UNIVERZITET U KRAGUJEVCU
PEDAGOŠKI FAKULTET U JAGODINI

UNIVERSITY OF KRAGUJEVAC
FACULTY OF EDUCATION IN JAGODINA

Posebna izdanja
Naučni skupovi, knj. 8/2

Special edition
Conference Proceeding No. 8/2

Tom II

Volume II

UNAPREĐENJE OBRAZOVANJA UČITELJA I NASTAVNIKA

OD SELEKCIJE DO PRAKSE

PROMOTING TEACHER EDUCATION

FROM INTAKE SYSTEM TO TEACHING PRACTICE

JEP-4107-2006

Jagodina, 2009

UNAPREĐENJE OBRAZOVANJA UČITELJA I NASTAVNIKA OD SELEKCIJE DO PRAKSE

Zbornik radova
sa međunarodne konferencije
održane 19–20. maja 2009. godine
na Pedagoškom fakultetu u Jagodini

PROMOTING TEACHER EDUCATION – FROM INTAKE SYSTEM TO TEACHING PRACTICE

Proceedings of
the international conference
held on 19–20 May 2009
at the Faculty of Education in Jagodina

Izdavač / Publisher
Pedagoški fakultet u Jagodini
Milana Mijalkovića 14, Jagodina, Srbija
tel/faks:+381 (0)35 223 805
www.pefja.kg.ac.rs

Održavanje Konferencije i objavljivanje Zbornika podržalo je Ministarstvo za nauku i tehnološki razvoj Republike Srbije

The organisation of the Conference and publishing of Conference Proceedings have been supported by the Ministry of Science and Technological Development of the Republic of Serbia

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Prevod rezimea na engleski jezik i korektura tekstova na engleskom jeziku
Translation of summaries into English and proofreading of English texts
Mr Vera Savić

Štampa / Printed by
Studio Jam, Beograd

Tiraž / Number of copies
200

Programski odbor / Programme Committee
Prof. mr Sretko Divljan, Prof. dr Matti Meri, prof. dr Mara Cotič, prof. dr Maria Tzani, prof. dr Hilmi Ibar

Štampanje završeno 2010. godine
ISBN 978-86-7604-080-3

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MULTIDISCIPLINARNI PRISTUP U OSNOVNOŠKOLSKOJ NASTAVI

MULTIDISCIPLINARY APPROACH IN PRIMARY EDUCATION

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UDK 371.3::811.14'02-028.31

MULTIDISCIPLINARY APPROACH IN PRIMARY EDUCATION

Abstract: This study which we present concisely belongs to the Basic and to the Applied Pedagogic Research and its aim is to study the pilot implementation of fundamental pedagogical and structural specifications that have been systematized in a multidisciplinary method of teaching of the ancient Greek language. The innovation of study is based on the application of a principle, which was placed in the basis of teaching of courses of corresponding age-related teams (K-12) in the classic Greek antiquity, according to which: the rhythm, the metre and the harmony constitute common characteristic traits of all arts and their principles can be applied in each region of teaching. The inquiring team, having been working since 2003 to today, five (5) relevant inquiring programs, with the financing of Committee of Researches of University Athens and other private and public institutions, elected these rules, which also systematized in a pedagogic and fuctional base, creating the basic metric-rhythmical families, with equivalent linguistic and musical examples. Moreover, it organised the knowledge base in a special software which follows the idea of genetic algorithms, in which obeys the grammar and syntactic of the Greek Language. In this way the children in Greece have the possibility to be taught the Greek Language, combining elements of Mathematics, Geometry, Music, Movement, Reason and Geography.

Key words: primary education, multidisciplinary approach, teaching ancient Greek language, ancient culture, discovery, comprehension.

