it is important to respect the principle of cultural accordance in teachers’ education.
Students should learn to think in conformity with their new, social role to be acquired during the pedagogical practice – an educator – they should clearly understand educator’s tasks and functions, the range of which has significantly broadened nowadays within the context of sustainable development. A student should learn to think ecologically and to act according to the orientation: 1) I in a school, instead of I and a school; 2) I in the community instead of I and the community.

It is important that the base school for practice would become open, inclusive environment, which would support the prospective teachers as personalities, their efforts, pedagogical activities and develop the prospective teachers’ professional skills. It would be the environment in which a particular role would be attributed to the pedagogical interaction. Informal or experience education is especially important for the professional perfection of each teacher. It is a lifelong educational process.

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krājumā: Sabiedrība, integrācija, izglītība. Rēzekne: Rēzeknes Augstskola, Latvija, 80.–89. lpp.


Abstract

Topicality of the present research is determined by current global educational tendencies which bring forward the need to create a balanced system of general education where elementary school teacher’s personality occupies a significant place. There is an urgent need to pay attention to political, social and economic aspects in the context of sustainable development. A number of notions used in this context, for example, harmony, balance, long-term development, are used as synonyms to describe the problem of sustainable education. Motivation of children is not limited by the content of study courses and the standards. Sustainable education contributes to the development of cultural identity concordant to spiritual human values through the environment and generational continuity. Hence, the author of the present article makes an attempt to analyse the orientation toward sustainable development in professional competency developed within the higher education institutions preparing elementary school teachers. This article attempts to analyse the integrative character of teacher’s professional competency and sustainable development. In this article, the totality of knowledge about professional competence and sustainable development and the possibility to consolidate this knowledge and build a system of definite values has been investigated. Therefore, this research analyses the aspects of sustainability and the aspects of teachers’ professional development.
**Key words:** professional competency; sustainable development; teacher education.

**Introduction**

The choice of the topic of the present article is related to discussions from the 1990s of last century, when the notion of professional competency in Latvian pedagogical practice was brought to the foreground. This discussion involves two parties – those who support introduction of sustainability-oriented teacher’s professional competency in the school environment and those who are doubtful of the possibilities of its adaptation in Latvia. Yet, despite these polarised opinions, all in all, sustainable development can be regarded as a topical phenomenon in Latvian education, which needs to be systematically analysed and evaluated.

Already J. Students (1998) in his own time has observed that elementary school is often concerned only with development of knowledge without determining its meaning or deeper sense. Nevertheless, the issue of a viable, sustainable system of education still remains open.

The choice which is executed by parents, teachers, authoritative friends and the student oneself, determining one’s worldview, knowledge, experience and ideals, leads to a rapid growth in teacher’s individual and professional qualities.

In the current labour market in Latvia, there is a high demand for a teacher whose activity is not restricted to teaching their subject. Development of teacher’s professional efficiency also includes involvement in the system of cultural values and social views. Yet, it must be acknowledged that a modern teacher is mostly trained for delivering lessons. Pre-service teachers often only with some difficulty can analyse their professional efficiency and professional competency.

The main task of schools as implementers of social ideology has always been realisation of national educational policy and preparation of useful personalities in accordance with social views on the desirable kind of person,
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their thoughts, views, beliefs and skills. Education and upbringing of such persons was promoted by normative pedagogy, supported by normative documents, methodological instructions and textbooks. Employees of the system of education regularly received “recipes” that described what kind of learner was considered a good student, what kind of learner – a bad one and how to act in every situation. It was customary for the school to give a student the knowledge and skills which were considered dominant in the society. Students, in their turn, only had to obediently follow the requirements of an educational institution, learn to write, calculate, read and reproduce the cultural heritage. With that, students’ achievement was considered the main indicator of the effectiveness of school’s and teacher’s work. However, a question might arise – why honours students frequently fail to fulfil their potential and stop in their development.

As shown in practice, schoolchildren learn willingly about things that give them the joy of growth; they intuitively feel how their opportunities are broadened if they have a tool that allows and empowers them to control themselves. In contrast, adults – parents and teachers – are often unprepared not only for the perception of future, but also fail to consider the changing requirements of the present. Teachers can ultimately comprehend the numeric evaluation, yet they often do not empathise with the child, cooperate with them, notice and celebrate their smallest success; they have to learn to believe anew. Thus, assessment of the knowledge and skills that students obtain is not as topical as evaluation in real life situations: evaluation which is directed at students’ future, their abilities for future life and education.

Thus, in the 1990s the ideal aim of European educational policy was formulated: a person who learns independently and responsibly, making use of modern resources – languages, media, social networks. As I. Maslo (2006) puts it, such kind of people in the changing future situations will develop able-bodied, independent educational institutions and systems of education organisation that will be able to assume responsibility over broadening the learning opportunities of future generations. These reflections motivated the author of the present article and other docents to unite as a group of researchers in order to search for various ways of helping teachers improve their learning.

Hitherto the aspects that form the notion of professional efficiency have been little studied. The present research focuses on aspects of teacher’s professional development that promote growth of teacher’s professional competency, by developing their learning opportunities. Topicality of the present research lies in the development of teacher’s professional competency in the
context of sustainability. This research objective is to analyse the development of teacher’s professional competency from the perspective of sustainability.

**Understanding of professional efficiency and professional competency in theory and practice**

In educational practice, the traditional method of learning is understood as successive inheriting of generational knowledge, skills and attitudes is still dominant. Current economic development establishes additional demands for a qualified specialist: besides the ability to work well and qualitatively perform the entrusted duties, the young specialist is required to possess such abilities as independence, experience of active and creative activity, self-initiative, critical thinking and communicative skills, self-organisation and ability to assume responsibility. So excellent exam results are no longer enough. In Latvian schools there is a demand for activity characterised by creativity, which necessitates a new understanding of teacher’s professional efficiency and professional competency.

As I. Žogla (2000) puts it, teacher’s professional efficiency is a complex entity that is developed through the unity of theoretical knowledge and practical activity. Therefore, the most significant categories in teacher education are theory and practice and their mutual interaction in the various stages of the pedagogical process. This proportion is the object of constant discussion in what regards both the study content and organisation of pedagogical higher education institutions and in-service teacher training. Teachers who want themselves and their students to be successful constantly use theoretical generalisations as guidelines, check them in their own or their colleague’s practical activity and make decisions according to their professional beliefs and competences.

Changes in the pedagogical paradigm and school system depend on teachers’ attitudes towards changes at schools and their understanding of a good or unproductive pedagogical process. This proceeds from teachers’ knowledge that features one or several dominants. Knowledge (facts, notions, rules, regularities, theories) is a complex structure supported by unity of several components that eventually become teacher’s professional pedagogical knowledge.

- Knowledge in the subject matter and the corresponding scientific disciplines affect the teaching activity of teachers. In the course of their
activity, teachers accentuate educational content depending on what they know best. Likewise, teachers’ knowledge purposefully or subconsciously influences their choice of methods as well as the organisation of the entire pedagogical process. They influence teachers’ ability to offer students choice, variants of the pattern of work, improvisation during the lesson, ability to quickly reorient the work or propose untraditional solutions.

- Knowledge in pedagogy is prerequisite for the teacher to competently choose and structure educational content and methods, guide students’ manifold activity, especially cognition which determines students’ development.

- Knowledge of oneself as a component in professional knowledge develops when the teachers comprehend psychological and pedagogical regularities in their practical application, results of reflection and analysis of one’s work in their theoretical and comparative interpretation that permits the teachers to contemplate on their qualities and their positive or negative impact on the direction of the pedagogical process the teachers organise (cit. in Zogla, 200).

Various researches frequently emphasise that teacher’s productive activity requires both academic and professional education. It is the question of proportion of theoretical and methodological courses in study programmes and qualification development programmes. In the development of teacher’s professional skills and competitiveness, theoretical knowledge together with the growing experience illustrate teacher’s professional competency. Teacher’s professional efficiency and competency are often discussed as quality manifestations, using this term as a generalisation.

If we analyse the theoretical substantiation of Educational Reform (1998) and Graduation Certificate as reflection of educational practice and summarise the results of this analysis, it becomes apparent that in order to close the gap between theory of learning and its practical implementation to form a unified system that would develop the quality of learning in the context of lifelong education, we need to view competence as a socio-pedagogical and analytical category that contributes to the development of learning.
• Competence as an educational ideal ought to be related to its subject. It is connected with activity for reaching personally significant aims and with the quality of each student’s performance.

• Competence should be regarded as interaction between the subjective (set of skills, experience) and the objective (opportunities to accumulate experience) aspects.

• Competence as an educational ideal is an individual combination of skills and experience and substantiated opportunities for gaining it.

Viewed procedurally, it constantly improves because skills have a lifelong potential for development, experience is constantly improved and ever new opportunities for gaining experience appear (cit. in Tilla, 2004, 34).

Alongside the understanding of competence as a skill and professional efficiency, there appears a new view on a competent person as an ideal of education and upbringing and on competence as a strategic aim and analytical category of the quality of education in a multi-level system of aims and objectives (Habermas, 1981).

Competence cannot be tested directly. It can be discovered and assessed only in action, similarly as independence and responsibility – in creative approach to diverse situations in one’s professional activity. In order to work in a team (at schools), we must first of all reorient ourselves from competition to cooperation. Moreover, a mere ability to work in a team is not enough; one must also display desire and willingness to do it. Therefore, teacher’s understanding of cooperation processes is impossible without competent application of information skills.

This brings changes in the formulation of strategic aims of education and respective subjects in the context of lifelong education: educational standard is future-oriented. The authors believe that educational content needs to be broadened to form an integrated set of content, forms and methods as activity culture. Thus, the result is oriented towards raising the quality of teacher’s work, not only on testing knowledge, skills and attitudes. Competence as a result – the quality level of person’s activity – is manifested in specific situations that
demand certain actions. It is not as urgent to assess teacher’s knowledge and skills as evaluate real life situations: a future-oriented assessment of students that is directed at obtaining skills for future life and education.

There exists a variety of opinions in the interpretation of teacher’s professional efficiency, which is typical of the modern society. This can be explained by the popularity of the notion, its wide usage in various spheres of life and application to new contexts. Therefore, considerable difficulties arise in the understanding of the essence of teacher’s professional efficiency. Following every change in the sphere of education, the notion of professional efficiency is actively discussed in an attempt to define its content in the new circumstances.

The authors suggest the following criteria for teacher’s professional efficiency:

![Figure 8. Criteria of teacher’s professional efficiency](image-url)
Cultural competence: teacher’s spiritual values; emotional competence: understanding one’s emotions, assuming responsibility for them, being aware of one’s emotional state; social competence: cooperation, empathy, social skills; personal competence: self-regulation, motivation, competitiveness; activity competence: creativity, self-education, self-development.

In professional education competence is acquired in interaction between theory and practice. It is important to note that theory and practice are manifestations of the same reality, and they should be viewed as two complementary, not contradictory entities.

Through education, skills and knowledge are developed. Education obliges, but it also gives, for example, a formal recognition in society, awards certain authority over other people and their lives. Each kind of education has a restrictive competence – or specific basic spheres, specific terminology and specific socialisation, e.g., regarding vision of people and methods of work. That is why the level of education is a significant component of professional competency.

Each kind of education has a restrictive competence – or specific basic spheres, specific terminology and specific sociology, e.g., regarding the vision of people and methods of work. For example – what is one’s understanding of how people live and how they ought to live? How to show empathy, recognition, respect and equality – how to ensure the integrity of the consumer of social services?

From the modern perspective, a teacher must be well qualified in a broader sense of the term. To promote teacher’s professional competency, we need a new vision of teacher’s professional efficiency as a social and cultural activity in the context of sustainable development.

**Variety of sustainablility-oriented understanding of the notion of competency**

Development of competency means formation of basic values that need to be constantly reflected upon. What exactly do I do in my practical activity? Can it be done better? Is it possible to structure, organise, communicate, plan and act in a different way? Besides, note that effective forms of communication usually do not cost anything.
Competency as skills approach of 1970s–1980s of last century is related to “teaching the subject”. In pedagogy its roots can be found in behaviourism, when the teacher teaches, but the student acquires certain knowledge and skills (Tilla, 2004). This approach prevails in the practice of preschool and school pedagogy, as well as in normative educational documents. The teacher dominates pedagogical activity, while the student is passive; the student is an object of instruction to whom the teacher gives knowledge and whose skills are developed. The teacher evaluates student’s knowledge and skills, comparing them to a certain standard. In contrast, competency as qualification approach of 1980s–1990s is implemented in professional education, where the Law of Professional Education of the Republic of Latvia defines five levels of professional qualification. According to these levels, qualification is a mechanical testing activity that comprises skills relevant to the acquired knowledge. Qualification is characterised by a certain level of education which gives an opportunity to perform work of certain difficulty and responsibility. Qualification can be measured. For example, teachers’ professional standard lists the skills that are requisite for a teacher. The standard is clear, specific and easy to use for an assessor. Each competence is evaluated separately, and the evaluation is qualitative. The drawback of this approach is the fact that, by dividing professional efficiency in so many components, we lose a holistic view on the quality of teacher’s professional activity. Individual circumstances are disregarded, assuming that every teacher must possess all the knowledge and skills included in the standard.

Current economic development establishes additional demands for a qualified specialist: besides the ability to work well and qualitatively perform the entrusted duties, the young specialist is required to possess such abilities as independence, self-initiative, experience of active and creative activity, critical thinking and communication skills, ability to assume responsibility, teamwork and problem-solving skills. There is a demand for activity characterised by creativity, which necessitates a new understanding of the notion of competency. In order to consistently use competency as an analytical category, the result of education must be formulated as action. Action approach permits an individual to evaluate not only knowledge and skills, but also student’s motivation, choice, responsibility, creativity. The traditional system of evaluation and assessment, in its turn, is adequately objective, yet it does not fully reflect students’ learning. That is why a great emphasis in education ought to be laid on self-evaluation – analysis and reflection on one’s learning (Tilla, 2004).
Thus, besides understanding of competency as skills and qualification, there emerges a new vision of a competent person as the ideal of education and upbringing and of competency as the strategic aim and as the task and analytical category of the quality of education in the context of sustainability.

For J. Stradinš (2000), the definition of the notion of sustainable development depends on the point of view – the author’s philosophical and scientific affiliation, profession, social status, political opinion etc. It is rather difficult to agree upon a uniform definition since even the notion of sustainability is new in the Latvian language (versions: coordinated development). Sustainable development – a specific kind of development, sustainability as a feature of development, something develops and its development is sustainable. This phrase presupposes that such kind of sustainable development is possible and desirable and that somebody most certainly knows or wants to know how this development is manifested quantitatively and qualitatively. Since quantitative development can be measured but qualitative development can only be described, it seems logical that sustainable development can also be measured and described. Thus, sustainable education is education that can be sustained. It is an education that is oriented towards sustainability, therefore, its possible aim might be to reach sustainability, i.e., education can last, be preserved and sustain a person on a certain spiritual level for a certain period of time.

As A. Davison (2001) puts it, at the beginning of 1980s of last century, the notion of sustainability began to be viewed in the context of cooperation. This context reveals care for the survival of humanity and intercultural relationships. Problems appear when people have opposite aims in the spheres of environment, society, culture and economy and do not wish to accept or undergo changes. Support is granted to ideas on the world as the only and primary teacher (Morin, 1999); person’s unity with other life forms (O’Sullivan, 1999) that determine the functioning of the entire planet as a uniform, self-organising system. By analysing the conditions of a sustainable society, the connection between ecological problems and economic and social issues is being established and common solutions are being sought. These processes have a certain influence on education (participation of higher education institutions in the processes of change, creation of environmental science centres, changes in curricula and study courses) and call for a new understanding of the notion.

From the modern perspective, the notion sustainable development can be defined as understanding of harmony among individuals, society and nature. This context underscores the role of education, teachers and youth in the
processes of change, although the directions of implementing these changes are not yet clearly defined.

R. Grabovska (2006) argues that nowadays there exist controversies in the concept definition.

- Component approach or splitting the notion with an emphasis on the separate components, not the interpretation of the collective meaning.

- Sense or integrative approach that proposes integration of both components of the notion (cit. in Grabovska, 2006, 52).

The author claims that component approach is based on sustainability that is oriented towards stability, unity and harmony in social and economic spheres. This also concerns coordination of choice and action. The integrative approach, in its turn, is an attempt to unite these two components and view them as an integrated notion. The two above-mentioned approaches and controversies in defining the concept of sustainable development are acknowledged by numerous researchers and theoreticians (Salite, 2000; Davison, 2001; Gayford, 2001; Stradinsh, 2002; Grabovska, 2006).

For I. Salīte (2002), the system of education is a unity that is based on the holistic theory and the aspects of diversity and coordinated development. The development of teacher’s professional efficiency can be based on the reorientation of the principles of teacher education (approaches, methods, forms of activity), taking into consideration the increase in the role of teacher’s competitiveness and qualitative cooperation.

I. Salīte (2002) concludes that sustainable education promotes the development of identity of a spiritual, responsible person, which is consistent with the environment and culture and is developed through the environment and intergenerational succession. It is a pedagogical process that is consistent with nature and culture and based on the action approach. The author also argues that education can cause qualitative changes in attitude. For the realisation of the pedagogical process, the author suggests the following:
action-oriented approach either focused on the individual, cultural or ecological context or oriented towards individual and cultural context;

need to transform the current human attitudes, focus on the intergenerational connection and transmission of experience, the formative approach and traditional basis (cit. in Salite, 2002, 9).

The principle of sustainability is observation of the interaction among the past, social, economical and environmental contexts when planning and implementing solutions for various problems.

Authors of the present research admit that nowadays the system of professional education offers students a pre-arranged aim that they have to accept without any critical objections. Moreover, educational content is strictly regulated, the form of studies is unvaried and traditionally controllable. Such organisation of professional education excludes professional’s opportunities for sustainable development.

If education programmes of educational institutions envisage training of good subject teachers who develop the required professional skills by transforming the acquired knowledge, such kind of specialists would hardly be able to create conditions favourable for sustainable development at school.

A teacher who develops one’s professional competency, in our opinion, is oriented towards cooperation and is able to change one’s activity, namely, the teacher does not see the educational process as a planned schedule (e.g., a train schedule).

It is essential to note that professional sustainable development is a constant process of self-determination, self-expression and self-realisation. These are the indicators of competitiveness.

Self-realisation is formed by person’s knowledge about oneself, self-perception and the creative ‘self’. Put differently, self-realisation permits a specialist to achieve an obvious level of professional mastery. Certainly, professional development is impossible without adaptive behaviour. Yet, in situations of sustainable professional development, adaptation is viewed as optimal behaviour, not as compliance with external circumstances.
Research of theoretical aspects of education for sustainable development permits an individual to observe some similarities with professional teacher education, notably training of elementary school teachers in Daugavpils University. Teacher training includes various suggested stages of education on the basis of the integral approach and interconnection of all study courses. In this context teachers ought to be offered a chance to acquire skills necessary for the development of their competitiveness.

In Latvia, many topics, skills and notions of sustainable development are already incorporated in the programme standards of general education of various levels, yet they are viewed separately and do not favour a uniform understanding of the processes and procedures of teacher’s professional efficiency in general. Hence, we need uniform educational criteria and points of reference for orientation of education to address sustainable development. Sustainability is ensured not merely by implementing such solutions as technical and mechanical educational reforms, but rather by evaluation of educational aims and of skills and competences defined in the education programmes, which determines the system of values. In the course of these processes, it is essential to promote development of teachers’ professional efficiency, activities aimed at solving educational problems, defining new problems, skills motivation and development of types of activity. Change should not be perceived as a wish to transform or modify education; rather it is important to consider educational aims and their role from the perspective of sustainability.

Research instrument and participants

The research ‘Evaluation of Compulsory Pre-school and Primary School Education and Opportunities for its Development’ was carried out under the leadership of professor Dr.paed. Elfrīda Krastiņa of Daugavpils University and in cooperation with docents of other higher education institutions in Latvia. For the purpose of researching teachers’ professional competency, a pilot research was carried out in a project format in 2008. The aim of research was to determine the understanding of teachers’ professional competency, by researching teachers’ experience and regarding it as evaluation criterion to determine the quality of learning.

To learn about the attitude towards competence, an interview was conducted with 40 schoolteachers in Latvia. Data have been acquired in the practical classes. Participants of the research have been selected during a two-year period (2008–2009) according to the following criteria: age – 30–35 years,
type of activity (the same professional programme), residence and belonging to the culture of Latvia. Elementary school teachers who work in the same educational environment were offered to take part in the interviews on voluntary basis. It was done intentionally to research more specifically how different models of experience develop in the same pedagogical requirements.

Results of research and their interpretation

According to triangulation which was used to increase the validity and reliability of quantitative and qualitative research results, open or narrative interviews were organised with an aim of determining teachers’ view of professional competency. Then documentation of interview data was performed, i.e. transcriptions were made in compliance with the necessary data processing requirements. Thus, interview results were obtained for further research analysis whose aim was to test and complement the existing assumptions or draw new conclusions.
Table 1. Results of the interview about professional competence

<table>
<thead>
<tr>
<th>Professional competence was explained as</th>
<th>Number of students (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher stimulates development of students’ activity and independence</td>
<td>25</td>
</tr>
<tr>
<td>Teacher organises learning environment that promotes development of child’s learning and research skills</td>
<td>30</td>
</tr>
<tr>
<td>It is essential that educational content corresponds not only to requirements of education programme, but also to demands of the real world</td>
<td>45</td>
</tr>
<tr>
<td>Communicative competence is an indicator of pedagogical skills developed by the teacher</td>
<td>20</td>
</tr>
<tr>
<td>Teacher plans the delivery (explanation) of the learning material, taking into account the level of students’ theoretical background as well as their individual and age peculiarities</td>
<td>87</td>
</tr>
<tr>
<td>Teacher renounces the teaching style and methods that do not comply with the particular situation at the lesson</td>
<td>45</td>
</tr>
<tr>
<td>During the lessons, teacher suggests to students original and creative forms of activity for problem solving.</td>
<td>35</td>
</tr>
<tr>
<td>Teacher organises the learning environment where the child</td>
<td>20</td>
</tr>
</tbody>
</table>
as a researcher searches for his/her relation to the environment, society, culture and economy, discovering sustainability-oriented values.

| Teacher needs to constantly progress and develop | 90 |
Summary of interview data permits oneself to conclude that respondents most frequently agreed with statements concerning the idea of teacher’s constant progress and development. The next most frequently accepted group of statements was related to planning the delivery of subject material, taking into account the level of students’ theoretical background as well as their individual and age peculiarities. However, teachers selodom suggest that students should create original activities to complete problem solving activities. Yet, many respondents admit that teachers have to renounce the teaching style and methods that do not comply with the particular situation of the lesson. Unfortunately, summary of interview data indicates that teachers still need to improve their professional competence which is oriented towards education for sustainable development and development of students’ independence and research skills.

Thus, the present research reveals that in order to promote the development of teachers’ professional competency, teachers themselves must be able to use various forms of creative activity and new technologies; they must be aware of students’ needs, interests and opportunities, must know what social forms of cooperation are effective in the particular situation and how to organise cooperation in order to promote development of individual socio-cultural experience. It is essential to have a good knowledge and mastery of methods, be able to choose the most useful method depending on the situation, as well as be able to critically reflect on the choice made. In this context, we can again talk of integrity of professional competency and sustainable development. In this context, competency determines person’s dual nature: an individual’s ability to competently use that which has been acquired and improve it. It does not depend on person’s social background, gender or race, but rather on their own ability to act.

Thus, the notion of teacher’s professional competency was not understood as knowledge, skills and attitudes in a certain sphere which have been stored, learnt and which can be updated; rather it was seen as ability to “manage” the knowledge, skills and existing attitudes, use and improve them in the context of sustainable development.

Conclusions

Social and cultural progress lays a great responsibility on people in relation to their ability to evaluate, analyse, choose and adequately act in new, unknown
situations. Therefore, a person’s ability to develop their own professional
efficiency gains particular significance. It becomes the development of such
professional efficiency that allows for person’s self-organised activity in
conditions of social and cultural diversity. Therefore, nowadays, teachers have to
be well qualified in a broad sense of the term. It is not enough merely to have
good knowledge in one’s professional sphere. One has to be able to supplement it
according to the demands of a specific situation in the rapidly changing world.
Thus emerges a new understanding of teacher’s professional efficiency. It means
openness to learning and real mobility, namely, ability to reorient oneself.
Teachers ought to be able to transform their knowledge, acquire new beliefs,
understand applied knowledge and discern the perspectives of its application.

To recapitulate, we can conclude that education is the crucial factor for
promoting sustainability in all spheres, int.al. the development of teacher’s
professional efficiency. It is education that can promote active participation in the
processes of social and economic development.

Therefore, in modern society, a significant teacher’s task is to offer
students interesting forms of activity, a kind of transformative learning
environment. Teacher’s activity ought to promote social communication. The
teacher should renounce the monopoly of power and establish communicative
partnership with students. It is essential to respect students’ motivation,
encourage them to research and transform the world within the limits of their
ability, according to their own views and understanding and from a sustainable
perspective. In order to promote the development of teacher’s professional
efficiency, we need a new vision of a teacher as the subject of pedagogical
process, integrating teacher’s pedagogical activity as social and cultural activity
with the following conditions:

- social interaction;
- present and future cultural content;
- promotion of student’s motivation and autonomy;
- development of professional competence.
By referring the general pedagogical principles of constructivism to real pedagogical activity, it is possible to close the existing gap between integration and sustainability theory and the practice of adaptation.

References


Levels, criteria and indicators of the development of music teacher programme student’s reflective activity in the context of sustainable development

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Abstract

Orienting toward sustainable development of society, one of the central problems is the problem pertaining to the development of a teacher into a creative personality with his/her individual style of activity and thinking. This cannot be achieved without a continuous and systematic professional perfection, without reflective activity. A low level of reflection is often related to being unaware of difficulties in the pedagogical activity both in the field of the study process projecting and in communication with the learners. The aim of this research is to determine theoretical basis, levels and criteria of the development of music teacher’s reflective activity in the context of the teacher’s sustainable development.

Key words: reflection; reflective activity; sustainable development; music teacher; critical thinking; self-regulation; the process of acquiring a composition; levels, criteria and indicators of the development of student’s reflective activity.

Introduction

Orienting toward sustainable development of society, one of the central problems is the problem pertaining to the development of a teacher into a creative personality with an individual style of activity and thinking. This cannot be achieved without a continuous and systematic professional perfection, without reflective activity.
In the field of pedagogy this is a transition to the new optimal psychological-pedagogical systems, the creative technologies of teaching. The main results of pedagogical activity are the formation of mental growth of the learner’s personality and the improvement of the ways of his/her activity, which ensures his/her successful entry into new pedagogical situations, quick adaptation to new requirements, and the ability to solve new tasks.

Students’ involvement in the solution of their own educational and socio-cultural problems demands reforming the system of higher professional education; it is also necessary to change the attitude to pedagogical teaching practice.

At present the goal of educational process is not acquiring ready knowledge; it is developing a certain way of thinking, which permits to gain and produce the new knowledge (Lisle, 2006). Today we can see a striking contradiction: on the one hand, many teacher education programmes focus on skill development rather than the development of student’s reflection (Kagan, 1992); on the other hand, limiting pre-service education to practicing prescribed skills might inhibit the development of thoughtless practitioners who might later regard reflective thinking as beyond their roles or capabilities (Valli, 1997). J. Davidova has stressed a low level of reflection of many Latvian music teachers, which hinders their professional skills development, as well as the fact that a level of organization of the professional competence in the field of reflective activity is not high enough (Davidova, 2000). A low level of reflection is often related to being unaware of difficulties in the pedagogical activity both in the field of the study process projecting and in communication with the student.

The focus only on the development of skills at the expense of thinking of teaching music can also be problematic in music teaching (Baldwin, 1980). Within the process of reflection teachers can be allowed to confront their own practices and beliefs, share experiences and knowledge with colleagues, link music learning to societal and local needs and goals. In that way, teachers can make more informed judgements when teaching music (Lee, 1991).

Some of the questions arise here:

• What does reflective activity mean?
• Which are levels, criteria and indicators of the development of student’s reflective activity?

This research objective is to determine levels, criteria and indicators of the development of student’s reflective activity in music teacher study program on the basis of teacher’s sustainable development.

Methods of the study: analysis and comparison of the conceptions in psychology and pedagogy, method of modelling.
Music teachers’ training in the context of sustainable development

Analyzing sustainable development in education, some researchers single out the following requirements for effective education: flexible and adaptable; interdisciplinary or transdisciplinary; collaborative; experiential; holistic; locally relevant; emphasizing values; future-oriented; action-oriented; learner-centred; problem solving; systematic (Institute of Environmental Studies, 1999, 16). Implementing these requirements into life is only possible by dint of teacher’s reflective activity.

Speaking about the training of music teachers in Latvian higher education institutions, “it is essential to plan for the study courses so that every student might discover and develop his/her own individual frames of reference for life and professional activities and shape them in the context of sustainable development” (Salīte, Mičule, Kravale, Iliško & Stakle, 2007, 267).

Sustainability in teacher training and development of practising music teachers’ professional competence has different aspects. A. Kukk & L. Talts note that sustainability of teachers’ profession manifests itself in individuals, as becoming a teacher is a long, versatile, and time-consuming process, where practical experience turns into knowledge and knowledge is implemented in practice and refined through the professional skills. Such a sustainable process of development in teacher training can occur only if the acquisition of practical skills is in harmony with the understanding of oneself and development of one’s professional competence (Kukk & Talts, 2007). In this context the development of music teacher’s reflective skills is especially important.

Pedagogical creative activity as a system with reflection

The problem of reflection is many-sided and diverse: it has philosophical, psychological, pedagogical, methodological and other aspects (Adler, 1991; Petrovsky 1996; Kashapov, 2000; Stepanov, 2000; Lefevr, 2003; Slastenin, 2005; Heikkila & Lonka, 2006 etc.). Numerous recent research works in music pedagogy underline the necessity to focus on the reflective character of professional creative practice of music teachers, as well as training to implement this practice (Hallam, 1998, 2006; Podurovsky & Suslova, 2001; Cipin, 2003; Ward, 2004 etc.).
The necessity of studying professional self-knowledge, i.e. being aware of oneself as a personality in professional activity, including teacher’s professional activity (alongside with the general principles and regularities of the development of personality self-awareness), has been repeatedly emphasized in modern psychological and pedagogical literature. According to S. Rubinstein, reflection provides “the exit out of full absorption in the direct process of life for working out the corresponding attitude towards life, taking the position above it, beyond it for judgement about it” (Rubinstein, 1976, 348).

The reflexive “I” (from Latin *reflexus* – an appeal backwards, reflection), aimed inside at self-regulation, control, evaluation and correction of the actions performed, and the activity “I”, whose direct task is the practical realization of the pedagogical aims, are involved here simultaneously.

In psychological and pedagogical researches reflection is applied mostly in intellectual way as a component of creative thinking; the functioning of creative thinking is ensured by controlling and evaluating one’s own deeds. And it is also used in a personal way: as self-consciousness, self-analysis, which is connected with communication in a dialogue and reflective expectations. Pedagogical reflection is the ability and need to learn, to understand one’s own conditions, to compare tasks, deeds and achieved results in real pedagogical situations with the aim of control, evaluation, correction and development of one’s pedagogical practice and communication.

Reflection has been studied in the most serious and many-sided way in the works devoted to the revelation of creative task solution mechanisms. It should be noted, that many authors distinguish two close concepts – “reflection” and “reflexivity”. Thus, D. Shön considers that reflection is the process in which “knowledge-in-action” may be more pronounced. It may be pronounced to the extent that the direction of attention towards control in the process of activity is possible. This form of reflection may be achieved by creating probable situations, within the limits of which separate aspects of activity may be analysed, traced and presented on a more conscious level (Shön, 1983).

However, as noted by V. Richardson, this process is not a simple one: it may not be possible for a practitioner to describe the decision-making processes that led to an action. The concept of “knowledge-in-action” can be seen as descriptive rather than prescriptive. This process does not only create certain requirements in relation to creative work and inventiveness, but it may also
depend on the existence of knowledge base received in the result of an experiment (Richardson, 1990).

What concerns the term “reflexivity”, many authors accept the Latin definition of this term (return to yourself), which means the process of individual’s thought about what is going on one’s own mind (Lawson, 1985; Steier, 1991; Bourdieu & Wacquant, 1992; Matthews & Jassel, 1998). On this basis of the analysis and comparison of different conceptions regarding to such notions as “reflection” and “reflexivity”, we consider reflection as a process and reflexivity as an emotional state.

The notion of about pedagogical activity as a creative activity, comprising potential abilities and reserves of changing the personality, is supplemented by understanding this activity as the system with reflection and reflexivity. Reflection is a central mechanism of implementing creative ability. Creativity is the necessary condition of pedagogical process, objective professional necessity of teaching practice (Mitina, 2004). Creativity is the most vital and necessary feature of pedagogical practice. This is the ability to see, set and solve pedagogical tasks in original way, to understand and quickly react to arisen pedagogical situations, to foresee the results; this is the main parameter of pedagogical creative abilities. It means that creativity of pedagogical practice is based on reflecting, reflective ability and practice.

Many philosophical and pedagogical papers discuss the interrelation between creative activity and reflection (Ponomarev, 1976; Schön, 1983; Lawson, 1985; Davidov, 1989; Adler, 1991 etc.).

Different levels of creative pedagogical activity are determined by different content of reflective activity. Thus, the content of the process of goal setting is determined by the results of reflection on motivation sphere (knowledge about the motive leads to building up the aim). The subject’s activity is possible when he/she has the model, the plan of activity implementation built up in the result of reflection on goal setting. The reflective activity on processes and components of activity is getting still more complicated, since the record of activity results and their correlation with the forecast aim (activity evaluation), with the content of the image “self” and other elements of “self”—conception (self-assessment) is necessary.
Reflection on goal setting in teacher’s creative activity has some characteristics.

- A direct analysis – goal setting from the actual state of the pedagogical system to the final planned aim.

- A reverse analysis – goal setting from the final state to the actual state.

- A goal setting from intermediate aims with the help of both direct and reverse analysis (Slastenin & Podimova, 1997).

V. Slastenin and L. Podimova note that the teacher’s possibility to implement goal setting freely and to be aware of its expediency depends on:

- on the level of awareness and management of the processes of goal setting, as well as on the analysis of these processes, which gives the teacher an opportunity “to see” oneself on the way of building up the pedagogical conception, as well as to realize the limits of his/her states and actions more clearly;

- on the ability to identify the importance of the creative activity motive for learners and for oneself;

- on the ability to build the optimal algorithms of creative activity for achieving the aim;

- on the teacher’s confidence, flexibility and adequacy of activity, while analysing and assessing the results and consequences of achieving the aim (Slastenin & Podimova, 1997, 87).

While researchers of reflective practice emphasize starting with one’s personal experiences, they also stress the importance of critical analysis and reformulation of that experience (Argyris, 1990; Mezirow, 1991; Burbules, 1993; Senge et al., 1994; Brookfield, 1995). While acknowledging the importance of experience, it is also important to recognize its potential for distortion. Typically, the terms reflective thinking, critical thinking, reflective judgment as well as critical reflection have each been used to define a way of thinking that accepts uncertainty and acknowledges dilemmas, while ascribing less significance to the

J. Dewey (Dewey, 1933, 1938), in his writings, asserted that the capacity to reflect is initiated only after recognition of a problem or dilemma and the acceptance of uncertainty. The dissonance created in understanding that a problem exists engages the reflective thinker to become an active inquirer, involved both in the critique of current conclusions and the generation of new hypotheses. According to J. Dewey, reflective thinking requires continual evaluation of beliefs, assumptions, and hypotheses against existing data, and against other plausible interpretations of the data. Resulting decisions remain open to further scrutiny and reformulation.

Similarly, P. M. King & K. S. Kitchener (King & Kitchener, 1994) posited that one operating at the highest stage of reflective judgment knows that a solution is only a hypothetical conjecture of what is, recognizing the temporary nature of any solution. These definitions of critical or reflective thinking seem to suggest that it is primarily cognitive problem solving.

Becoming a perpetual problem-solver involves synthesizing experiences, integrating information and feedback, uncovering underlying reasons, and discovering new meaning.

The type of learning, called “transformative learning”, represents a self-reflective process that occurs on several levels, but the creator of the theory of transformative learning, J. Mezirow (Mezirov, 1978, 1991), coined the term “transformative learning” to refer to learning that is based on reflection and on the interpretation of the experiences, ideas, and assumptions gained through prior learning. This type of learning is rooted in the meaning-making process that is central to constructivism, where the environment provides support and develops ability to dialogue and critically reflects on the material presented and on the self. Transformative learning is actually a complex series of interactions that is multi-dimensional.

According to P. Cranton, the theory of transformative learning by J. Mezirow has evolved “into a comprehensive and complex description of how learners construe, validate, and reformulate the meaning of their experience” (Cranton, 1994, 22). Changing their “meaning schemes (specific beliefs, attitudes, and emotional reactions)”, learners must engage in critical reflection on
their experiences, which in turn leads to a perspective transformation (Mezirow, 1991, 167), which is the process of becoming critically aware of how and why our assumptions have come to constrain the way we perceive, understand, and feel about our world, changing these structures of habitual expectation to make possible a more inclusive, discriminating, and integrating perspective; and, finally, making choices or otherwise acting upon these new understandings.

Perspective transformation explains how the meaning structures that learners have acquired over a lifetime become transformed. These meaning structures are based on the totality of individuals’ cultural and contextual experiences (Taylor, 1998). This transformation of meaning schemes occurs through learning. Perspective transformation leading to transformative learning occurs much less frequently.

J. Mezirow (Mezirow, 1995) suggests that transformative learning happens through a series of phases that begin with the disorienting dilemma. Other phases include:

- self-examination;
- critical assessment of assumptions;
- recognition that others have shared similar transformations;
- exploration of new roles or actions;
- development of a plan for action,
- acquisition of knowledge and skills for implementing the plan;
- tryout of the plan;
- development of competence;
- self-confidence in new roles;
- reintegration into life on the basis of new perspectives.
Developing music teacher’s reflective abilities

The activation of reflective position in creative pedagogical activity is connected with the music teacher’s personality, with his/her orientation towards self-development. The source of this process appears to be the system of contradictions in pedagogical activity, which the teacher is aware of. Reflective activity, as the music teacher’s cognition and analysis of phenomena of his/her own consciousness and actions, is the most important and essential component in the structure of creative pedagogical activity (Davidova & Znutinsh, 2001). Reflective skills are related to the teacher’s skill to take into account his/her own individual psychological peculiarities, to adequately estimate his mental state, as well as to carry out many-sided perception and adequate cognition of the learner’s personality.