The principal idea on which the study is based is that the modern person and education of 21st century owe henceforth to direct themselves to a region in which they will face as basic need the resolution of problems, not in a narrow sector of approach and search of cognitive information, but in one wider noological (mental), in which the importance is shifted to the region of process of the "problem solving". Under this view, the person is in the position to attempt the search of substance of cognitive region in the intellectual forms that result from its review. Via this study, we attempt to lead the children, to know in an experiential way the unique ancient heritage: the LOGOS, the ART and the MORALS/ETHOS, so that they can develop a long-term relationship with the ancient culture and different ways of thought, with the conviction that this will contribute in the qualitative upgrading of school education. Our objective was to explain the mechanism of language development in a child (the production and the composition); to show a child the wisdom that is hidden amongst the words,

the precision, the variety, the symmetry, the density, the discipline, but also the flexibility of Greek logos; and finally, to render to him the ancient texts from the prototype so that he can enjoy the REASON and the MORALS of persons that created a unique cultural phenomenon highest, inside the culture of the mankind. We consider that, if researchers from other countries of the Balkans, with whom we share a common musical basis and tradition, attempt also to apply the same method in their own countries, the results will be impressive.

II.1. General object

In the current era it is necessary, to guide the student to the discovery and comprehension of knowledge, with experiential way, with the process of mentoring [cf. our relative proposal in the 1st Pan-Hellenic Congress of Basic Medical Sciences (E.B.I. EU. - Evgenidio Institution): "From the Laboratorial Examination in the Clinical Application and Act". (Athens, 10/12/2005), in which we presented the conclusions of the research "the Greek Metre: a coded form of natural law", that was financed by the Committee of Researches National and Kapodistrian University of Athens, 2003-05]. The intention and objective of the research team was the obliteration of partiality and defective confrontation of the very importance and various problems that result in the particularly sensitive region of Learning and Education globally. The study is based on subjects that concern the Greek language because of its genetic character (it is the unique language in the world, which has this characteristic and for this reason it is studied by numerous specialists in many universities and inquiring centres throughout the world). The approach gave us sufficient elements in order to propose the change of the way of teaching of New Greek language and Literature, methods of confrontation of training difficulties and dyslexia of even teaching of foreigner languages.

The researchers work in three (3) different levels, which are covered from the beginning with absolute clarity by the principles of pedagogic psychology and by the recent conclusions of neuroscience researches. The proposed instructive methodology has as starting line the particularity and the uniqueness of each student, as it is shaped by his biological ability and his training-social growth. The activation of thought is ensured by the preceded challenge of interest and is held through game, starting each time from the interests and the particular faculties/bents of student of - user (Tzani M. and Kechagias C., 2005). It is not supported in motives of reward-penalty, neither in the memorization of textual information, but in the satisfaction by each time motive, that is changed in enthusiastic - constant motive.

Philosophical principle of the research team is that "the means is determined and reflects the intention and the morals of user" (Tzani M., 2004). More analytically: Two modern axes of the scientific and technological progress, the growth of research in Neuroscience and the import of new technologies, shape new conditions in the educational environment, as prospects for the pathways of education. However, the most important is that they cause the review of educational questions of - problems seemed from different points of view and the effort of finding solutions for them in directions who lay far away from the traditional psychological and instructive approaches. From the one side Neurosciences touch upon the physiology of the intellectual and sentimental operations through the study of brain, searching the biological bases of learning. From the other side, the modern technologies come to offer complex and economical means covering old and new needs. The social needs influence but also are influenced from the technological - scientific developments. An important expression of this dialectic relation is presented in the space of Education (ibid).

In Greece and also abroad, we run the period of Virtual Communication; the comprehension and the verbal communication are weaken. The creation of significances becomes difficult, and the scientific research in this sector realises the continuously bulked localisation of ambiguity during the communication. The big quantity of information is confused with the knowledge, and the localisation of useful information becomes more difficult. As consequence we glide more in practical *try and error* methods, more than the reasonable thoughts. Through the research we consider that resemblances and differences between the ancient and new Greek language will be located; also we will be ready to diagnose those points where the learning of new Greek language is helped by the knowledge of the ancient Greek one.