Therefore, in the process of music teacher’s training it is necessary to create such situations, which would focus on the reflective position, would form positive self-perception, and would stimulate the processes of self-assertion. Planning the strategies of music thinking, a teacher creates situations, in which the student shouldn’t copy the interpretation of the others, he/she should create his/her own interpretation. It is necessary to plunge into the world of style and meaning, into learning of its essence. And on the basis of understanding and rethinking it there will be a possibility to activate the creative power, to find his/her personal forms of its embodiment in sounds.

Reflective processes in the music teacher’s practice can be seen in the following directions:

- in the attempt at understanding and purposeful regulation of thoughts, feelings and deeds of the student;
- in the process of projecting the student’s practice;
- in the process of reflective analysis and self-regulation;
- in the process of stimulating the student’s own reflective activity (Davidova & Minakova, 2008).
The following aspects can be pointed out in the music teacher’s reflective practice:

- the interest in a problem of music pedagogy;
- finding, judgement and evaluation of the contradictions underlying the problem;
- looking for the reasons and possible variants of solving it, comparing the content of the music-pedagogical task with one’s own individual, personal and professional experience, as well as with the experience of other music teachers;
- implementation of practical, logical-constructive activities, which provides him/her with successful solution of music-pedagogical tasks;
- generalizing the evaluation of all the previous stages of reflective practice of the music teacher, which leads to its enrichment and raises it on the meta-level (Davidova & Minakova, 2008).

In this context the main logical direction is: from broad, generalized judgments about the ways of solving difficulties (i.e. judgment of music-pedagogical problems) to the concrete ways of resolving contradictions.

According to G. Cipin, researcher in music pedagogy, the theoretical model of reflective activities comprise certain phases:

1. setting the aim, gaining understanding about it;
2. determining the primary tasks, which must be done in order to achieve the aim;
3. practical implementation of what has been planned; planning further actions; the choice of adequate means, which are necessary in order to implement one’s plans;
4. correction of the actions, making the necessary situational changes, correcting and supplementing them; flexibility of behavioural tactics;

5. completing the process; evaluation of the obtained results and one’s own actions. If necessary, according to the mentioned-above scheme, a new aim is set and achieved (Cipin, 2003).

The route to becoming a reflective practitioner is plagued by incremental fluctuations of irregular progress, often marked by two steps forward and one step backward. There are necessary and predictable stages in the emotional and cognitive rhythm of becoming critically reflective (Keane, 1987; Usher & Bryant, 1989; Berkey et al., 1990; Brookfield, 1995; Larrivee, 2000).

According to B. Larrivee (2000), the reflection process is more cyclical than linear, more incremental than sequential. Her model (Figure 1) suggests a framework for conceptualizing this process. The process of becoming a reflective practitioner weaves through a series of phases, the first of which is the examination stage. At this stage, teacher starts to question whether a particular action, reaction, interaction enable oneself to achieve the aim which has been determined. It could be any behaviour that teacher is bringing into question. In the next phase, teacher begins to notice patterns in the ways of behaviour and challenge the real cost attached to teacher’s current practice. At the next phase, teacher realizes that the behaviour is sustaining a state which needs to be changed, for example, frustration, discomfort, stress. This realization creates a surface desire for change.

Attempting to let go of what is familiar leads to a struggle and teacher finds oneself in conflict. This begins a critical stage in the reflective process. If this state of inner turmoil brings about too much fear and doubt, the choice may be to close down the process and either stay with the old practice or seek a quick fix. Teacher looks for a ready-made solution, a “prescription” for change. However, when he/she does this, teacher circumvents an essential stage in the critical reflection process.
Figure 1: Stages of reflection process (Larrivee, 2000)
In the final stage, teacher has had a shift in one’s way of thinking and sensing. Teacher has had a clearing and is seeing things in a new light. Teacher engages in new patterns of thinking, and accesses new tools and strategies to respond more appropriately to classroom situations and circumstances.

When teachers become reflective practitioners, they move beyond a knowledge base of discrete skills to a stage where they integrate and modify skills to fit specific contexts, and eventually, to a point where the skills are internalized enabling them to invent new strategies. They develop the necessary sense of self-efficacy to create personal solutions to problems.

**Criteria of the development of a student’s reflective activity in the process of acquiring a composition**

The central problem of performing art is the revelation of the imagery content of a composition as completely and fully as possible. A sounding image is a synthetic product resulting from the activity of the imagination of two human individualities – a composer and a performer. The music created by a composer seems to continue its further existence independently. This is why the role of the performer at interpreting a composition is so great. The qualitative level of his/her creative and professional abilities, in the long run, determines the aesthetic value of the product of art.

It should be mentioned that a page of shot music can inform the performer about versatile sides of a composer’s conception (e.g. form, time metre, dynamics, instructions on performing, phrasing, instructions on articulation etc.). However, this information can show only the general line of the development of a musical image. The written signs of agogics, dynamics, articulation and time do not reflect the author’s exact understanding of these expressive means. Every element of the sheet music text can be decoded and interpreted differently by different performers. Therefore, when reading music, the performer always faces the problem of selecting the variants for the interpretation of a composition. It should be underlined that a written sheet music is quite schematic and can help to identify only the principal features of a composition as a system. Only those sides of the author’s conception which are materialized in the sound pitch correlations are precisely fixed in the sheet music text. Only detailed studies of music, relying on one’s personal rich hearing
experience and theoretical knowledge will help the performer to penetrate into the “sub-text through the text” and create a dramaturgical plan of a composition.

The reflection as a peculiar professional and personal quality as an ability to reflect, analyze, think and evaluate the process and results of one’s own performing activity allows the musician to change from a formal performer of directive requirements and instructions into a performer able to be creative in interpreting ideas, approaches and technologies in his/her area of activities, to rise above the concrete task, to go beyond it and shape an integrated opinion about the way it can be solved.

It is vital for the performer to be able to perceive the text correctly, “to hear between the notes” (synonym in literature – “to read between the lines”) so that what he/she has found written in the sheet music would turn into bright, precise and voluminous sound images in his/her imagination. The performer has to assimilate the sheet music text and include it into his/her emotional world.

The complicated process of the formation of the performing conception, starting from its emergence in the consciousness (as a general emotional perception of music) to the formation of concrete bright and generalized images of a composition, requires from a performer an intense activity, during which knowledge is used and perfected, individual techniques and methods of work are enriched, the ability of analytical activity is developed. All this leads to practical findings. This voluminous and multi-faceted creative act is entirely the reflection of creative and functional abilities of a performer’s inner-hearing sphere. This act is based on the activation of this sphere, and besides the ability to anticipate the logical sequence of sounds, comprises also components belonging purely to the performance aspect, such as displaying initiative at interpreting the ideological and imagery content of a composition and ability to avoid using hearing clichés in the performance conception of this composition.

As a result of a subjective evaluation of the artistic and imagery content of a composition, by letting it through the prism of his/her mind, a performer transforms and stresses various facets of this image in accordance with his/her own musical and hearing conception about the logic of the development of its artistic content. The sound image which emerges in the imagination of a performer bears an imprint of his/her individuality. The performer’s attitude towards the outside world, his/her temperament, peculiarities of his/her thinking are reflected in the dynamism of the musical image created by him/her, in the emotional saturation of the image and also in his/her choice of expressive means
and techniques of interpretation. A performer’s interpretation of the composition is full of intonational and colourful findings which reflect his/her individual musical thinking and are transformations of the qualities of his/her inner hearing experience, but they also exhibit a subjective emotional attitude.

While revealing the imagery pattern of the composition by using those expressive means that are most appealing to his/her artistic individuality, the performer endows the musical image with features characteristic of his/her own inner feelings and relies on his/her own subjective musical-hearing conceptions. To put it differently, while being transformed in the performer’s mind, the musical image acquires new qualities which are characteristic of the creative manner of this concrete performer.

The skill to be constantly aware of external and internal hearing information contributes to creating a situation when in the process of musical – performing activity not a single movement is performed without the hearing control. This leads to ensuring the effectiveness of movements in playing and relieves physical and muscular tension that hinders the reproduction of a mental sound picture. It also adjusts the subconscious level of audio-motor links, the so called performer’s “hand that can hear”. Such reflection leads to a complex experience of the unity and integrity of audio-, motor- and mental processes, which allows the performer to freely use his/her motor apparatus for revealing the emotional and imagery content of music.

Thus, the rise in the level of reflection (the increase in the scope of information in all its modalities) leads to the musician’s better command of his/her motor apparatus and its coordination with hearing representations. If the level of reflection is high, the situation when the performer might lose the orientation in the text during the performance (fear before the performance is a constant performers’ problem) is practically impossible, because the musician is guided by an integrated picture of the performance and, if something goes wrong with one of the modalities, control over the whole situation is not lost. Besides, the skill to be always aware of one’s own emotional states in extreme situations of performing at a concert allows to control oneself and to focus the attention on elements of positive and constructive orientation, grounded in the feeling of confidence and freedom, rather than in trying to resist fear and cope with anxiety.

During the last decade a number of investigators have found that the amount and quality of practice is the primary factor influencing superior performance in markedly different domains of expertise (Ericsson, Krampe &
Tesch-Ronier, 1993). Recent research in music practice argues that researchers must look beyond the quantity of practice when elucidating the acquisition of skills required for expert levels of music performance (Williamon & Valentine, 2000). The focus on the diverse and individual ways in which music students attempt to learn on their own may contribute to instrumental teachers’ understanding of the content and quality of their students’ practice. This may lead to improved instrumental teaching and assessment of learning and problem solving.

The construct of self-regulation refers to the degree, to which individuals are metacognitively, motivationally and behaviourally active participants in their own learning (Zimmerman, 1994). The centre of self-regulated learning is strategy selection, monitoring and revision (Borkowski & Mutuukrisiina, 1992).

Self-regulation is the process of assessing progress in a given task, deciding what strategy will improve performance, implementing the strategy and evaluating again to determine if the set goal has been achieved (Zimmerman, 2001). This process may last a varying amount of time, and can continue from one work/practice session to the next. According to D. Mithaug, models of self-regulation include discrepancies, choices, actions, and feedback (Mithaug, 1993). These steps make up a loop in the problem-solving structure. Each loop diminishes the amount of discrepancy between the expected and the observed condition.

Learning strategies are generally conceived of as deliberate or purposeful processes, originally consciously applied, but normally undergoing automation as a result of development and practice (Schneider & Weinert, 1990). If we view learning and study strategies as activities aimed at achieving a particular goal (Weinstein & Mayer, 1986), no single learning strategy will work equally well for all students, and few, if any, strategies will work optimally on all tasks. The effectiveness of a strategy will be prone to change as a skill develops (Zimmerman, 1998). Several studies have illustrated individual diversity in the way advanced students and musicians learn during practice (Gruson, 1981; Miklaszewski, 1989; Chaffin & Imreh, 1997; Nielsen, 1997, 1999a, 199b; Hallam, 1992, 1995, 2001a, 2001b; Ginsborg, 1999, 2000, 2002).

Motivation and self-regulation are important dimensions of music practice (McPherson & Renwick, 2000; Nielsen, 1999a, b, 2001; McPherson & Zimmerman, 2002). Given that instrumental teaching as an individual lesson on
the student's main instrument took place once or twice a week, the self-regulatory methods that a student engages in during solitary practice are a prime determinant of effectiveness (Schunk & Zimmerman, 1998). No single learning strategy will work equally well for all students, and few, if any strategies will work optimally on all tasks. The effectiveness of a strategy will even change as a skill develops. As a result of these changing interpersonal, contextual and intrapersonal conditions, self-regulated learners must engage in cyclical activity that occurs in three major phases:

- forethought (methods that precede efforts to learn);
- performance control (methods that occur during learning efforts);

These self-reflections, in turn, influence forethought regarding subsequent learning efforts, thus completing the self-regulatory circle. In this conception, self-regulation is not seen as a fixed characteristic, but rather as a set of context-specific methods that students select from in order to accomplish a task (Zimmerman, 1994, 1998, 2000, 2001). To understand these methods of self-regulation, it is necessary to examine whether the students decided upon specific outcomes of learning for each learning period, whether they sought out opportunities to evaluate their learning efforts, and which criteria they used to evaluate themselves.

What did the students choose to interpret as a weakness or a strength of their performance or activity? Their reflections had to be founded on their perception of what consequences certain weaknesses would have for the final performance of the piece, and implied a sequential order of sub goals as an index of mastery. The goal systems of skilful self-regulators are organized hierarchically, so that process goals operate as proximal regulators of more distant goals. They are also more likely to adjust their goals continuously. Both students’ perception of task demands was to focus on technical problems in the initial learning period.

The findings in academic subjects show that adopting a task goal orientation, in contrast to adopting ability-oriented goals, leads to more cognitive
engagement in students, especially in the use of more cognitive strategies (Pintrich & Garcia, 1991).

In general, these findings were to be expected. Studying music in higher education involves periodic interaction in one-to-one music learning situations between the principal instrument teacher and the student. It is expected that students will practice repertoire on their own from one lesson meeting to the next, and thus, student progress is facilitated by individual practice with self-imposed problem solving that occurs between lesson meetings (Nielsen, 2006). This provision of choice and control for students in their independent practice gives the students the opportunities to set the pace of learning and the way the task will be accomplished. These aspects can facilitate a task goal orientation (Pintrich & Schunk, 1996).

According to S. Hallam, metacognitive strategies are concerned with the planning, monitoring and evaluation of learning. They are crucial to all aspects of practicing, and can be considered at the level of a particular task or in relation to the more global concerns of the musician to maintain or improve the standard of their playing. In both cases, knowledge of personal strengths and weaknesses, the nature of the task to be completed, possible strategies and the nature of the learning outcome are important. There are considerable differences between beginners, novices and experts in their knowledge and deployment of different practicing and self-regulating strategies (Hallam, 2001a, 2001b; Pitts et al., 2000), as well as individual differences among musicians and novices at the same level of competence (Nielsen, 1997, 1999a, 1999b, 2001, 2006).

S. Hallam (Hallam, 2001b) demonstrated that professional musicians had well developed metacognitive skills, including self-awareness of strengths and weaknesses, extensive knowledge regarding the nature of different tasks and what would be required to complete them satisfactorily, and strategies which could be adopted in response to perceived needs. This not only encompassed technical matters, interpretation and performance, but also issues relating to learning itself: concentration, planning, monitoring and evaluation. Novices demonstrated less metacognitive awareness, the amount and structure of their practice tending to be determined by external commitments such as examinations. The planning and organization of practice may contribute to its effectiveness.

M. Silverman considers some of these issues in order to discuss musical interpretation. The author opens by suggesting that there are two divergent views
of musical performance currently in vogue: a formalist one and an open (or subjective) one, as well as some interpretive stances in between them. From these definitions she moves on to discuss the ways in which the teaching and evaluation of performance have been viewed by music education (Silverman, 2007).

S. Hallam indicates that expert music performers utilize substantial planning and a systematic approach to practice sessions, including problem identification, strategy planning and evaluation (Hallam, 2001b), all of which are components of self-regulated thinking. Consequently, it is logical to teach student musicians to utilise the same practice skills used by experts if we hope to offer students the opportunity to fully develop as musicians.

Students are rarely provided guidance on how to approach individual practice to find the level of success that will enable them to reach their potential. Too often students are given the assignment to study or practice something on their own without the understanding of how to organise, plan, monitor and evaluate their progress while working alone (Fry & Lupart, 1987). When teachers offer students the opportunity to foster metacognitive skills and assist students when they are uncertain what to do next, learning improves (Fry & Lupart, 1987; Barry, 1992; Barry & McArthur, 1994). Metacognitive operations that can assist a learner may include predicting, checking, monitoring, reality testing, and coordinating and controlling (Fry & Lupart, 1987). According to I. Salite, we need to organise the research and learning environment for teacher education, where action learning, action research, building a shared vision and decision-making represent the most typical solutions. Their functioning depends on the choice of means that initiates these research and learning activities and becomes the basis for decision-making support system (Salite, 2008).

Speaking about philosophical and empirical problem of criteria formulation, K. Swanwick stressed some requirements for criteria in music pedagogy.

- They should be clear.

- They should be qualitatively different from each other.

- They should be brief enough to be quickly understood, but substantial enough to be meaningful.
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- They should be able to be hierarchically ordered in a clear and justifiable sequence.

- They should be useful in a range of settings, including different achievement levels and musical styles.

- They should reflect the essential nature of the activity - in our case they should be true to the nature of music (Swanwick, 2002).

The authors underline that in music pedagogy we can speak about qualitative rather than quantitative criteria. Analysing concepts of different researchers (Fry & Lupart, 1987; Pintrich & Garcia, 1991; Barry, 1992; Pintrich & Schunk, 1996; Pitts et al., 2000a, 2000b; Hallam, 2001a, 2001b; Swanwick, 2002; Silverman, 2007 etc.), the following criteria of the development of student’s reflective activity were determined:

- understanding of aims/objectives,

- comprehension of the problem,

- strategies for problem solving,

- assessment of the activity.

Table 1. Levels, criteria and indicators of the development of student’s reflective activity

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Indicators of the 1st level</th>
<th>Indicators of the 2nd level</th>
<th>Indicators of the 3rd level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understanding of aims/objectives</td>
<td>- the student does not realize</td>
<td>- the student has difficulties in</td>
<td>- the student can formulate and</td>
</tr>
<tr>
<td></td>
<td>what is to be done in the</td>
<td>formulating the aim;</td>
<td>understand the hierarchy of</td>
</tr>
<tr>
<td></td>
<td>process of the acquisition of a</td>
<td>- the set aim is vague;</td>
<td>aims;</td>
</tr>
<tr>
<td></td>
<td>composition;</td>
<td>- inconsistency in determining</td>
<td>- the student can explain the</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Comprehension of the problem</td>
<td>- the student comprehends the problem superficially;</td>
<td>- the student can identify the problem and explain its essence;</td>
<td>- the student understands the essence of the problem deeply and broadly;</td>
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<td>-----------------------------</td>
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<td>-----------------------------------------------------------</td>
<td>-------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>- while analyzing the problem, the student does not go deep into vital aspects of composition interpretation (a)</td>
<td>- the student can distinguish some aspects of the problem, without tracing the link with the general conception of a</td>
<td>- the student links some aspects of the problem with the general conception of a</td>
</tr>
<tr>
<td></td>
<td>- the student is not able to formulate the aim;</td>
<td>hierarchy of aims;</td>
<td>essence of the aim and substantiate its necessity;</td>
</tr>
<tr>
<td></td>
<td>- the student is unaware of and does not understand the hierarchy of aims;</td>
<td>- significant characteristics of a performance situation are insufficiently taken into consideration;</td>
<td>- the process of setting the aim is creative.</td>
</tr>
<tr>
<td></td>
<td>- the student is in a state of insurmountable difficulties, cannot differentiate between the essence and phenomena of a performance situation.</td>
<td>- the student can explain the essence of the aim, without giving a deeper analysis of the reasons for the problem.</td>
<td></td>
</tr>
<tr>
<td>Superficial conception of a composition;</td>
<td>- the student is occasionally uncertain whether the problem has been identified correctly, but does not substantiate his/her doubts;</td>
<td></td>
<td></td>
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<tr>
<td>Superficial vision of the problem;</td>
<td>- the student often does not see the interconnection between the problem and its reasons;</td>
<td></td>
<td></td>
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<tr>
<td>- the student is frequently uncertain whether the problem has been correctly identified.</td>
<td>- while identifying the problem, the student understands some of its causes;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- while analyzing the current problem, the student cannot prognosticate problems that may arise in future.</td>
<td>- while analyzing the current problem,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- the student searches for alternative problem solving strategies</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Strategies for problem solving**

| - the student cannot develop a problem solving strategy independently; | - the problem solving strategy is reproductive; |
| - the student does not bring the strategy variability into focus | - the student searches for some problem solving variants together with the lecturer; |
| | - the student searches for alternative problem solving strategies |

- the problem solving strategy is creative;
<table>
<thead>
<tr>
<th>Assessment of the activity</th>
<th>(does not see other problem solving variants); - the problem solving strategy developed with the lecturer's assistance does not comply with the set aim; - comprehension of the problem is partial.</th>
<th>- the strategy partly complies with the set aims; - a superficial analysis of the essence of the problem.</th>
<th>Independently, and substantiates the peculiarities of each strategy; - the developed problem solving strategy complies with the set aim; - a deep and varied analysis of the essence of strategy.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment of the activity</td>
<td>- the student cannot evaluate and assess the activity; - the student cannot set the criteria for the assessment of the activity; - the student does not apply activity assessing criteria offered by the lecturer.</td>
<td>- the student establishes the strengths and weaknesses of the activity without analyzing and substantiating them; - the student formulates the activity assessment criteria together with the lecturer; - the assessment of the quality of activity is general (no detailed analysis of the essence of strategy).</td>
<td>- the student compares and analyzes the expected and real results; - the student can identify the strong and weak points in the performing activity by analyzing and substantiating them; - while assessing the quality of the</td>
</tr>
</tbody>
</table>

**Assessment of the activity**

- the student cannot evaluate and assess the activity;
- the student cannot set the criteria for the assessment of the activity;
- the student does not apply activity assessing criteria offered by the lecturer.

- the student establishes the strengths and weaknesses of the activity without analyzing and substantiating them;
- the student formulates the activity assessment criteria together with the lecturer;
- the assessment of the quality of activity is general (no detailed analysis of the essence of strategy).

- the student compares and analyzes the expected and real results;
- the student can identify the strong and weak points in the performing activity by analyzing and substantiating them;
- while assessing the quality of the...
The information revealed in this study will enhance a proper understanding of the strategies that students apply in instrumental music practice and will, therefore, form a foundation for more efficient teaching and learning in instrumental music education. The insight into how students self-regulate during music practice will provide a basis on which instrumental music pedagogy can better direct all students to utilize practice time, and thus reach their musical performance potential.
Conclusions

Analyzing different approaches to the problem of the concept “reflection”, we should point to the existence of two traditions in the interpretation of reflective processes:

- the reflective analysis of consciousness leading to the explanation of the meanings of objects;

- reflection as understanding the sense of interpersonal communication.

In relation to this, it is necessary to single out such reflective processes as critical thinking, self-understanding and understanding others, self-assessment and assessment of others.

In the context of the transition of music teachers’ education to the principles of sustainable development, the importance of the development of music teachers’ reflective position: in this situation teachers become the main creators and users of the information of pedagogical situation.

Reflection is one of the mechanisms, which allows the music teacher to be a strategist in professional practice. Its importance is firstly out to the fact that in the process of reflecting the factors of music-pedagogical reality, there appears and gets created the individual personal-professional concept, as well as the system of moral-professional aims, norms, requirements, principles and values. The teacher’s reflective activity is a polysemantic notion, including the teacher’s knowledge analysis both of his/her own personality and pedagogical activity, and of the learner’s personality and the study process peculiarities of the concrete class, with the aim of the learner’s personality development on the basis of humanization of the study process.

Analysing concepts of different authors, the following criteria of the development of student’s reflective activity were determined:

- understanding of aims/objectives;
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- comprehension of the problem;
- strategies for problem solving;
- assessment of the activity.

References


Universities in Africa cannot wait: faculty perception of leadership, quality management for sustainable development

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Abstract

Several African states have displayed "lack of urgency" in pressing universities to improve the way they prepare the human resources bases of their national economies. A significant aspect of the global reform movement in the public sector vis-à-vis higher education is to maintain balance between greater institutional autonomy and public accountability. This is particularly evident in the areas of teaching and research, leadership and management for sustainable development. The purpose of this research is to specifically evaluate the existing leadership styles and management practices in universities in Nigeria using Total Quality Management model to identify some excellence-related factors associated with success in the model. This research study fulfilled the need to provide the public sector administrators, policy makers, planners and researchers that are interested in empirical information methods that might help them improve the quality of universities with a framework and guide for assessing and planning towards sustainable improvement in the Nigerian education. This exploration is a survey research design. The population of the study consists of university lecturers. A questionnaire was used for data gathering through a purposeful sampling procedure. The data were analyzed through the use of quantitative research
procedures. The findings are that institutions need to adopt a holistic approach to the management of changes that addresses a wide range of issues related to effective leadership and management, staff development structure and systems reform, and effective financial management.

**Key words:** faculty perception; leadership; quality management; sustainable development.

**Introduction**

University education in Nigeria has been a neglected enterprise. Commissioned reports, research publications and academic debates on the need for higher education reform from the establishment of higher education in the early 1960s into the late 2008 could not yield any result because of fragmented and piecemeal action by the government. Influential fact finding reports and research publications are scarcely cross-referenced (Ololube, 2008). With University education low in the priorities of major government issues, surge in academic standards is not surprising. However, university accreditation, licensure, and certification are being reconstructed in fundamental ways. The impact of this is the creation of an entire historical era in the professionalization of university education that will be equal in significance to other measure to ensure sustainable development in line with the MDGs

Education and development play a crucial role. The current global higher education reform movement is leading to some interesting comparisons with the situation in Nigeria (Ololube & Ubogu, 2008; Ololube, 2008). Fundamental to this reform movement is the need to enhance managerial capability in the face of the greater responsibilities which enhanced autonomy brings with it. The meaning of autonomy, however, is a complex issue and cannot be divorced from the parallel theme of accountability (Mauch & Sabloff, 1995; Ololube, 2006a).

The study of leadership in quality improvement as a vehicle for higher education reform is not a new phenomenon. If educational reform was to become effective and produce measurable results, elements of quality management needed to be present in improvement efforts (Detert & Jenni, 2000). Research in the field of higher education as a public sector agency should recognize the significance of leadership and management as drivers of quality improvement. Greater academic management is tied to the transformational, developmental and visionary continuums of leadership. Research on the roles of organisational
leadership functions to influence or enhance the performance of organizations and their chances of survival (Ogawa & Bossert, 1997).

The purpose of this research is to relate the findings from research studies to the situation currently facing institutional managers in the increasingly autonomous universities in Nigeria. Examples will be drawn from well-documented recent studies on the theme of reform and change in higher education and that of the Republic of Nigeria as little has yet been written about this domain of study. The enthusiasm to write this research paper was inspired by the desire to examine the effect of university leadership and management processes and the standard of education. Standard in this context is the degree of excellence required for a particular purpose; it is an accepted or approved example against which phenomenon are judged or measured (Ololube & Ubogu, 2008). The objectives of this research are made to order for the study of faculty perception of leadership, quality management for sustainable development in Nigerian university systems, with the view to ascertain the degree to which leadership and management factors impact on faculty performances. Specifically, the study addressed four basic objectives:

• theoretically and empirically examine leadership, quality management practices and development in the university as an organization;

• study the behaviour and attitudes of university administrators when selecting and making appropriate decision for which access is provided;

• examine the consultation and decision-making processes needed for selection, processing and administrative management;

• document the costs incurred and avoided development roles university administrators play in improving quality.

To address the above objectives the research hypotheses were formulated.

• There is no significant relationship between the behaviour and attitudes of university administrators in their decision making.
• There is no significant relationship between the consultation and decision-making processes needed for selection, processing, and administrative management.

• There is no significant relationship between the costs incurred and avoided development roles of university leaders.

• There is no significant relationship between the differences in leadership styles and university development.

• There is no significant relationship between respondents demographic information and the perceived university development.

**Quality management models**

Total Quality Management (TQM) was first introduced as a business management approach in the post-World War II era when Crosby, Deming and Juran successfully reinvented the Japanese economy (Martínez-Lorente, Dewhurst & Dale, 1998). In the early 1980s, American business leaders looked to the philosophy, principles, and quality management tools to improve the economy. More recently, education administrators and leaders have begun to recognize the potential for quality management applied to educational organizations (Goldberg & Cole, 2002).

The success of quality administration and management is based on several quality models. Much of perspectives and popular literature on TQM subscribes that TQM is “universal” in its application ability (Janpen, Palaprom and Horadal, 2005). Formal education models such as the Malcolm Baldrige National Quality Award model in USA, the European foundation for Quality Management (EFQM) model in Europe and Deming Application Prize model in Japan were developed to evaluation educational quality management and the success related to them. These models have a number of common elements. TQM models can serve as a prototype for implementing quality improvement programmes in manufacturing and service-sector settings. Most research studies on the effect of TQM on organizational performance focused on analyzing the relationships between the implementation of different organizational elements and their performances. The causal analysis results show that dynamism, munificence and complexity influence the degree of implementation of the main TQM principles (Prajogo & Sohal, 2006). TQM is a process of involving
everyone in an organization in continuously improving all products and processes to achieve, on every occasion, quality that satisfies customers’ needs. It connects everyone in the organization through team work, trust and empowerment; continuous improvement; identification of customers and their needs, and then focusing on them; and using tools and techniques to jointly resolve quality problem (Naylor, 1999).

The most relevant effects of TQM emerge as a result of the environmental dynamism, and the least effects are due to munificence. Similarly, the dimensions of TQM have an impact on different types of performance. The model can be used by organizations to assess their level of TQM success depending on specific environmental characteristic (Tari & Sabater, 2004). TQM shows a strong predictive power against quality performance but no significant relationship against innovation performance. On the other hand, technology and R&D management shows a significant relationship with quality performance but at a lower level than that of TQM, and shows much stronger relationship with innovation performance (Daniel & Amrik, 2006). However, at its core, some researchers (e.g. Dawson, 1994) view TQM as a simple idea because it is presumed that the search for competitive advantage through quality is best sustained by applying basic ideas right across an organization. In spite of strong arguments for quality programmes, many companies have not carried out changes successfully using TQM because many plants have problems that need to be resolved either as a prerequisite of a quality program or separately from it.

Quality management in organizations

For many years, quality management has been an important strategic tool for manufacturing and service firms striving to attain competitive success (Tan & Wisner, 2001). Intense global competition has forced many world-class organizations and institutions to re-examine management quality as they seek to enhance quality of products and services and overall competitiveness (Symons & Jacobs, 1995). It was reported that for many years now total quality management (TQM) has been recognized by manufacturing executives to be an important strategic issue for achieving excellence in operation. This emphasis on quality is crucial for two reasons: (1) customers are becoming increasingly conscious of quality in their choice of products and services; (2) increased quality leads to increased productivity and its associated benefits (Malhotra, Steele & Grover,
1994; Lewis, Goodman & Fandt, 1995). Also, as the awareness of quality has grown, quality management efforts at some institutions have resulted in improved competitiveness (Hendricks & Singhal, 1996), while similar results in other organizations have remained elusive (Hiam, 1993; Grant, Shani & Krishnan, 1994). However, Bonstingl (1992) wrote, “as TQM finds its way into schools, more and more educators are discovering the natural fit that quality principles and practices have with their own aspirations for the continuous improvement of education”. This has shown that educational leaders are adopting total quality management as their operational philosophy.

As interest in quality continued to increase because of response to competitive advantage held by Japanese firms over their European and American rivals (Hall, 1996), researchers continued to define quality from a variety of perspectives (Ollila, 1995). There are also concerns among researchers about quality as a strategic competitive factor. Quality is a major factor in achieving competitiveness for meeting future competitive challenges. In today’s advanced markets whose size and number are growing, consumers have a greater say and occupy an increasingly high position in the need pyramid where the quality of products and services is considered a pre-requisite for the quality of life (Madu, 1998).

In addition, the UNESCO report on World Declaration on Higher Education for the Twenty-First Century further shared the view that quality in higher education is a multidimensional concept which should embrace all its functions and activities: teaching and academic programmes, research and scholarship, staffing, students, buildings, facilities, equipment, services to the community and the academic environment. The report further states that quality also requires that higher education should be characterized by its international dimension: exchange of knowledge, interactive networking, mobility of teachers and students, and international research projects, while taking into account the national cultural values and circumstances. It concludes that in order to attain and sustain national, regional or international quality, careful selection of staff and continuous staff development a necessary, in particular through the promotion of appropriate programmes for academic staff development, including teaching/learning methodology and mobility between countries, between higher education institutions, and between higher education institutions and the world of work, as well as student mobility within and between countries. The use of new information technology is an important tool in this process, owing to its impact on the acquisition of knowledge and know-how (UNESCO, 1998).
Leaders and managers of both educational institutions and industrial organizations became converted to the pursuit of quality as the single most important organizational and institutional objective. Today, in professional literature of organizational sciences and higher education, quality is among the most frequently appearing concepts in scholarly and practitioners’ discussions (Garvin, 1998; Green, 1993; Peterson et al., 1995; Oakland, 1997) as a central objective of organizational action. It is a term often used to encompass multiple outcomes, effects, and processes that organizations pursue in order to achieve success. These competing voices and discourses among scholars and frontline academics are of a common view that quality makes the difference between success and failure (Sallis, 1993).

In many countries, especially in developed countries, the establishment of quality assurance schemes constitute a response to this concern (Anyamele, 2004). However, according to P. S. Lewis, S. H. Goodman & P. M. Fandt (1995), TQM has an even broader focus than quality assurance for its goals is to manage the entire organization in a manner that allows it to excel in the delivery of products and services than meet customers’ needs. In the university in particular, quality comes to be expressed in terms of social and individual desirability as well as for what the individual stands for (Anyamele, 2004).

**University leadership and management**

Statements are often heard about the need for academic leadership and the professionalization of the management of academic institutions. Leadership is the process of influencing people towards achievement of organizational goals. This short definition contains three key features about which authors agree: goals, people and influence. It demonstrates that leadership is a social process in that it involves interaction with others to achieve ends (Naylor, 1999). Leadership plays a very important role in the performance of an organization, whether a business organization or academic institution. It lays down the infrastructure, policies and guidelines for the different functions of the organization to perform its best. University leadership can help achieve excellence by being visionary, inspiring, creative, flexible, and innovative to make university work together with their faculties to provide the best service to students. Excellence in this paradigm is a generally accepted best way of doing things in education in search of distinction in teaching and learning situations. It is an essential component of best practice that creates quality teaching strategies that produces improved scholarship (Zajda, 1995; Ololube & Ubogu, 2008). Leaders who understood the importance of working together with their faculties would develop a co-operative culture for
working with their faculties (Wong, 2001). Furthermore, giving support, explanations, and interpreting information so that employees can understand, the ability sometimes say “stop” to draw a line, to make the heat out of a conflict, to conclude a debate and get down to negotiation, and having the courage to put a stake on an idea, and risk making mistakes can we keep our institution from drifting aimlessly to no purpose (Naylor, 1999).

Good management strengthens success in a university's core business of teaching and research. In higher education, leadership is closely identified with the fortunes of universities because they adapt styles and approaches to the circumstances facing university organizations. They should be able to modify their leadership styles or approaches in order to ensure appropriateness to the organizational context. University leaders are responsible for the day-to-day management of the university, determining academic activities in conjunction with academic board and senate, and managing the budget and resources and proper use of funds. A. Mayo and E. Lank (1994) pointed out that with the incredible pressures on organizations today, it is little wonder that leaders in these organizations are finding themselves under tremendous pressures. Leaders are responsible for setting the key values and direction of the university in regard to its position in higher education and also in the wider economy. They also see strategic planning and management as key functions (Middlehurst, 1993; Bargh, Bocock & Smith, 2000). And it involves important decisions, for example about the size of the university; resource generation and allocation; institutional acquisition, investment and disposal; the recruitment and reward of academic and other staff; the creation, closure and merger of departments; and external roles and relationships (Henkel, 2002).

Some themes of management such as financial, personnel, estates, etc. are vital to feed into the central strategic work of institutional leadership for the maintenance of the higher education institution. In terms of financial management for example, academic leaders retain and allocate resources to enable them to control the framework for academic development and to use financial incentives as modes of steerage. Furthermore, quality assurance policies, their linkage to resource allocation and their influence upon institutional and departmental reputation play an important role in institutional management. Additionally, the intelligence function of the university is increasingly important in an unstable environment. Universities use a variety of mechanisms and personnel within and outside the institution to optimise their information. Academics are still key sources of intelligence about developments in teaching and research and their potential for exploitation by the university. Those
resources at the disposal of universities to help drive academic development, as well as information provision, are now more varied. All these developments imply major changes in roles, relationships and power in higher education institutions (Henkel, 2002; Anyamele, 2004; Ololube, 2006a, b).

In today’s world, the need for high-quality leadership and management is much pointed out in different contexts. However, the image of the successful and talented leader/manager is a prominent one in modern society. In this context, systems of higher education and research are no exceptions. Figure 1 shows a mini model of leadership as coming from the heart and management as a product of the head.

Figure 1. Qualities of a good leader and manager
Methodology and procedures

Research design

A survey research design was used in this study. Our resolve to adopt the survey research approach is because it systematically assisted us to collect data from identical group of individuals who have the same attitudes, beliefs and behaviour. The population of the study consisted of senior faculty members that have gained tenure of over 5 years. The sampling for this study was purposive, which is characterized by the use of judgment and deliberate effort to obtain representative samples by including the most probable typical groups in the sample. A total of 110 questionnaires were distributed out of which a convenient sample size consisting 85 (93.4%) was chosen from the 91 questionnaires returned. The reason for discarding 6 questionnaires was either because of the way they were filled out or some questions were not answered. Extracts from leadership/management models were used to measure levels of leadership and management styles in 3 public universities in the South-South geo political zone out of over 10 universities in the region. The data for the study were collected in the last quarter of 2008.