Moreover, this presentation will provide:

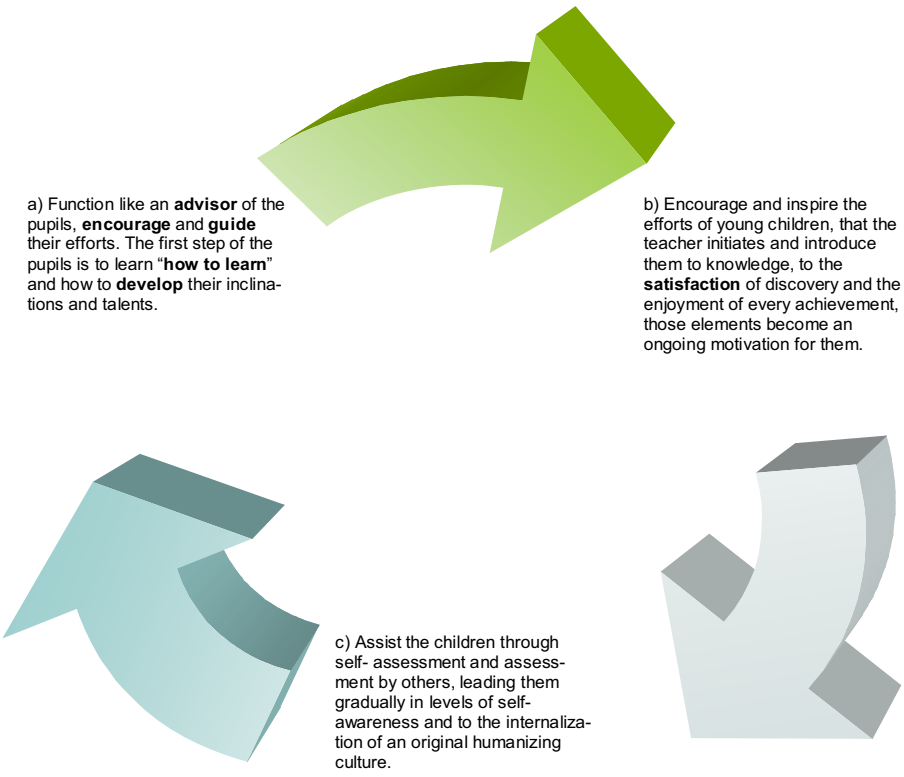
- the possibility of comprehension of a problem and of the solutions that the poet or the writer devises (see ways of creative expression, problem solving possibilities etc)
- the deeper comprehension of the creation and development of a language
- comprehension of the relations with other European languages

II.2. Innovation in the instructive methodology and in the content of learning

The proposed teaching methodology has as starting line the particularity and the uniqueness of each student, as this is shaped so much by his biological abil-

ity and also his training-social growth. It places the cognitive virtuous as challenge for the student, allowing him to practice all his intellectual operations in a route of discovery and personal expression, that leads to the materialisation of his possibilities. The genesis of motives and the evaluation are checked by the training process, which provides meaning in the student, covering his cognitive, sentimental and social needs, as these results authentically in his natural contact with the environment. In this frame, the content of learning are offered with the occasion of multidisciplinary interconnections and holistic approaches, allowing intellectual interconnections and cross-correlations that have meaning and result in the frame of cerebral operation. Henceforth, what was rendered explicit is that it cannot exist authentic learning, if the personal motive and the payment of personal effort from the student are not ensured, with experiential process.

Figure 1: *The teacher as a mentor in the "Pilot All-Day Primary School"* (Tzani M., 2001)



The education should –by the beginning- allocate innately the sperm of contestation and give the child the possibility of selecting, with the requirement to advance his own arguments for this. Afterwards, the child should represent the 'what; and the 'how' of the application so that to be in a position of making diagnosis in the consequences for himself and the others. It is expected conse-

quently, to be given particular accent in the methodology of transfer, from the basic instructive and pedagogic-cognitive principles in the level of theory - with controversial results and ethical principles, in the reinforcement of export of metadata and in the creation of metaknowledge. Today, we know that the authentic learning results only as *discovery* from the student and becomes perceptible as *comprehension*. Each difficulty in the comprehension is faced eg. with questions of smaller difficulty, so as to is led the student in the choice of the 'right answer', via his investigation of discovery (Tzani M., 2004). Via, interactive communication in the frame of mentoring it advances, sometimes from the initial data to the formulation of general rules of – conclusions; sometimes from the conclusion to the localisation of data (culture analytic and synthetic thought simultaneously). The activation of thought is ensured by the preceded challenge of interest and is held with game way, each time motivating from the interests and the particular faculties/bents of student. It is not supported in motives of reward-penalty, neither in the memorization of textual information (in printed or electronic form), but in the satisfaction by each time realisation, that is being changed to enthusiastic - constant motive.

Our first concern in order to achieve our objectives, is to attract the interest and the attention of our small students. Our helper in this concern is initially the force of pictures (observation or painting of receipts of drawings from authentic work of art), the good-sounded of Greek words through the prosodic/versification notations in songs and the theatrical game. Progressively, with experiential teaching of carefully selected scenes from Mythology and History, in combination with games of words, abundant supervisory material, hearings of fables and with pleasant exercises of prosody/versification and metre we enrich the imagination, we cultivate the memory, the sensitivity, the lyricism, the beauty. Our concern is the children to love the contact with the ancient texts, to continue this progressive acquaintance with the ancient world and the Greek values and to maintain it in their lifetime.

The efficiency of the course program is bigger and more powerful, when it is accompanied by the encouragement and the interest of parents; that's why we have to attend to be next to them in each query or scruple. The respect of children to their maternal language and the love for the knowledge, only with the collaboration of parents and teachers can be developed (see. "ΣΥΝΕΚΠΑΙΔΕΥΣΙΣ" Mylonakou, I.& Kekes I. (2005). Syneducation (synekpaidefsis): Reinforcing communication and strengthening cooperation among

students, parents and schools. Harvard Family Research Project, March, 1-9. Harvard Graduate School of Education[1]).

II.3. Potential utilities from the teaching

With accent in the etymology of words and not in the translation, the students comprehend the text, enjoy the musical/metre, the wealth and the precision of vocabulary, the unique pictures and the high meanings of text. Each verse is reason for free discussion with the children and various verbally game.

Acoustic culture

The ancient logos is engaged in the age of the 6-12 years, almost exclusively from the audition, which does not have same degree of acidity with the sight (the optical signal is permanent, while the acoustic signal of oral reason has instant duration), consequently is required big concentration and attention. It is a complex acoustic code, the decoding of which is beneficial exercise, given the most rapid development of acoustic ability in ages of 4-6 years. The child of the 3-6 years is characterized particularly by the wish for hearing of fables. The good fairy tale strengthens the concentration of attention, satisfies the tendency of child to the "knowing", contributes in intellectual and linguistic growth, cultivates the sentiments, and gives peacefulness and bliss in his soul. Plato consults not to tell the children any fables in order not to fill their soul with silliness and corruptness. For this reason, we select very carefully the fables that we teach to the children and distinguish those who combine the delight and instruction (mostly causative fables and fables of Aesop). The texts that will be selected will have rich and single content, commensurable to the age and the intellectual horizon of children, so that they stir their interest and they answer in their reflections.

Sense of rythm and metre-rhythmical expression

The ancient Greek logos includes musicality, rythm and metre. Since the children conceive the rhyme from the age of 3 years and like to hear and repeat rhythmical and poetic types [rhymes] expressions, it is precious for us to exploit this unique virtue of ancient Greek logos, eurythmia and eypsychia[2]. On the con-

[1] (also available: http://www.gse.harvard.edu/hfrp/content/projects/fine/resources/research/syneducation.pdf)

[2] Frederic Turner in "The Neural Lyre; poetic meter, the brain and time" considers that with the culture of prosody the children:

trary, with the translation of texts the child will be deprived this musical sense and culture.