Instrument

The instrument used for data collection was a questionnaire designed by the researchers. The questionnaire was made up of section ‘A’ and ‘B’. Section ‘A’ consisted of the demographic information that includes (a) gender, (b) age, (c) level of education, (d) faculty position and (e) present job tenure. Section ‘B’ consisted of 20 related sources of leadership and management variables, including their sub-variables. The respondents were required to indicate the extent to which they are satisfied or dissatisfied with the items. The respondents considered each item according to a four-point Likert scale, from (4) strongly satisfied, (3) satisfied, (2) dissatisfied and (1) strongly dissatisfied. All items were considered of approximately equal “attitude value” to which participants responded with degree of satisfaction and dissatisfaction (intensity) (Kerlinger, 1986; Nworgu, 1991; Okeke & Kpolovie, 2006). The purpose of the research was well explained to all the respondents. F. N. Kerlinger (1986) argued that in order to have a high response rate, the purpose of the research work must be explained to the respondents on the first or last page of the research instrument.
Data analysis techniques

The participants’ responses were keyed into SPSS version 17.0 software of a computer program and they were analyzed using Simple Percentage, Mean Score and Chi-Square ($\chi^2$) statistics. We employed chi-square because in probability theory the chi-square distribution is one of the most widely used. It is useful because easily calculated quantities can be proven to have distributions that is approximate to the chi-square distribution if the null hypothesis is true or false. One-way-analysis of variance (ANOVA) was employed to test the relationship between variables and respondents’ demographic information. The statistical significant was set at $p < 0.05$ to measure if the researcher’s level of confidence observed in the sample also exists in the population (Bryman & Cramer, 2001).

Validity and reliability

Faculty colleagues who were experienced in the construction of research instruments helped in the validation of the questionnaire. As a result of the input of the experts, some items were included while a few other items were restructured. In addition, a pilot test was conducted prior to when the main questionnaires were distributed to determine how respondents understood the questions (Yin, 1989, 1994; Ololube, Egbezor & Kpolovie, 2008). The advantages derived from the pilot test were that new insights were got, the errors pointed out were corrected and the total comprehensibility of the questionnaire was measured which helped enrich the final questionnaires sent out to the respondents. To test the consistency with which the research instrument measures what it is supposed to measure, SPSS of a computer program was also employed, and the overall Cronbach Alpha reliability estimate of 0.819 was obtained. Thus, the instrument was considered to be very reliable.

Results and discussion

Descriptive analysis of respondents’ demographic variables

Gender and age recorded that more than half of the sample size were male (N = 51; 60%), while less than half of the respondents were female (N = 34; 40%). On average, the respondents were 54 years of age with the youngest respondent being 40 and the oldest 68 years. On level of education all the respondents (N = 85, 100%) hold a doctorate degree. The respondents were categories in two
according to their faculty positions. The first group were professors (N 41= 48.2%), while the second group were senior lecturers (N = 44, 651.8%). To obtain groups of comparable sizes, “present job tenure” was grouped into the same four categories. The categories are 6–10 years, 11–15 years, 16–20 years, and more than 21 years. Almost half of the professors (48%) were engaged by their present employer between 6–10 years. A fifth (20%) had been employed for between 11–15 years. One fourth (25%) had been employed between 16–20 years, and slightly over a sixth (17%) had been employed between for over 21 years by their present employers. Overall, the professors had a tenure track of between 1 to 35 years in total from other employers including their present employer. While the data for the senior lecturers showed that (65%) of them have a tenure track of between 5-10 years, and 35% had a track record of between 11–15 years.

**Descriptive statistics of respondents’ leadership styles and management practices**

The research was aiming at determining whether the leadership and management practices and styles employed are relevant to the educational development needs of Nigerian universities. Data from the respondents were analyzed using descriptive statistics and it was revealed that the nature of the acceptance of innovation by the principal officers (top line university administrative/management structures) rated low (M = 2.01, SD = 0.77), this implies that respondents were most dissatisfied with the way proposals for improvement are turned down by the principal officers and government. Second in the levels of respondents dissatisfaction was on the use of excessive bureaucratic procedures (M = 1.99, SD = 0.89), that emanate from the educational policies and administration in which they operate. Thus, they suggested that there is no room for flexibility in times of emergencies because of the too much standardized procedure (rule-following) that dictates the execution of most or all processes within the universities. Third, partnership and collaboration within and amongst faculty staff and top line university administrative/management structures equally rated very low (M = 2.09, DS = 0.78). Result showed that faculty recruitment and selection, placement and promotions are wrongly done. Majority of the respondents attributed favouritism and tribalism in most cases. This situation is not peculiar to respondents’ own institutions alone. During discussions with colleagues in other institutions of higher education in the country, the researchers found that despite the willingness of
the faculties to establish effective environment for higher education programmes, they are confronted with the same problem of improper faculty recruitment and selection, placement and promotions. Forth, the low levels of control, quality of inspection and supervision rated lowest (M = 1.96, SD = 0.94) in the respondents opinion. Some of these problems, they say, are as a result of poor ICTs penetration and usage among Nigerian higher education personnel’s and practitioners. Overall, the result (M = 1.88, SD = 0.83) revealed that respondents were dissatisfied with the academic climate in Nigeria because it does not encourage research and development. As a result, the academic hostile environment is less supportive for real academic work. Both male and female respondents were fairly equal in terms of their opinion concerning the working climate (M = 2.02, SD = 0.74; M = 2.09, SD = 0.79) respectively.

**Analysis of leadership and management practices and performance**

To test the relationship between the leadership and management practices used and the level of educational performance and development in Nigerian universities, a two tailed chi-square was conducted to test the statistical significance relationship that exist between leadership and management practices and the level of educational performance. The result revealed that significant relationship exist between the leadership and management practices used and the low levels of education and faculty performance ($\chi^2 = 12.74, p < .005, df = 2$). It was suggested that the low academic standard and poor faculty performances experienced in Nigerian universities is as a result of poor leadership and management practices. Not surprisingly, (91%) of the respondents as against 0.9% accepted that the quality of education in the west is more positive result oriented than the one experienced in Nigeria. Whereas the ANOVA analysis depicted no significant difference the opinions of the respondents based on their demographic information: gender (F = .471, p > .520); age (F = .643, p > .598); faculty position (F = .642, p > .431); present job tenure (F = 1.662, p > .132); level of education (F = 1.389, p > .233) respectively.

**Descriptive analysis of respondents’ answer to the major obstacles**

To demonstrate the presence or absence of a relationship amongst variables, the research data were tallied along respondents’ degree of satisfaction and dissatisfaction. The result from the analysis on the constraints facing Nigerian university system from achieving the educational aims and objectives on the entire variables tested showed huge relationships. Respondents rated the funds
made available to the education industry (92.3%) as against (7.3%) as one of the most important pressing problem encountered by the Nigerian university systems. The funding, they say, is not sufficient to run the university educational system, make adequate instructional materials available to students and faculty, finance research and development. Similarly, the empirical results revealed that (86.9%) compared to (13.1 %), are dissatisfied that administrative bottle neck stands as a major limitation to the success in achieving the aims and objectives of sustainable development in Nigerian universities. While (79.5%) are of the same opinion that lack of recruitment and selection of competent staff at the right time a key setback to university development against (20.5%) who are satisfied. Correspondingly, respondents were dissatisfied with the decision-making processes, information dissemination and project implementations. They attributed these factors as contributing setbacks for the successful functioning of the university system, (91.8%) (77.1%) and (86.7%) were dissatisfied to these fact, while (2.8%), (22.9%) and (13.3%) differed respectively. Faculty education and training were also a major problem encountered by the university organization. Respondents’ answers established that (82.2%) compared to (17.8%) were dissatisfied with faculty education and training (workshops, seminars, conferences, in-service training). As a final point, the respondents rated very high misappropriation and embezzlement of public funds a major obstacle to university development, and rated political interferences in faculty appointment as a cankerworm that have eating deep into the fabric of the university education system. Their percentage values almost equalled that of inadequate funding of the university structure at (93.1%) ad (91.8%) while (6.9%) and (8.2%) respectively held the opposite view. In general, the results showed that university education system in Nigeria has a lot of difficulties getting in the way of its growth and development.

**Conclusions**

The relationship between Quality Management (QM) models and quality definitions were analyzed. The results confirm the importance and possibility of quality improvement in Nigerian higher education communities by applying QM models to education leadership and management. The results in this study also confirm the relevance of the management of human capital in quality processes.

The study showed that there are multifaceted roles that university leaders play in affecting quality management in the university. Some of these approaches in leadership roles consist of day-to-day operational excellence on
how to create a well-run higher education institution. The study showed that some of the leaders adopt strategic roles, which consist of the vision, mission, and strategy of organization success. However, they tend not to be effective adaptation and practices.

These findings show faculty, regardless of their distinct demographic information having unwavering views that are more fundamentally oriented towards leadership styles as having a greater negative impact in university administration and management. This finding was not surprising in light of prior research suggesting education personnel recruitment and select approaches that tend to cause maximum disruption to effective faculty followership.

The evidence, however, seems to more importantly imply that the need for a more aggressive leadership and management improvement approaches are likely to yield enough convincing positive outcomes to gain and maintain commitment and confidence from faculties. The findings are unswerving with past research (Green, 1993; Ololube, 2006a) illustrating the instability of leadership and management practices that are unattractive in nature.

Leadership and management practices geared to professional development or decentralized decision-making structures are less controversial and attract more appeal amongst faculty. University leadership and management are caught in a dilemma if they fail to initiate change that will helpfully affect faculty morale. This study of Nigerian university faculty tends to confirm R. M. Grant, R. Shani & R. Krishnan (1994), N. P. Ololube (2006a), N. P. Ololube and A. P. Ubogu (2008) & S. C. Anyamele (2004) research work on policy attractiveness.

Lately, higher education is entering and playing an increasing role in the competitive market in the global economy. Stability and good management underpin success in university's core business of teaching and research. As such university education should endeavour to ensure standardization and uniformity in meeting the global trends in the highly competitive demand for excellence in higher education programmes aimed at producing highly qualified manpower need. The governments in Africa should embark on a comprehensive program of recapitalization of higher education. Therefore, governments should move from the traditional position of paying lip service or little attention to empowering higher education programmes to a pro-active stands by funding, monitoring and controlling (Ololube & Ubogu, 2008). Consequently, there is the need to better
design higher education curricula and infrastructure as well as organizational leadership programmes so that management and faculty can better plan for unanticipated and unintended consequences that confront them as they operate. Because quality leadership and management play key roles enabling to help us better manage the complex information flow and to integrate such information towards effective policy formulation and planning towards the utmost maximization of human capital.

Overall, this study suggests possible objectives and strategies that institutional leaders may pursue to enhance and promote greater professionalism in the management of higher education institutions. However, in Nigeria’s institutions of higher education, we need more visionary leaders who will set out the direction of university institutions for the improvement of educational practice for the pursuit of educational quality. Leadership and strengthened management at both system and institutional levels are necessary if challenges facing universities are to be adequately met.

**Implication and suggestion for further studies**

The results of this study revealed the importance of understanding QM and education improvement and its impact on effective higher education management like guiding university leaders in designing and structuring their quality of management, give researchers direction for further exploration that might shape and explore initiatives and provide university leadership with a basis of understanding the impact and the leadership and management practices used in effecting education improvement.

This research study made use of primary and secondary data sources; however, they are subject to distortion. Researchers are not independent on their normative and summative evaluation of a research problem, as such, if any part of this analysis should bear the hallmark of the researchers stance, they should be overlooked and considered as part of the researchers own over-sight. Because of some methodological weaknesses associated with quantitative research, a wider survey is highly encouraged using the themes of this study and other deprivations in assessing the impact of quality leadership and management styles in higher education in Nigeria in particular.

**References**


Organisation of Learning Environment in Education for Sustainable Development (pre-school, primary and secondary level)

Problems of improving learning environment in secondary technical schools

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Abstract

In the study, the author summarizes the current state of learning environment in several technical schools in Latvia and defines some main directions of improving it for juvenile learners. The core of the study represents the idea of transition from the paradigm of knowledge and skills to the paradigm of a developing education sensible for a personality. A correctly organized and creative learning environment should contribute to personal liberty and activity of the learners. The results of an interview and questionnaire with open endings have claimed as an available problem the necessity of organization of a creative learning environment. As quantitative methods of research the following were used: vector modelling introduced by A. Yasvin and the scale for evaluating the levels of reactive anxiety developed by Charles D. Spielberg. Four secondary technical Latvian schools have been chosen as a research area, which are situated in Rezekne, Daugavpils and Riga with students’ age of 17–19 years. A dominant sector of learning environment in Latvian technical schools is dogmatic and career oriented, whereas a creative sector occupies only 7%. In accordance with this, the author suggests to design and then implement an integrative approach in teaching technical subjects in secondary technical school while widely using team work.
**Introduction**

Latvia is experiencing a period of rush changes, fast and radical, which can be observed in all the spheres of life. These changes influence our everyday life. Transition to market economy widely defines aims and contents of vocational education, creates new conditions which influence planning of education. As a result, education undergoes both qualitative and quantitative shifts, curricula have become more varied and have more links to concrete professions. There are some changes in the habits of spending leisure time and money.

It is necessary to mention some structural changes in society, progress in the sphere of computerized information flows exchange, shifting labour power from industrial into servicing sector, changing of types of enterprises. These multiple changes in everyday life, social structures, social needs and values and in the ways of meeting the demands have definitely influenced the methods of teaching in contemporary schools. Therefore, the learning environment in the class and teacher’s task has changed accordingly.

The teacher's task is to organize the learning environment in the class distinguished by a higher degree of independence of the learners, enhancing use of their creative potential as individuals and personalities.

However, there is a need to agree with the scientist D. Zhumatin (2006) that the contradictions of transition from informative to active methods and forms of teaching are getting more vivid especially while introducing problem solving, scientific searching and various kinds of research work into the learning activities of the learners. It is necessary to emphasize some discrepancies between promoting the ideas of interdisciplinary, steadily renewable, completed and harmonious knowledge and insufficient implemention of the approach.

Due to demographic situation in the following decade, the number of Latvian population will decrease (Latvian University, Development projects’ institute, 2007), which will also affect the amount of learners and outgoes from technical schools.
Significance of the study is also caused by the fact that in psychological and pedagogical sources devoted to problems of creating effective learning environment in the class it is emphasized that in different countries and epochs, including the present time period, a dogmatic type of learning environment and an authoritative style of pedagogical communicating are most widespread (Nikiforovs, 2008; Talizina, 1998; Uzole, 2007; Yasvin, 2001). A personality who is getting formed under the circumstances of such a milieu can be featured as absolutely dependent and passive, which is preferred by non-democratic authorities.

United Nations’ Decade of Education for Sustainable Development, which started in 2005, appreciates UNESCO guidelines and recommendations for reorienting on sustainability in education that (2005) focus on one particular aspect of education – teacher education and emphasize the necessity for profound change in education to address sustainability. It is not possibly to deny the necessity of it today.

United Nations’ Commission on sustainable development (2005) note that reorientation in the education should not be performed isolated. According to this, it is necessary to work out and apply such an approach in teaching, which will solve the most complicated task of learning environment and convert an abstract idea – sustainable development – into a necessary reality for the learners to face an uncertain, but complex and demanding future. In its turn, it not only requires organization of learning environment at school, but it imposes a duty. Each teacher should provoke an interest in the learners. This task has to be led through all the current education system (UNESCO guidelines, 2005). Many scientists have come to a conclusion today that the key actor in the learning organization is learner’s personality (Davidova & Kokina, 2007; Kukk & Talts, 2007; Salumaa, 2007; Yasvin, 2001). According to T. Salumaa, if students want to assume an active role, all the organization and technical difficulties in their activity could be surmounted (Salumaa, 2007). Therefore, it is necessary to organize such a creative, problem solving learning environment, which enables the learner to take an active part in the lesson, to think critically, make choices, find information, understand how different fields of science relate to each other and interact, and helps resolve conflicts in non-violent ways. According by R. McKeown, education for sustainable development will provide people with practical skills that will enable them to continue learning after they leave school, to have a sustainable livelihood, and to live sustainable lives (The Earth Charter Initiative, 2005). Sustainable development problems are subjects of many
According to the theme of the given study, a logical perspective for further research to an integrative approach in teaching special subjects in technical school is to consider directing principles of an approved method in education for sustainable development – the Earth Charter method, which is useful and helpful in education for sustainable development (The Earth Charter Initiative, 2005) as well as other scientists’ experience (Jonāne, 2008; Nikiforovs, 2008). In the framework of the United Nations’ Decade of Education for Sustainable Development the Earth Charter is considered an important ethical base for sustainable development (The Earth Charter Initiative, 2005).

**Study design and data collection**

The core of the study represents the idea of transition from the paradigm of knowledge and skills to the paradigm of a developing education sensible for a personality. A correctly organized and creative learning environment should contribute to personal liberty and activity of the learners, thus to their sustainable development.

This research is based on the second phase of the study carried out in Latvia in September – November 2008. As quantitative methods on the second phase of research the following were used: vector modelling introduced by A. Yasvin and the scale for evaluating the levels of reactive anxiety developed by Charles D. Spielberg.

Four technical Latvian schools have been chosen as a research area (N=192), which are situated in Rezekne (Rezekne secondary school programme “Building”, year 1), Daugavpils (Daugavpils Construction professional technical school, year 2–3) and in Riga (Riga Construction professional technical school, Riga Construction college with students’ age of 17–19 years.)
This research object is educational process in professional technical school. This research subject is the learning environment which is aimed at improving learners’ readiness for integrative learning activity in the context of sustainable development. This research objective – elaboration of a system of forms of learning management and organization enhancing students for integrative learning activity in technical school in the context of sustainable development.

It has been decided to analyze the state of learning environment in some technical schools in Latvia and elicit its peculiarities; to define main directions for designing a new approach in teaching technical subjects in a group of learners in order to shape up their readiness for integrative learning – cognitive learners’ activity in technical school.

As the study refers to school pedagogy, some changes in developing a learner’s personality will be considered: the youth are searching for answers to the most tortuous questions of the sense of life, unsafely of the future and individual uniqueness. Of a special interest might be a conclusion resulting from a micro sociological study (van-Gejeka, 2007) upon a high level of aggressiveness among the students in the lessons of building constructions which is a destructive element of learning environment. Micro sociology is understood here as a detailed analysis of the ways how the learners express their passions, how they learn to communicate with each other and sort out conflict situations.

Background

Many scientists researched the learning environment in an education establishment (Anderson, 2007; Gray at al., 2007; Kelly, 2006; Lean at al. 2006; Nikiforovs, 2008; Geidžs & Berliners, 1999, Derjablo, 1997, Yasvin, 2001). In order to enhance effectiveness of learning environment in class, it is necessary (Anderson, 2007) to evaluate and examine opportunities that change the aspects of learning environment: teaching, learning ability and the atmosphere in class.

Nowadays there are two opposed approaches in the learning management: a teacher-oriented and a student-oriented strategy (Davidova & Kokina, 2007). A. Anderson’s study which examines a student-oriented learning situation is the base of the scheme (Figure 1).
The scheme shows two main components: teaching and learning interacting with each other and creating an effective environment in a classroom. In their turn, these two components are related to the following dependent components: on the one hand, teaching depends on some objective and subjective characteristics, such as teacher’s qualification, curriculum and physical properties of the classroom, as well as student’s characteristics, such as knowledge and skills, aptitudes, attitudes and values. On the other hand, learning also depends on some objective and subjective characteristics. Among the objective characteristics there are teacher’s qualification, curriculum and classroom. Student’s properties, which mainly comprise student’s engagement in learning; teacher’s properties; teaching, curriculum, classroom, which mean arrangement of the academic work in general, are to regard as subjective ones.

These times, teaching is particularly emphasized in order to create an effective classroom. The interaction of certain factors should
improve the effectiveness of the learning environment in a classroom: physical, psychological and socio-cultural (Figure 2). Physical aspect includes classroom organization and management, psychological aspect is related to the creation of classroom climate and socio-cultural aspect is classroom’s culture. All of them represent significant aspects for an effective student-oriented lesson delivery.

Figure 2. Factors which improve the effectiveness of environment in a classroom
The author suggests to use these two schemes as a theoretical vision while designing and methodologically analyzing the lessons in order to trace their effectiveness in an improved learning environment or new environment.

**About the quantitative methods**

In the study, learning environment in technical Latvian schools was researched with the help of vector modelling method by A. Yasvin worked out on the edge of the 20th and the beginning of the 21st century. According to it, the basic types of educational environment are dogmatic, career oriented, serene and creative educational environment.

The evaluation scale of reactive anxiety has been developed by C. D. Spielberg and adapted by N. van-Gejeka. The test based on this scale is a trustful and informative method for evaluation of student’s anxiety level at a particular moment of time. The reactive anxiety is characterized by some tension, uneasiness and nervousness, and can be assessed as low, moderate and high. A very high reactive anxiety may cause different attention disturbances. However, anxiety on itself is not a negative phenomenon. Each personality is featured by their “useful individually optimal anxiety” level.

In the next part, according to the proposed classification of educational environment types, the learning environment in Latvia’s technical schools will be analyzed.

**Results**

The results of research are presented in a bar diagram (Figure 3) of dominating areas in learning environment of technical schools in:

1. Rezekne (Rezekne secondary school programme “Building”, 1th course),

2. Daugavpils (Daugavpils Construction professional technical school, 2nd–3rd course),
Natalja van-Gejeka

3 – Riga RCPTS (Riga Construction professional technical school, 2\textsuperscript{nd} – 3\textsuperscript{rd} course),

4 – Riga RCCS (Riga Construction college school, 2th-3th course).
It can be pointed out that a dogmatic learning environment with some elements of careerism prevails in Riga Construction college school (4), in Riga Professional school (3) though of serene learning environment. The students of the 1st year of Rezekne high school (1) characterize the learning environment in their school as a career oriented one. But in Daugavpils Construction professional school (2) all three types of learning environment are present: careers, dogmatic and serene, which are presented in an equal proportion. A low percentage of creative learning environment in technical Latvian schools is proved.

A generalized situation of learning environment in Latvian technical schools is depicted in a pie-diagram (Figure 4). Consequently, a dominating sector of learning environment in Latvian technical schools is dogmatic (34%) and career oriented (33%), whereas creative sector occupies only 7%.
Figure 4. Learning environment in Latvian technical schools

In figure 5 the results of investigation into the anxiety level of the learners of technical schools in Latvia are featured in concrete numbers for low, moderate and high levels.
It is remarkable that all the schools are featured by a low anxiety level: Rezekne – 18 students (43.9%), Daugavpils – 31 students (68.89%), Riga – 23 students (58.97%) and 25 students (37.31%) accordingly in construction professional technical school and construction college school. Simultaneously the latter shows a considerable amount of high anxiety level (14.93%).

![Figure 5](image.png)

**Figure 5. Students’ reactive anxiety level in technical schools in Latvia**

Discussion and conclusions

In the given study the author resumes the situation of learning environment conditions in technical schools in Latvia and defines main directions of organizing and improving learning environment in a group of learners of juvenile age. The situation reveals an unsatisfactory correlation of elements of learning environment, when a creative part of learning environment is only 7%. According to the evaluating scale of reactive anxiety level among young people of both genders in technical school, 97 students reveal a low anxiety level (50.52%). A low anxiety level requires an increasing attention to the motives of students’ activities. 80 respondents are featured as having a moderate anxiety level, which is regarded to be the norm. A high anxiety level (15 students or 7.81%) is linked to the feeling of offence, suspicion, uncertainty (Nemtsin, 2002). C. D. Spielberg emphasizes the fact that people with high anxiety are...
more likely to reveal an alarm state in a situation while being assessed for their competence, which may be very crucial at young age, especially in the course of self-presentation.

Thus, representative deviations from the level of moderate anxiety have been stated, which demands a particular attention to it and gives reasons for a further necessity for reorganization of learning environment in technical schools. In accordance with this, the author suggests designing and implementing an interactive approach to teaching technical subjects in the technical school, which will be based on the main principles of reorganization of learning environment, while widely using team work.

**Main principles of reorganization of learning environment**

The main principles of reorganisation of the learning environment will be adopted as follows: a concept of managing variety, compromise and cooperation as a way of resolving a conflict situation in the lesson, application of non-verbal communication, shift from knowledge principle to achievement assessment, organizational learning during the lesson.

According to R. Candola and D. Fullerton (1995), while working in a classroom, you have to redistribute your attention from outside environment into inside comprehension, in order to overcome the discrepancies in the variety of personalities in the classroom. Thus, it is important not to put an accent on the learning situation, with its subjectiveness, and achieving the learning tasks. It is more important to understand and organize the ways and approaches to the learning activities of the students. In the base of the managing variety concept lies the acknowledgement of the fact that a class consists of students who are different from one another. The variety comprises visible and invisible differences according to gender, age, background education, race, physical disability, individuality and style of learning. Orientation on realisation of potential values of these varieties must lead to creation of an atmosphere where every pupil feels properly evaluated and their talents are discovered.

Thus, one of the first directions of learning environment changing during the lesson must be managing a creative learning environment.

According to the author’s research (2007) into students’ preferences while solving conflict situations, following K. Tomas and R. Kilman’s method,
the students of the building technical school choose different strategies: girls prefer to avoid the situation, whereas boys try to adapt themselves by competing. Therefore, orientation towards compromises and cooperation in team work will be one more direction for improving the learning environment in the lesson. The key moment of students’ cooperation should be mutual trust and belief in the future in the process of practical and independent work. Two competing sides have to admit that they both can win. Otherwise, chasing for a fast “profit”, the eagerness to win can even strengthen mutual hostility, destroy partner relations and as a result slow down the process of self-education.

A teacher in the classroom is a leader and an inborn psychologist. Good leaders are those people, who are distinguished among others by their ability of supporting cooperative work. Such a teacher can better predict students’ behaviour than they can do it themselves and can influence them. It is necessary to underline the importance of non-verbal communication in different situations. A successful teacher must have an inborn or a well-developed ability to interpret students’ behaviour and, according to it, modify own behaviour. Communication success depends on participants’ ability to control, use, perceive and interpret non-verbal signals. Non-verbal communication can substitute words or serve as their support, change or neutralise the meaning of pronounced words (Delahanty, 1970). In most cases, it is necessary to understand the whole complex of non-verbal signals for a perfect understanding of the sense of what is said or written (Argyle, 1976).

Besides, we react upon the non-verbal aspects of speech during communication: pauses, mistakes of speech and dialect, accent, speed of speech and intonation. But this might already be the theme for a next scientific research in a technical school teacher’s status that must be also a great psychologist, perfectly know motivation of pupils and understand own behaviour in order to reach success in educative work.

Aiming at the principle of individual approach in education, when the teacher is a subject of individualization a didactical level of individual approach will be put in act which means the following: using tasks of different levels, particular cognitive learning styles of students in learning practice, shifting the accents in the principles of assessment from the evaluation of students’ knowledge to assessment of students’ success in learning activities for solving some creative tasks (Cepreeb, 2003). Management of students’ learning behaviour in a lesson is closely related to to their satisfaction with having some achievements during the lesson. The term “labour satisfaction” means a
combination of positive and negative feelings and aims connected with learning. It depends on many factors, including age, state of health, preferences in spending leisure time, family and other social connections, as well preferences in choice of learning styles. Students’ attitude to their duties is closely connected to with how fully the learning environment of the lesson meets their expectations and how tightly it corresponds to their labour motivation.

The author of this study has chosen for her research a very interesting theme in pedagogical, psychological and social aspect, connected with designing the learning environment in a technical school. The next part of the research will be devoted to designing following approbation of a scenario of an integrative approach in teaching some technical subjects on the sample of the technical discipline “Building constructions” at Riga construction college school, widely using widely team work.

References


Education for Sustainable Development and Social Work

The role of agricultural counselling centres in implementation of sustainable development of rural areas in Poland

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Abstract

The last few decades brought an increase of agricultural production efficiency. However, it often caused environmental threats. This unfavourable situation affected in creating the idea of sustainable agriculture and rural areas development. The complexity of the concept caused substantial problems with its understanding by farmers. Therefore, there was an extremely important role of agricultural counsellors in implementation of that idea. To verify the assumption that agricultural counsellors played a great role in implementation of sustainable development of rural areas in Poland there were carried out two surveys among farmers (in 2002/2003 and 2008). The research revealed that polish farmers were taking advantage of the counsellors’ knowledge and valued their professional services very high. The counsellors played a significant role by planning sustainable agricultural production, as well as helping in applying for financial support from the EU designed for ecological actions on rural areas.

Key words: sustainable development; rural area; agriculture; counsellors; agricultural counselling centres.

General assumptions of rural areas sustainable development

Agriculture and rural areas which have an enormous influence on the natural environment play a very important role in the concept of sustainable development. Food production is inseparably connected with natural ecosystems.
It is largely dependent on them, and it uses their resources. The issue has been explicitly discussed by many authors, and the latest scientific publications result from the dilemmas which agriculture in the whole world has to cope with. The most burning problems include environmental pollution leading to unbalance and degradation of ecosystems, as well as food overproduction (Fotyma, Kuś 2000, Kośmicki 2005, Woś, Zegar 2002). These are inconveniences which must be coped with by all the European Union countries, including Poland. These problems have been caused by intensive agricultural production featured by usage of work-saving, though energy-consuming and highly expensive technologies. In Poland there can be observed a surplus of food products on the market, although they were caused by extensive and work-consuming methods (Gołaś, 2001). In result of this, Poland is characterized by agrarian overpopulation and lack of balance between economic, social and ecological activities in agriculture (Zawisza, 2001). Extensive farming results in burdening the rural areas with agricultural functions and has brought farming into the sphere of increasingly rising production costs (Woś, 1998b).

The solution to the difficult situation for Poland and the whole European Union can be sustainable development which means a modern concept of ‘planning agricultural development in such a way that it will combine production goals with environmental needs’ (Woś 1998a, 735). Apart from agriculture it also applies to forestry, water supplies, air protection, which must be closely associated with the natural environment and can not disturb its inner balance. For this purpose, there must be fulfilled the following requirements (Woś, 1998a):

- natural resources must be used in such a way that their ability to renew will not be impaired;

- food production growth may be realized solely by increasing the resources productivity, that is, implementation of new technologies which provides their protection with simultaneous maintenance of their high quality for the next generations.

Sustainable agricultural systems assume full symbiosis of production and ecological objectives. Management of production and natural resources enables meeting constantly changing demands with simultaneous maintenance of high quality of the natural environment and protection of its resources. What is more, farming of this type in not susceptible to oscillations or shocks (Kośmicki
2005; Woś 1998a). However, the definition of sustainable development cannot be limited merely to the sphere of economy, production and nature. An overall concept of agricultural sustainable development should cover ecological issues, as well as, ethical and social ones. Agricultural production is supposed to use natural resources in the way that these will not be destroyed and that they will be saved for the future generations (Helander 1997; Woś, Zegar 2002; Zawisza 2001).

Economic aspects, mentioned above in the definition of sustainable development, refer to the analysis of agricultural production profitability affecting the living standards of the population involved in farming, and they are also used for assessment of expenditure structure in household budgets.

Ecological goals are reduced to the necessity of preserving the environment in a good state and, as far as it is possible, to maintain natural values of the degraded and polluted areas. The social sphere includes definition of the position and functioning of farmers in the rural community, and people resigning from farming which implies employment decrease in this sector through evolution of rural areas toward multifunctional development. The ethical factor means responsibility of the natural environment users in relation to future generations, and obligations of food producers to consumers (Zawisza, 2001).

Agriculture is often perceived as merely a sector of economy whose main purpose is to provide the society with food products. As the production system, it significantly affects the natural environment which it is strongly linked with, it changes and adopts the environment to its needs. Also other functions of agriculture should be taken notice of:

- protection of water, soil and air by minimizing introduction of nitrates and fertilizers into deep and surface waters, as well as reduction of emission of poisonous gases into the atmosphere (e.g. ammoniac),
- maintenance of soil fertility and erosion prevention,
- maintenance of diversification of flora and fauna through growing various kinds of plant specious and raising different breeds of animals.
• taking care of cultural values through restoring its typical elements, including architecture.

• manufacturing high quality agricultural products (Kosmicki, 2005).

A style of farming can be considered as sustainable when within an individual farm the economic, social and ethical principles are combined with ecological safety.

These goals can be achieved by appropriate management oriented on conscious employment of self regulating mechanisms of the ecosystems and new technological achievements (Kośmicki, 2005; Runowski 2000).

The factor determining whether or not a particular farm will be successful on the market is mainly knowledge and the ability of using it in practice in a proper way. Farms need to be managed by owners who possess broad knowledge both in the field of farming, ecology and economy (De Buck et al 2001; Pedersen, 2000).

Substitution of material means with competence and knowledge of farmers is of great importance for the process of farm management (Campilan, 1995). The farm must fulfil a set of criteria to be considered as complying with the assumptions of sustainable development. It is part of a bigger system, therefore, it is necessary to be aware of kinds of relations of the farm with its surroundings, that is, natural environment, other farms, market, technical infrastructure, different institutions, binding law and ethical norms (Runowski 2000; Varallyay, 2000).

Sustainable development is largely dependent on natural management methods. Optimal use of all production factors found in the environment allows using less chemicals and reduction of negative impact of agriculture on the environment, thereby, contributing to reduction of environmental pollution including soil and air with simultaneous maintaining the soil fertility. This, in turn, results in improvement of the rural population’s living conditions and producing high quality food (Kośmicki, 2005).

Sustainable development finds its reflection in the policy of the European Union. Poland has been a member since the year 2004. The EU assigns financial means to encourage activities aiming at implementing the rules of
sustainable development. Common Agricultural Policy as a sector policy in relation to rural areas accounts for development of both farming and non-agricultural activities. It assumes economic support for farms and increasing competitiveness of the whole agricultural sector, through increasing multifunctionality of rural areas. However, apart from economic functions and creating favourable conditions for social development also preservation of natural values (including abundance of habitats, diversity of species), as well as cultural heritage are of great concern for the European Union environmental policy. Improvement of rural life quality is a purpose which combines economic and social growth with good living standards in terms of the landscape and the natural environment quality. The aim of such activities is improving more effectively the quality of life for all inhabitants of rural areas. This assumption implies taking up special actions, setting priorities and instruments needed for their realization which are coordinated within operational programs (Support… 2005; Assumptions… 2006).

**Research aim, material and organization**

Rules of sustainable development define a proper production system on the farm providing guarantee for wise and rational use of natural resources and enabling to maintain its biological diversity which can be realized through matching the species of plant and animals with farming conditions and also using appropriate production technologies ensuring sustained soil fertility. In this kind of farming substitution of material means by knowledge and high qualifications of farmers plays a very important role. Their theoretical knowledge and experience are of great importance for efficient production planning on the farm allowing to reach a wide market and high social position. Unfortunately, due to complexity of the concept of sustainable development, this knowledge is quite frequently misunderstood or wrongly perceived by farmers. Thus they need guides who will be able to direct farmers’ activities in the right way. In Poland this role has been played successfully by agricultural counsellors for many years.

The purpose of this work is to verify the assumption that agricultural counsellors have a significant influence on implementation of the sustainable development in rural areas.

Moreover, their role is not limited only to educating farmers theoretically and practically but also involves assistance with planning sustainable farm production, as well as providing information on the subject of possibilities of using financial means designed for support of ecological activities
in rural areas. For this purpose, surveys were carried out among Polish farmers whose aim was to check to what extent they take advantage of services of agricultural counsellors employed in agricultural counselling centres. The first surveys were addressed to 714 agricultural producers at the turn of the years 2002 and 2003, that is, right before Poland’s integration with the European Union structures. The following surveys were performed among 132 farm owners, in the year 2008, that is, after a few years of Poland’s membership in the EU. The basic method of gathering information was the method of diagnostic sounding in the area where the surveys were carried out. Material gathered in this way was encoded in a computer data base and then was subject to statistic analysis. Additional advantage of diagnostic sounding is that it has an impact on the surveyed objects, that is, respondents. It often happens that thanks to the surveys the farmers had the first opportunity of becoming familiar with the idea of sustainable development of rural areas, and they could acquire more information on the subject. Thanks to this, the way they perceive the surrounding environment and natural resources can turn into more environmental friendly.

Results and discussion

Fulfilment of all the sustainable development criteria in farm management requires its proper organization, enabling optimal use of production factors, that is, land, work and capital (Helander, 1997). Therefore, in order to make the most of the farm potential and its resources, it is advisable to follow two main production courses simultaneously: grow crops and raise animals (Duer & Fotyma, 1999; Lantinga et al 2000; Lantinga & Rabinge, 1997).

The fact that the majority of farmers participating in the surveys fulfilled this requirement, having declared the mixed type of production, is optimistic (Figure 1). Integration of these two kinds of productions allows for more effective use of agricultural products and their further processing into animal fodder, thereby obtaining at least partial independence from temporary variable tendencies governing the purchasing market of agricultural products. Moreover, fertilizers obtained from animal breeding is a perfect supplement for mineral fertilizers, and in some cases, it can be the main source of NPK provided to land under cultivation.
The sum of responses in 2002/2003, exceeds 100%, because the respondents marked more than one answer)

Figure 1. Main production course within the examined farms

The most important information source used by farmers in the process of sustainable production planning was (surveys from 2002/2003): mass media (television, radio), newspapers, as well as, courses and trainings organized by agricultural counselling centres (Figure 2). Specialized books, the internet and information obtained from other farmers enjoyed less popularity than the above mentioned media. As the surveys from 2008 year revealed, farmers’ preferences have slightly changed recently as according to them they have started to attach more importance to competence and professionalism of information sources (Figure 2). Agricultural counsellors organizing courses and trainings have moved onto the first position, whereas, branch newspapers have dropped to the second place. Radio and television have lost popularity, however, farmers have started
more willingly to use the internet as a reliable information source on sustainable farming.

(The sum of responses exceeds 100% because the surveyed farmers could mark a few answers)

Figure 2. Main information sources used by the surveyed farmers
The above results prove that the role of agricultural counsellors in the educational process on behalf of sustainable development in rural areas is constantly increasing. As early as during the first of the presented surveys (from 2002/2003) a high level of competence on the part of agricultural counsellors was noticed by the respondents. Their actions were appreciated by farmers as the most reliable source of information helpful in the process of farm management (Figure 3). More than half of the respondents admitted having consulted counsellors before making economic decisions. In the carried out surveys, there can also be found confirmation of the theories of innovation diffusion and imitation diffusion (Rogers, 1995). Farmers frequently observe their neighbours and follow the patterns of their activities within their own farms. Every third respondent admitted taking into consideration advice of more wealthy farmers, that is, those who had achieved a market success. Also, advice given by family members, experts performing in agricultural television programmes or farmers of similar living standards was declared to be accepted by respondents.

(The sum of responses exceeds 100%, because the surveyed could mark a few answers)
One of the functions of agricultural counselling is playing the role of a constant education centre in the rural communities. These activities include, organization of group meetings and individual counselling during which farmers are informed on technological novelties (Van den Ban & Hawkins, 2002), as well as on the possibilities of being granted financial support from support programmes.