Aesthetic culture

The Greek Art is distinguished for beautiful colours, the simplicity, the realism, as well as the elegance, the sensitivity and the charm. It is genuinely beneficial for the children to grow with these virtues, in ages of the 6-12 years. For this reason, we select with attention the pictures, which they are called to paint. We prefer receipts drawings from authentic work of art, because these drawings are careful drawn, so that they reliably transport the significance that seek to transport. The symbols and each detail she is not accidental. According to Piaget, the systematic character of perceptional activity is influenced by the ability to comprehend the stimulus. Only then the child observes, learns, and it is cultivated aesthetically. We believe that the abstractive drawings that dominate in the modern children's books, generally profit the child, because they leave its expeditionary observation to advance accidentally.

Imitation of patterns

The age of the 6-12 years is most advisable in order to imitate the children important disposals of soul. The child of this age-related category has the tendency for creative action and it develops initiatives, while the games of roles reach in the best level before the developmental threshold of the 9-12 years. We can also therefore teach experientially selected scenes of mythology and history in this age, in order to give them healthy models. The particular way of life is shaped at the children's age and with difficulty changes. What someone learns in childhood remains deep rooted in his soul. In the Greek texts we will find a rich material in ideas, values and examples in order to enrich the mind and the soul of children.

- They are harmoniously developed completed because the metre has the ability to achieve balance between the operations the right and left winger of hemisphere
- They learn to recognize fast also with less errors the patterns in every thing
- They even develop a complexer sense of space and time as well as the timing in complicated (internal and exterior) movements
- They are to a large extent sensitized and seek the intelligence through the sentiment.

Etymology

The etymology facilitates to learn the students better and more effectively the reading and the spelling writing of Greek language, because the spelling in Greek is determined mainly by the etymology. Moreover, the organised presentation of knowledge helps in the comprehension, in the storage and in the retraction of this knowledge. It is obvious that the organisation plays being first role in the layout of intellectual lexical each person and for' this considers necessary the integration of etymology in the teaching of language.

Prosody-versification

The speech - the use of symbolic sounds that are grammatical and syntactic connected – seems to be the most important biosociological and cultural phenomenon, the appearance of which is connected immediately with the bigger revolution of human type, passage from the previous evolutionary stages in homo sapiens-sapiens. This is due to the structural-functional base, that gives in the person the possibility of being able to sing, to be also located a good of beam of fundamental operations, with the differentiated region that is intended (with the nervous control) for the speech. In the field of Education, the song becomes the means with which the children can connect the naturally given possibility of syntax with the equitable syntax of their maternal language. Recent studies prove that this is achieved by the children via a team of models of melodies and rythms, that are based on the recognition of regularities similar to those of prosody, that by her nature, place in succession various sizes in the space and per year and via the reason accomplish it impresses the results of this effort in language. The language, we suppose thus, it owes her existence not only in certain innate ability of learning of languages, but in innate connected and founded abilities, the beginning of appearance of which is located in this passage of person (homo sapiens-sapiens) during his long evolutionary course.

It is obvious that the Greeks, observing the Nature accomplished from very early to conceive the Laws that condition her in all the levels of lifetime, to record them and to apply them with success. The higher and nobler coded form of these laws is undeniably the Greek Language. Functioning in multilevel, with way direct and catalytic the Greek logos runs through the Art and the Philosophy and via the tradition reaches at the modern era, bringing with him all the [archetypical] information. The Greek Language following the human life is presented as Logos, Music, Maths, that is to say as live practical teaching and transport of delivery by a generation to the other. Under the term Music we can find the unique unit of Logos-Music-Movement, a completed system constituted from

arts unbreakably tied up with each other, expressed either in the Orchestra and the Theatre, or in the Track and the ring or even the field of the battle.

	CATEGORY	REGULATED
1	MUSIC	Musical sound, (that is produced by the human voice or some musical body) the 'melos'
2	POESIS	Human logos, language (that is to say syllables, words and sentences)
3	ORCHESIS	Points (semeia) and forms (the places and the movements of human body)

Respectively:

- *Harmonious* is the art, which has as object the event of rythm in musical sounds.
- *Orchesis* is the art, which has as object the event of rythm in the movements and forms of human body.
- *Metrics* is the art, which has as object the event of rythm in the human logos.

The common characteristic between thess three arts, (but also in the all arts) is the element of rythm. The rythm is expressed in each expression of our daily life and as it is natural and in the art too. The rythm links all the events of life with theirselves. This is because it is a force inherent with the life and exists from beginning, from the moment of Creation, in order to serve concrete necessities. In the Poetry of old Greeks, the poet was simultaneously also the conductor and the musician of his chants. In chorals of the drama and in the choriki lyric poetry of Dorians the three musical arts literally constituted a unit: because during somenone played the forminx, the chorus sung the verses of the poem, while simultaneously he danced ("orcheito"). From the philological sources we know that not only the lyric parts, but also monodies contained orchisis, accompanied from the hypocritical, (element of orchesis). It is obvious that these three arts were linked. Their common source was and remains the same: THE RYTHM.

II.4. The 'On Ethical' Theory

In the music, the word "Moral/Ethos" meant the moral character that it tends to inspire with the music. Notes, harmonies, genders, the melos as generally speaking and the rhythms, according to the opinion of many ancient Greek writers, had moral aim and force. As for the morals of music, the following categories are existed: Ethos of sounds and of the: height, melos, harmonies, genders, rhythms. Aristeidis Kointilianos considers that the rhythms who begin from the-

sis are quieter, because they appease the mind, while those that begin from ictus (arsis) are upset. Also, the rhythms that have equal proportions are more pleasant, while hemiolikoi are upsetting. The daktylos (-uu) with his grandiose character, suits in the epic poetry, while the anapaistos (uu-) is more suitable for marches. Trochaios, thin and light, suits in dancing melodies etc. For this reason they attributed in the music the most important educational role.

Plutarch points out the moral force that the poems of Homer and Hesiod practiced to the youth: "It is obvious that the old Greeks paid their bigger attention to the musical education. Because they believed that it should mold and regulate the souls of young persons in decent ethics with the music". Human moral depend from the morals of music. Bad music, gives very serious and calamitous effect in the individual character and in the ethics of population. Ploutarch says: "Nefarious music and shifty songs… create lecherous moral and corrupted lives and persons that love laziness, the indolence and the subjugation in the passions". Plato almost in all his "Politeia", places the moral Dorian music in the service of growth of population, while he assigns in the state the duty to supervise the music. Also, tt is known that except eurythmia of the behavior, the Greek Metre and the Harmony (according to Heraclitus) ensure also the "order operation", that is to say the good health or re-establishment of this in the person of (Plato "Symposium").

II.5 The functions of Metre and Prosody

The first and fundamental function of metre appears to result from the general in the persons conviction that the rhythm in general plays essential role in the poetic and artistic expression and experience. (Cureton D.Richard 1997, "A Disciplinary Map for Verse Study"). With his innate force to delimit and to make in the person accessible and comprehensible the inapprehensible chaos, the rhythm provides the possibility of concrete education and education in the living beings as from his nature. Via the rythm are expressed certain of the greatest truths of the nature, "naturally obvious" given with a unique way of semasiological aid: the rhythmical elements function in the same field with the significances that are transmitted with the words, either to strengthen them or to modify them.