After integration with the European Union, in May 2004, Poland came under the instruments of the Common Agricultural Policy which resulted in replacing the previously existing systems of the country’s interference by solutions used on the market of the Union. In the first period of membership within the structures of the EU, there was implemented the Plan of Rural Areas Development for the years 2004–2006, which as an operational document, defined goals, priorities, and rules to support sustainable development of rural areas. It accounted for social, economic, and environmental (ecological) aspects in a way consistent with other structural programmes (Plan… 2006). As the examinations carried out in 2008 (Figure 4) show, the knowledge concerning possibilities of using the funds supporting sustainable development, acquired during trainings organized by counsellors, was highly valued by respondents. Most farmers were satisfied with the work of counsellors which in their opinions reflected well, both on their expertness and abilities of communicating with farmers.
The idea of sustainable development is a very interesting subject for theoretical consideration and practical actions. The role of sustainable development of agriculture in planning rural areas development is getting more and more important which finds reflection in the change of the course of the European Union Common Agricultural Policy which had been started at the end of the previous century. The current policy of rural areas development focuses on improvement of competitiveness of agricultural sectors, forestry, fishing, creating local employment potential and diversification of income sources, thereby increasing living standards in rural areas. Realization of these priorities must take place in harmony with the natural environment and respecting the necessity of
maintaining its biological diversity. Thus, it is obvious that agriculture and rural areas must come up to economic, social and environmental requirements. The tools boosting economic, social and environmental growth are special assistance programmes coming from the EU budget, completed with funds allocated by the governments of the member countries.

Due to complexity of the farm sustainable development issue, in practice, it appears to be very difficult to find a fully sustainable farm which fulfils all its requirements and criteria. Bearing in mind that a sizable number of Polish farmers are aware of many of the sustainable development assumptions which are environmental friendly (Prus 2008), it can be said that the concept of sustainable development of individual farms in Poland is likely to come true. It is hard to change all habits and farming methods, immediately. It can happen gradually, through changing production rules during a few or, in some cases, even several years. To tell the truth, this requires wide knowledge and skills on the part of the farm owners, but, in return, can lead to sustained improvement of the economic situation, as well as achievement of intangible benefits, such as, betterment of living conditions in rural areas and satisfaction with the ecological production methods.

The key to sustainable development of rural areas and individual farms in Poland appears to be raising ecological awareness among farmers, many of whom have already noticed problems connected with the natural environment, and tried to improve their knowledge and skills in this field (Prus, 2008). Agricultural counselling plays a very important part in this process, and the counsellors are highly valued by the agricultural communities. Thereby, they have a significant influence on the course of development of the Polish agriculture. Indicating production mistakes which have a negative impact on the natural environment and extending producers’ knowledge, the counsellors are part of education on behalf of sustainable development of rural areas. Another function being of great importance is informing farmers on the financial support obtainable from the national budget and the European Union, promoting activities beneficial for the natural environment and rural areas, as well as improvement of the quality of life, preservation of biological and economic diversity in the areas.

References


Possibilities of supporting children with special educational needs in Estonia through cooperation between the educational, social and medical fields

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Abstract
The paper gives an overview of the situation of children with special educational needs in Estonia, points out the absence of necessary supporting systems that would ensure the child’s better development. On the example of one school, solutions are given on how all necessary supporting systems can reach the child if supporting systems are applied network-based. Some proposals are made regarding what should be changed in educational, social and medical fields so that the child with special educational needs would get necessary support throughout the way into the adulthood.

**Key words**: special needs; support system; network cooperation; teamwork coordination; equal opportunities.

**The topic and situation of the study**

Children are with special needs if they differ due to their abilities, cultural or social background, and/or personality from their contemporaries to such an extent that they need the reorganization of the environment in order to reach their full developmental potential. Special needs which appear in the preschool age are called special developmental needs, whereas in the case of school-aged children they are called special educational needs (Kõrgesaar, 2002). Special needs have been divided into the following categories: visual impairment, hearing impairment, physical disability, speech impairment, mental disability, learning difficulty and health disorder.

The topic of the present study is the situation of children with special needs in Estonia’s special needs schools and the possibilities of improving it through cooperation between different agencies. The empirical study is, on the one hand, concerned with describing the situation of the schools for children with special needs in Estonia and, on the other hand, with analysing cases that have been chosen from Tartu Herbert Masing School.

According to the existing studies and empirical experience of the author, many support services provided in Estonia do not reach children with special needs and the network-based implementation of these services would provide a better basis for the development of children with special needs.

**Theoretical background**

Urie Bronfenbrenner's ecological systems theory
According to U. Bronfenbrenner’s theory (1979), a person’s living environment has an impact on its development. The socio-ecological theory delineates four layers of nested systems which interact in complex ways and can both affect and be affected by the person’s development. The four types of systems contain roles, norms and rules that shape development. The system includes a microsystem, mesosystem, exosystem, and macrosystem. The microsystem is the family, classroom, or systems in the immediate environment in which a person is operating. The mesosystem is two microsystems interacting, such as the connection between a child’s home and school. The exosystem is an environment in which an individual is indirectly involved and is external to his experience. The macrosystem is the larger cultural context.

U. Bronfenbrenner (1992) describes a person’s transition from one microsystem to the next as an ecological transition. The smoothness of the transition depends on whether the rules in the new microsystem have also been applied earlier, whether the new rules are explained, and whether there is someone from the previous microsystem who accompanies the transition.

The macrosystem can be thought of as the “social blueprint” of a given culture, subculture, or broad social context and consists of the overarching pattern of values, belief systems, lifestyles, opportunities, customs, and resources embedded therein. This system is generally considered to exert a unidirectional influence upon not only the person but the lower-level systems (i.e. micro-, meso-, and exosystems) as well.

The doctoral thesis Possibilities of Supporting Children with Special Needs as Cooperation Between Educational, Social and Medical Fields by Tiina Kallavus gives an overview of the possibilities, situation and needs of the macrosystem and microsystem that are needed for supporting and teaching children with special educational needs.
Maslow’s hierarchy of needs

Maslow (see Simons, Janet A et.al., 1987) has set up a hierarchy of five levels of basic needs. Beyond these needs, higher levels of needs exist. These include needs for understanding, esthetic appreciation and purely spiritual needs. In the levels of the five basic needs, the person does not feel the second need until the demands of the first have been satisfied, nor the third until the second has been satisfied, and so on. Maslow's basic needs are as follows:

Physiological needs are biological needs. They consist of needs for oxygen, food, water, and a relatively constant body temperature. They are the strongest needs because if a person were deprived of all needs, the physiological ones would come first in the person's search for satisfaction.

Safety needs. When all physiological needs are satisfied and are no longer controlling thoughts and behaviors, the needs for security can become active. Adults have little awareness of their security needs except in times of emergency or periods of disorganization in the social structure (such as widespread rioting). Children often display the signs of insecurity and the need to be safe.

Needs of love, affection and belonging. When the needs for safety and for physiological well-being are satisfied, the next class of needs for love, affection and belonging can emerge. Maslow states that people seek to overcome feelings of loneliness and alienation. This involves both giving and receiving love, affection and the sense of belonging.

Needs for esteem. When the first three classes of needs are satisfied, the needs for esteem can become dominant. These involve needs for both self-esteem and for the esteem a person gets from others. Humans have a need for a stable, firmly based, high level of self-respect, and respect from others. When these needs are satisfied, the person feels self-confident and valuable as a person in the world. When these needs are frustrated, the person feels inferior, weak, helpless and worthless.

Needs for self-actualization. When all of the foregoing needs are satisfied, then and only then are the needs for self-actualization activated. Maslow describes self-actualization as a person's need to be and do that which
the person was “born to do”. These needs make themselves felt in signs of restlessness. The person feels on edge, tense, lacking something, in short, restless. If a person is hungry, unsafe, not loved or accepted, or lacking self-esteem, it is very easy to know what the person is restless about. It is not always clear what a person wants when there is a need for self-actualization.

The principles of Maslow’s hierarchy of needs provide the base for better supporting. According to these principles, the effective learning process can not take place until all the basic needs are satisfied e.g. needs of physical and emotional well-being.

**Supporting systems in Estonia**

There are many possibilities to support children with special needs. The variety and the reaching of supporting systems differ regionally and it depends on the local government and geographical location. Health care determines the need for medical care. It establishes the cause of the disorder, suggests the proper medical treatment, surgical treatment, rehabilitation and secures the accessibility of the medical care based on individual needs. The social care determines a person’s need for external aid and support services for satisfactory coping and ensures the necessary social assistance. The educational system determines children with special educational needs and secures the accessibility of the necessary pedagogical aid (the suitable form of study, curriculum, etc). Supporting systems in Estonia according to the fields provide them:

- medical support according to the Estonian Ministry of Social Affairs *(see Social Welfare)*: medical care and medical rehabilitation;

- social support according to Estonian Ministry of Social Affairs *(see Social Welfare)*: welfare, supporting systems and counselling;

- educational support according to Estonian Ministry of Education and Research *(see Supporting Children with Special Educational Needs)*, ensuring equal educational opportunities:

  1. inclusion in mainstream schools:
a) child with special educational needs in a mainstream class;

b) special classes;

c) supporting systems (speech therapist, psychologist etc.);

d) individual study curricula following each student’s developmental needs;

e) studying at home (with possibility to attend lessons of music; arts, handicraft and physical education);

(2) schools for children with special needs:

a) classes according to the diagnosis;

b) individual study curricula;

c) supporting systems (special education teachers, speech therapists, supporting teachers, psychologists and social pedagogy teachers).

Methods

Both quantitative and qualitative research methods were used. The main method was qualitative research and the following qualitative research methods were used: case study, phenomenological study, action study. The quantitative research was mainly based on questionnaires filled in at schools for children with special needs. Besides questionnaires, interviews, observation, intervention and document analysis were also used for collecting data.

Case study studies a phenomenon in its natural environment. 3 cases were chosen from Tartu Herbert Masing School. The cases represent extreme as well as typical cases of different diagnosis. The parents were interviewed, transfer documents were studied e.g. personal files, reports from doctors and other specialists. The phenomenological study was based on the examiner’s
experience. The author of this doctoral thesis has work experience in social as well as in educational fields. Action study is smaller intervention projects carried out in a natural environment), it included practices used at the Herbert Masing School.

The quantitative research was conducted in the entire Estonia e. g. which supporting systems are provided in which special schools and how the cooperation between different fields is arranged in different special schools (medical, social and educational fields). 43 questionnaires were sent to special schools in the years 2007/2008. The search was conducted only in special schools, the research did not involve children with special needs in mainstream schools.

The main purpose for using different research methods was to get comprehensive data. Using only one research method can lead to false conclusion and provided information is often one-sided.

Results

The environment influences a child’s development and, according to the results of the study of the doctoral thesis, it is possible to make following quantitative results.

It can be said that there is no overview of the exact number of children with special needs in Estonia. The reasons are that there are different interpretations of special needs in different fields and that the regulations have not yet been brought up to date. From the study came out that round 68% of children with special needs in 43 special educational needs Schools are not dealt with in time and there is poor performance in early detection. It also occurred that the organization of study and funding of schools do not take sufficient account of children’s special needs, for example children with special needs do not have the necessary study materials, there is a lack of teachers and other specialists and the learning environment in many schools needs improving. The research also showed that the ability of special needs schools to provide the necessary health and rehabilitation services to their pupils is limited.

One of the qualitative results was that the role of the counseling committee is formal, the committee works only with the provided papers and it does not have a direct contact to the child with special needs. Some of the
mentioned results were also brought out in the Education Opportunities of Children with Special Needs’ report of National Audit Office of Estonia (see Education Opportunities of Children with Special Needs, 2006).

The main observations of the National Audit Office of Estonia can be pointed out. Firstly, there is no agreement on which children to consider as children with special needs and the exact number of these children is unknown. Therefore, there is uncertainty in the organisation of the education of the children with special needs, which impedes the organisation of educational activities and causes unequal treatment of the children with special needs. Since it is not known whom to consider as children with special needs, reliable and exhaustive information about all children with special needs has not been gathered to the Estonian Information System for Education (EHIS). Secondly, a large portion of children with special needs is not dealt with at the right time. Children’s special needs usually become evident before school or in the first stage of school. According to experts, it is possible to eliminate, treat or alleviate the special needs of children, provided that they are attended to at the right time. However, in reality in a third of the cases the special needs are noticed and a suitable curriculum or a suitable school is determined for the child as late as in the second or third stage of school. Upon implementation of the support systems necessary for children with special needs, the problems of cooperation between different parties and the uncertainty of the parties’ obligations became evident. The required support systems are implemented too late for many children. Thirdly, the educational conditions need improvement. The audit indicated that the teaching aids for the children with special needs are insufficient, there is a lack of required specialists and the study environment in most schools needs adjustment. The educational conditions designed specifically for the children with special needs were usually better in the special needs schools, but even the latter could not ensure all the required conditions. The activity of the special needs schools in providing the students with treatment and rehabilitation services is limited.

The research showed that the help provided by the existing support structures does not always reach the child with special needs because Estonia does not have a national support system for the development of children with special needs that would combine all the support services provided into an effective cooperation network. It is possible to get many different supporting services, but the services are not provided in one institution. Some of the services are provided by the medical, some by the social and some by educational field. There also does not exist effective system for the early detection and intervention in the case of a special need. The cooperation between government departments
is insufficient and the services provided are not client-based but field-based. Because of the field-based provision of the services there should be coordinators who have all the information about the provided supporting systems. There is also lack of specialists, for example, certain type of psychotherapists, specialists for multilingual children.

It was revealed that the most effective system which guarantees the reaching of the services to the child is the parent’s awareness. The reaching of the services differs regionally and it depends on the local government and geographical location. The cooperation of the specialists is mostly individual-based, not systematic. Often they have no knowledge about the work of the specialists from the other fields of the child’s support system.

**Possibilities of a school in the case of cooperation between different fields**

In order for the intervention to provide better possibilities for the child’s development, the family has to participate in the intervention process. The intervention process starts with diagnosing. The family plays an important role in sharing the medical information to the teams as well in social and educational fields. According to the Personal Data Protection Act (see Personal Data Protection Act, 2009), giving out person data is prohibited. Under personal data is meant information relating to an identified natural person or a natural person identifiable by reference to the person’s physical, mental, physiological, economic, cultural or social characteristics, relations and associations. As private personal data is considered: (1) data revealing details of family life; (2) data revealing an application for the provision of social assistance or social services; (3) data revealing mental or physical suffering endured by a person. Sensitive person data are (1) data relating to the state of health or disability; (2) data relating to genetic information.

Different institutions have no right to share personal information concerning the child. Only the parent has the right to share it. The parent is not obligated to share information concerning the child. In order for a child to get the best possibilities for one’s development, all the necessary information should be provided to the institution. Sufficient application of supporting systems has to comprise all the child’s special needs.
The ideal situation in terms of the health, social and educational services provided to children with special needs

The organization of the work of the support systems in Tartu Herbert Masing School

On the example of Tartu Herbert Masing Schools it is attempted to establish working supporting system that involves educational, social and medical supporting services that would support the child’s development.

The pupils at Tartu Herbert Masing School have somatic diseases, physical disabilities or multiple disabilities, diseases of the nervous system and/or mental disorders (excluding mental retardation but including the autistic syndrome). Many children have more than one diagnosis and also belong to different special needs groups. A special learning environment has been created for autistic children. The lessons are structured both in time and space and the children are taught by experienced teachers and assistant teachers.

The school’s general aim in teaching and childcare is to raise a socially competent individual with learning skills, to improve the pupil’s health, and to raise the self-esteem of pupils with incurable diseases and teach them how to cope with their illness.

The aim of the rehabilitation provided in Tartu Herbert Masing School is to help the students to become as independent as possible despite their disabilities. The rehabilitation also aims to teach strategies for ongoing disabilities. The rehabilitation team consists of a number of professionals who are trained in different areas of rehabilitation. They provide physiotherapy, speech therapy, and psychological and socio-pedagogical counseling. The rehabilitation involves cooperation between health and social departments.

The rehabilitation centre provides services for children, youngsters and grown-ups. The establishment of a centre that would provide aid in studying and different leisure activities is in progress. The goal of the centre is to unite different activities from different fields in order to support children with special needs on their way to adulthood.

The ideal situation would be where the medical, social and educational systems as well as the child and the family work as a team, every member of the team having clear responsibilities and tasks in order to achieve the child’s maximum developmental, intellectual and health potential.
The example of Tartu Herbert Masing School shows that the child with special needs can access services provided by different fields in one school. This has to be preceded by early detection, informing and supporting the parent, and the coordinated cooperation between special systems (medical, social and educational) at different levels. Also, the process of providing these services is ongoing and new services and an optimal cooperation model for educating children with special educational needs have to be developed.

Summary

The role of the family in child rearing is decreasing. Special schools are placed in a situation where the society and parents expect a child’s education to bring about his/her all-round progress, including the rehabilitation of the child’s previous negative experiences, new behavioural models, socialization, and preparation for the adult world. This places special schools in a situation where they have to provide as many support services as possible in order to fulfil all those expectations, and the support services and existing specialists have to be joined into an effective coordinated network.

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Education for Sustainable Development and e-Learning

Sustaining positive motivation and credit value through blended learning

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Abstract

Based on an empirical study the paper describes a blended course design that provides an optimal balance between student workload and positive motivation. The objective of the study was to define a curricular design of new-media and web-based teaching and learning methods that motivate students for reaching higher competence with less perceived effort or stress. The development of the course is importantly based on a two-year qualitative and quantitative inquiry on how students perceive new-media and web-based approaches to blending traditional (class-presence) and online studying in terms of affecting their workload. The analysis of first-year students’ opinion gathered through annual surveys is set against the background of current discussions about time management and student workload. It is confirmed that blended approaches to teaching and learning such as using LMS-integrated features like forums, blogs or multimedia, especially if combined with carefully designed face-to-face meetings, increase both the hour-per-credit value of a course as well as student satisfaction. Specific differences among course design elements as well as between full- and part-time students are evident, and several sustainability issues arise.

Key words: blended learning; e-learning; new media;, motivation; workload; time management; sustainability; Moodle.
The resource of time

A proper management of resources seems to be returning as one of pivotal issues of today's society at large, presently reaching a further peak after the renaissance of ecology in the seventies. And while the last decades of neoliberal economical thought and practice get bitterly revised in the face of the global financial and economic crisis, new priorities are being defined, novel models of dedicating and organising financial and material, and not least temporal or even cognitive resources are emerging. While financial and material assets are being discovered as relative and inconstant, the resource of time is still widely accepted as a linearly, equally distributed good, of which every individual or group is granted an equal amount – at least at the beginning, and theoretically. Whereas practically, there are many divides remaining in the realm: such as e.g. life expectancy, even if more than doubling in the last two hundred years, but remaining largely different throughout countries and even social strata (Riley, 2001); or the contemporary forms of unfree labour (ILO, 2005) etc.

The contemporary western societies proverbially value time as money. And the latter is said to make the world go around – and even if at the cost of negative globalisation (Garson, 2002). As a linear dimension time is, even if this be seriously disputed at highest science levels ever since (Einstein, 1920), by and large understood as an evenly distributed resource and a constant that is – along with the dimension of space – objectively defining the presence of man and matter. The invariable flow of time is, however, challenged also by human subjective impressions or states of e.g. ‘boredom’ (where time appears to run more slowly than usual) or its antonyms of ‘excitement’, ‘interest’ or ‘pleasure’ and even ‘stress’ (where time seemingly passes faster than usual).

Aims and research method

Thus, this article aims to firstly discuss both the cultural and the pedagogical background of time-management based motivation and secondly to elaborate this discussion with empirical data from a two-year qualitative and quantitative inquiry on how students perceive new-media and web-based approaches to blending traditional (class-presence) and online studying in terms of affecting their workload. After defining the possible pivotal elements of positive and negative motivation in the course design through both literature review and own observation of the target group, first-year students’ opinion was gathered through
annual surveys and analyzed statistically (approximately 150 students per year in several runs of the same course, separated full-time and part-time). Both quantitative and qualitative (observation) empirical data are set against the background of current discussions about time management and student workload, with a special attention to specific differences among course design elements as well as between full- and part-time students. Thus the paper arrives at a viable model of a curricular design of new-media and web-based teaching and learning methods that motivate students for reaching higher competence, with less perceived effort or stress.

**Time as an issue of student workload**

Similar divides as in other resources mentioned above can be recognised also in the realm of the knowledge resource that is quite similarly being spread unequally among countries and social strata – even if perhaps somewhat balanced with the globalising effect of migrations and especially new technologies. Even formal learning is increasingly becoming a life-long activity, thus the process of studying can be perceived as underlying the same personal (or group-based) economy of resource management as e. g. labour. Especially within the current process of introducing the Bologna principles into European higher-education systems, time is directly connected to credit value through the European Credit Transfer System (ECTS), defining a quantitative unit of study (one credit point) by time spent studying (25 to 30 hours). Being ‘based on the workload students need in order to achieve expected learning outcomes’ the ECTS credit points award ‘all learning activities (such as lectures, seminars, projects, practical work, self-study and examinations) required to achieve the expected learning outcomes’ (Education and Culture DG, 2007). In spite of this quantitative definition the importance of spending learning time in sensible, didactically well designed activities and subject-relevant contexts (as linked to learning outcomes) should not be underestimated. As the Bologna process remains importantly biased by the neoliberal legacy of the past decades, the strong metaphorical connection of such educational ‘credit’ to its primary connotations in the realms of economy and management should not be neglected at this point. Interestingly, in a representative study of 2007 the students of Bologna-renewed study programmes in Slovenia proved to be less satisfied with their study experience in terms of workload (70 hours per week opposed to 57 hours average weekly workload for students of traditional programmes), even if the their overall workload compared to the results of the 2005 study has slightly decreased (Evroşudent 2007).
All the above can be thus seen in support of the fact that assessment of actual student workload is an essential method when introducing new study programmes, and especially when revising existing curricula. Above all curricular revisions can be understood as renewals of collective or individual processes of personal or educational growth. Taking a firm hold in the higher education sector, the workload issue has recently been spreading also onto lower stages of the educational system, enabling better vertical comparability and transparency as well as horizontal equity among different programmes and countries alike. In alignment with the Bologna process such assessments are to be implemented at least annually in the case of newly introduced study programmes (and only until the first generation of students has graduated), afterwards at least every two years.

**Assessing perceived workload**

The methodology of such assessment is usually based on self-evaluation of students about their ‘actual’ (i.e. actually, objectively delivered) total workload, usually conducted through questionnaires, occasionally combined with qualitative methods of structured interviews or even focus groups, additionally the collaboration of student representatives can be of great importance in balancing the (otherwise still fairly representative and reliable) quantitative statistical count. From the perspective of school management, besides students the triangle of workload measurement would need to include teachers as well who naturally want to control and positively influence learning motivation and group atmosphere, whereas school managers are usually concerned with benchmarking of their graduates and the public image of their education institution. School managers, teachers and students are thus interconnected (together with secondary stakeholders such as parents, publics etc.) in a triangle of quality assurance (partnership) that is, as the present article argues, importantly linked to the issue of student workload.

Many existing investigations align in that the student's quantitative self-assessment of study workload (usually taking in the whole study process in one measurement) is still subjective to such an extent that it is not really relevant or useful for course planning or revision purposes. Admittedly, the impression of time passed is strongly subject to factors of motivation that are dependent on teaching methods as well as forms and contents of study materials and not least forms of assessment. D. Kember (2004) also defines those curricular structures of study programmes and course implementation designs that regulate all the above mentioned elements, and stresses the strong impact of personal relationships
between teacher and student (group). The ‘perceived workload’ – the prevailing negative connotation of ‘workload’ should also be taken into account – also depends on student overall satisfaction with a course, the collective learning climate, interpersonal relations in the group and other complex (usually only qualitatively definable) factors. This is why the present article, next to firm quantitative analyses, also includes qualitative data obtained through first-person interaction between teacher and students (semi-formal discussions with students within and after presence class, or in forums and blogs online), as well as through open questions in the anonymous questionnaire.

An important drawback in assessing student workload is also the problem of clear segmentation of this workload in terms of exactly ‘what’ is it that burdens (or relieves) the student ‘how much’. This is further complicated also by the fact that the self-observing student – as a life-long learner becoming increasingly aware of her or his learning processes – is also an active (co)manager of her or his own study experience. Specific combinations of teaching methods and course designs thus have to be taken into account every time a workload measurement is conducted, and qualitative methods of observation are to be used complementarily. The exactness of quantitative measurement can be further compromised by the strong influence of personal learning motivation that can lead the student to ‘feel’ her or his workload lower (positive learning motivation, also affinity to the subject) than the ‘actual’ hour count would show. A higher learning motivation enables the student for reaching learning outcomes with less (subjectively) perceived effort, and also in shorter (objectively measured) time. Student's personal work ethics, cognitive preference and capacity of tackling complex, parallel learning processes can also importantly influence not only the perceived but also the actual time needed to reach a learning outcome.

**New media for measuring and sustaining positive motivation and mredit malue**

A reliable model in terms of sustainable quality management of the learning process is most probably still the investigation of hours spent for individual activities. Most telling results can be achieved by measuring specific student preferences for interactions with specific (or several selected) elements of the course design. In online and blended learning models this is easily possible through visually perceivable entities (such as icons, frames, rows or columns in a learning management system – LMS, e. g. Moodle or Blackboard). They can support students in focusing on individual activities or course design elements,
and thus enable more exact feedback in terms of differentiated workload measurement or preference – of course, therefore, the student has to be informed or even accordingly sensitized for self-observation in advance. Here a potential drawback is the over-attentiveness to the measured elements (missing the spontaneously incurred study activity). Thus the present study focuses only on those elements that are naturally perceived by students as entities of activity (Purg 2009), such as individual and collaborative tasks or material-based (home)work assignments on the one hand, and individual applications such as blogs, forums, chats, wikis etc in an LMS on the other.

Beyond doubt the World Wide Web and the Internet at large have brought different parts of the world nearer, the (perceived, but also measured) time of information transmitting and processing has drastically decreased due to electronic, digital and above all mobile communication technologies. But in terms of a paradox, the present information and communication technologies (ICT) obviously do not decrease the everyday processing workload – usually discussed as ‘information overload’. The immanently multitasked and multimedia-enabled human brain can still easily get overburdened by the soaring computation speeds of new technologies forcing the gradually evolving brain into memory malfunction or attention deficit disorders (Klingberg, 2008). So how can, especially in educational contexts, new technologies be used efficiently, but yet sustainably – and how can they help not only to assess perceived student workload, but also to decrease it?

The above dilemmas of assessing and balancing student workload can benefit from the positive cultural as well as technological trends in the use of new media, especially of the Web in combination with the personal computer – of course increasingly in their mobile, multi-local and omni-accessible hybrids. Due to their leading social role in all segments of human existence these technologies naturally come into use in the realm of education, taking on specific forms and often spearheading the developments of (critically) creative as well as (industrially) productive usages of ICT. The Web is implemented as the most potent (even if also unreliable or even dangerous) source of information and study materials as well as a medium and platform for learning processes at large. Under the condition of technically guaranteed anonymity of data acquisition, processing and archiving an online questionnaire conducted within an LMS can prove as an optimal tool for assessing student workload. Moreover, the applications in an online study environment and especially their use in blended educational settings become positive motivation factors. In the following analysis of empirical data, new media and especially the Web is proved potent for
positively ‘relieving’ the educational process, thus raising not only the motivation of students but also the credit value of their education.

**Workload and motivation optimized through blended learning**

The above assumptions and predictions are checked against a representative body of quantitative empirical data from a topical questionnaire, and complemented with selected qualitative observations. Individual (blended) course design elements that show great significance for decreasing the perceived student workload and increasing motivation are discussed into some detail. The research was carried out on two comparable groups of students attending the same course under the leadership of the same teacher (first author of the present article), with exactly the same contents, aims, outcomes as well as learning, teaching and assessment strategies – yet conducted in two different schools. Furthermore, the larger group (however, with a lesser questionnaire response) were full-time students, and the smaller one were part-time students who attend courses in the afternoon and combine studying with regular work (full-timers attend in morning or midday and only rarely work full-time besides studying). ‘Introduction to Media’ is the introductory course of a recently Bologna-renewed higher vocational education programme ‘Media Production’ in Slovenia. Both course runs lasted 10 weeks and were completed by mid-December 2008. Table 1 shows the comparison and calculation of ‘hours per ECTS credit point’:

**Table 1. ‘Study Workload and Motivation’ questionnaire response overall statistics in 2008/09**

<table>
<thead>
<tr>
<th>Mode of study</th>
<th>Full time</th>
<th>Part time</th>
</tr>
</thead>
<tbody>
<tr>
<td>School</td>
<td>Institute and Academy of Multimedia (Ljubljana)</td>
<td>IZ HERA (Ljubljana)</td>
</tr>
<tr>
<td>Blended learning concept</td>
<td>3 hours per week face-to-face, plus regular online activities</td>
<td>6 hours weekly every second week, plus regular online activities</td>
</tr>
<tr>
<td>Number of students</td>
<td>132</td>
<td>17</td>
</tr>
<tr>
<td>Questionnaire response</td>
<td>57% (75 out of 132)</td>
<td>94% (16 out of 17)</td>
</tr>
</tbody>
</table>
Interestingly, such a high hour-per-credit ratio is only very rarely achieved in higher education programmes across Slovenia, and Europe – as the 25 hours-per-credit ECTS minimum is usually considered quite unrealistic (by teachers or school managers) in practice even for full-time programmes. A similar investigation in year 2007/08 (Purg, 2009), i.e. before the course had been Bologna-renewed with further blended and new-media activation strategies, showed that both full-time and part-time students worked approximately 16 hours per credit, yet with no perceivable differences in overall student satisfaction between the two years, or groups. This could mean that correctly implemented blended and ICT-based course design elements significantly raised the ‘hours per ECTS credit point’ (i.e. ‘actual’ credit) value of the course – yet without additionally burdening the students. These elements shall be discussed into some detail in the following.

**Burdening effects of ICT in blended learning**

Figure 1 below shows ‘Study Workload and Motivation’ questionnaire response to the question about aggravating, burdening effects of particular course elements:
Figure 1: ‘Study Workload and Motivation’ questionnaire response in 2008/09 to the question about aggravating, burdening effects of particular course elements.
In an overall comparison, it is immediately clear that regular homework tasks (weekly assignments of 400-800 words + multimedia) as well as seminar paper work (peer-developed topic- and method-prescribed paper of 1200-1800 words) were assessed as the most aggravating – yet with significant difference in part-time students (31%) shunning regular homework less than full-timers (48%) who in turn felt seminar work to be less burdening (33%) than their part-time colleagues (56%), as it is depicted in Figure 25. An important fact here is that seminar work had to be turned in as a written thesis paper according to rigid rules of traditional academic writing – even if submitted electronically. Seminar topics were offered for equal-access choice through a wiki platform, and wikis were partially used for coordinating blended coursework as well. Interestingly, both of the elements were at the same time assessed as relieving – 12% in both groups felt seminar work to have an unburdening effect on them and very high percentages of both full-timers (31%) and part-timers (25%) thought regular homework (also submitted online) was actually relieving, which arguably shows a positive balancing effect of LMS support.

Full-time students being slightly younger on the average (yet having more time at their disposal for study activities) surprisingly disliked blogging as a form of study communication and element of assessment much more than their part-time colleagues. Blogging was felt as relieving only by 4% of full-timers and 6% of part-timers, this probably owing to its regularity and the fact that some were not acquainted with blogging. The (fully blended-course-design compatible) coursebook was available only in electronic version (PDF format, 130 pages, mostly text with few figures) and had obviously burdened quite a significant part of full-time students (17%), yet was not mentioned as aggravating by part-timers at all – but rather assessed as relieving by twice as much full-timers (35%), as well as many part-timers (31%). Coursebook chapters corresponded directly to the topics and thus to the individual meetings of the course, making this traditional format a welcome complement to the many digitally interactive course design elements.

**Relieving effects of ICT in blended learning**

Figure 2 below shows the ‘Study Workload and Motivation’ questionnaire response to the question about relieving, unburdening effects of particular course elements:
Forums proved as a very important unburdening course design element for both groups, yet significantly better favoured by the part-time students (69%; full-timers only 49%), whereas 9% of full-timers somewhat surprisingly felt forums to have an aggravating effect (Figure 1). This might be because part-time students were meeting in person less often than full-timers. Part-timers were also significantly more positive towards the following assessment elements (all 50%): exemplary oral-exam questions (presented to students in advance, but randomly picked from at the exam; liked by 31% of full-timers, disliked by 3%); oral exam being conducted in a group (of three as a discussion; much less liked by full-timers – 15% only, and disliked by 9%); cumulative calculation of the final grade (aggregated in percent from several assessment forms and according to distinct criteria: coursework, seminar work, seminar presentation, oral exam) was favoured by full-timers in only 35%. Interestingly third-party research with similar course designs has found that most probably there is no statistically significant relation between final grade and student workload – students that consume more time for their studying do not receive higher grades for this reason (Lesjak & Sulčič, 2007, p. 60).
Probably because of being slightly younger on the average and more cohesive as a community (spending more time together at school) the full-time students of ‘Introduction to Media’ significantly (37%; only 12% among part-timers) liked the music-video screenings at each meeting (non-topical selection of three videos by the same artist, called the ‘3V’ concept) that were in turn disliked by 12% of part-timers – and by none of full-timers. There was ambiguity towards seminar work presentation assessment form that made them present their topics either live in class or online through video-recorded materials or voice-commented slides (7% full-timers unburdened; not mentioned as relieving by part-timers at all; but felt as burdening by 13% full-timers and 12% part-timers). A difference in aptitude for set rules can be seen in a high appreciation of the possibility of turning in coursework online after submission deadlines among the full-timers (32%), remaining relatively low among part-timers (12%). They in turn favoured face-to-face group work in class much higher (19%) than the full-timers (5%), this perhaps owing also to a larger student group (66 per class full-time and 17 per class part-time).

All other relieving factors have been assessed very similarly by both groups, where topic and meeting-based structure (as graphically supported by the LMS Moodle, also strictly followed by the coursebook and all materials) were strongly felt as having an unburdening effect (51% full-time, 44% part-time, none negative at all). Similarly significant relieving effect was assessed for the coursebook (35% full-time, 31% part-time), the strongly Web-intertwined presentation slides (34% full-time, 19% part-time), and for the ‘videosken’ (15% full-time, 25% part-time) where a student would video-record the whole face-to-face event, then edit a 10-minute video document of this 3-hour meeting and post it online – for those who missed out on the meeting, or for final exam preparation purposes.

Many of the above facts (as confirmed or explained also by complementary qualitative results) show that workload in terms of learning activity as well as assessment-based stress could be effectively distributed along the entire duration of the course, especially because the LMS-based course design prevented students from postponing their learning activity toward the end of the course – otherwise a major problem in Slovene (and many other Central European) education systems. Interestingly, the freedom of choosing the best medium for their construction and presentation of knowledge or skills (e.g. preferring video recorded presentation to live, or forum discussions to in-class debates) also proved to have a relieving effect – in terms of an overall optimized and personalized teaching and learning system. And as the present research also
shows, spontaneous after-class discussions can be just as effective as regular semi-structured moderated discussions; in blended and distance learning settings forum discussions or even chats can help optimizing student workload as well, whereas independent student forums and chat-rooms or other, more complex Web 2.0 applications can offer further and significant added value.

**Conclusion – towards sustainable blended learning designs**

In terms of total student workload, it is to be noted that full-time students attended two further courses (of similar credit value) during the time of measurement, but part-timers only one. Thus complementary qualitative investigation showed that part-time students still felt more burdened by their overall study activity because it added to the 30 or 40 and even up to 50 working hours per week in their regular jobs. Consequently in such investigations students should generally be questioned also about other sources of regular daily workload – yet such complexity could have easily surpassed the framework and reach of the present research and analysis. Drawing from their immediate work environment (and also because some of them partly studied online during their working time) the part-time students were in position to link their study matter to concrete situations and examples in their working environment, thus making them both more responsive to and more responsible for the assignments and tasks of the course. This could also explain their above noted higher appreciation of discussion methods both online (forums) and face-to-face (group oral exam). Judging from their responses to open questions part-time students are also more likely to start combining their study activity with their actual working tasks (e. g. choosing a seminar topic or project of job-related interest) earlier and without explicit curricular support from the school to this important aspect of learning sustainability (this would also e. g. make them feel that study time has been ‘well spent’).

Admittedly, the present research was conducted on students of ‘Media production’, a programme mostly attracting media-savvy persons with fair command of ICT, pre-motivated to invest their energy into learning about and also through technology. Thus further and above all wider investigations would need to be conducted in order to assess and model strategies of sustainably introducing e-learning methods to other higher education programmes (including
customizing them to local or regional needs), and also to the secondary and primary school levels. The latter are of utmost importance because they can prepare and above all motivate students better for more complex ICT-supported learning processes in later stages of their life-long learning path.

An immediate response by the teacher or school management (usually in the form of an internal quality assurance board or similar, seldom an external body) is necessary when noticing anomalies in student workload. Usually this takes the form of an open discussion with teachers or other trustees (e.g., members of the QA board), possibly mediated through student representatives (as members of the same board) on formal as well as informal level. Formally an optimization of workload to the ECTS-prescribed ratio can thus be implemented and traced on at least an annual basis, but perhaps even more efficiently (or complementarily) settled already during the course of the academic year.

While controlling workload in face-to-face-only school settings might seem unproblematic, blended and autonomous learning settings call for more complex models that necessarily include ICT. Thus through the use of an LMS, school management (QA Board) in the above analysed cases could transparently follow and control the entire study process, from topical and temporal organisation to course activities and grading aspects – comparing it horizontally to other courses and vertically to previous academic years. In an LMS environment all student (and teacher!) online activities can be measured – thus if well designed, also live and autonomous offline activities such as assignment or seminar paper development can be traced, supported and measured online.

Carefully designed new-media and web-based teaching and learning methods obviously motivate students for reaching higher course-defined competence, with less perceived effort or stress – beyond doubt an important contribution to the present discussions and paradoxes about time management in an ever accelerated world. Not only does ICT overburden human body and brain or redefine traditional social relationships, used correctly it can help people learn faster and with less perceived effort. Most importantly, new media in education foster interactive knowledge and skill acquisition that is more sustainable in terms of being centred on the learner's actual needs, preferences and capacities, as well as sensitive to the ever changing environment.

References
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