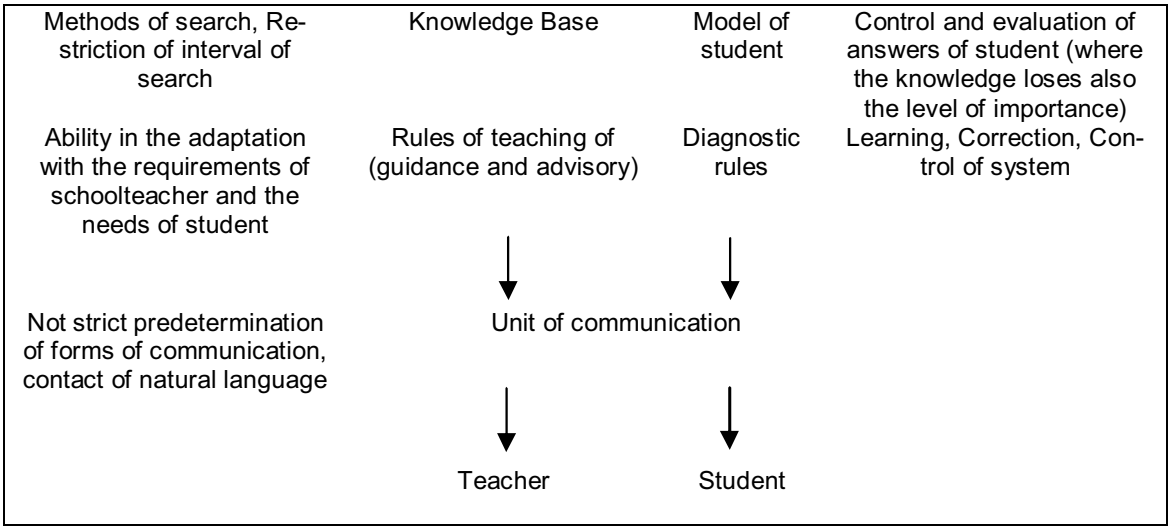
However one of the profits of prosody results from the moment where are isolated the purely rhythmical elements and are distinguished by the verbal and semasiological elements. The diacrisis of rhythmical entities has enormous value for a nexus of new operations in regions that abstain also from the field of literature research and from the field of Art. Henceforth the independent rhythmical and metric entities we know well that they represent concrete natural operations,

that were coded and rescued via the poetic reason. As entities, we comprehend, via the senses and his mind, the rhythm, we are in position to distinguish a pleiad of rhythmical forms, in the same moment where our body experiences the separate internal rythms or the bodies functions in their own frequencies.

Importing the element of prosody and rules of metre and harmony, in the course of language, the children face Greek, not anymore as a `simple tool of communication', but as a world of meanings and importance. Each word, each significance is put together on a web of importance, if she allocates innately the characteristic of rhythm and harmony. It remains to the teaching process the choice to guide the activity of children to the direction of implementation of these, in the field of Logos (written or oral, poetic or not), the Movement of (gymnastics or dancing) and the Art (Musical, Figurative etc). Moreover, via a simple passage in the gulves of Mathematics and Geometry, the children have the possibility of comprehension and strengthening of rhythmical-metric-harmonious proportions, if these are easy for transformation in mathematic types and geometrical proportions. This shape guides the children in a new way of thinking and being and is able to lead them to any sector of their life, increasing to paroxysm their creative faculty - one from basic quests of the modern educational approach.

- By referring the possibilities of application up to today inquiring conclusions, that resulted from the research work and the cross-correlation with the inquiring region of planning of/growth of brilliant systems, we take the following image:

Image 1. *Classic form for intelligent systems*



III.1. Pedagogic profits

- Aesthetic culture (receipts drawings and work of art)
- Acoustic culture (Hearing of ancient logos)
- Sense of rhythm and metre (teaching of daktylic hexameter)
- Linguistic culture - enrichment of vocabulary (various linguistic exercises with accent in the etymology)
- Upgrade of knowledge and cognitive base (historical knowledge, elements of culture etc)
- Moral education
- Aesthetic Education
- Creative expression, Creativity

III.2. Scientific profits

- Creation of new instructive-methodological approach
- Possibility of transformation of information in intellectual forms
- Regularisation of knowledge base of place and resolution of problems (problem setting and solving)
- Knowledge-theoretical review of three parameters (conceptual, semantic, pragmatic) based upon 2.280 rythmical patterns
- Representation of knowledge environment, sectors of knowledge (automation, logic, structured representations, systems of rules)
- Ways of description of a problem, algorithms of search of solutions [heuristic search], satisfaction of restrictions, genetic algorithms
- Mechanic learning and discovery of knowledge, creation of models, discovery of correlations, neuron networks
- Structure and operation of smart systems of software (resolution of problems of categorisation, diagnosis, correction, distributed fields of growth of applications)
- New technologies of interconnection with the environment (treatment of natural language, mechanic sight and sounds etc)
- Research on adaptive systems

Finally, we consider as the biggest price the acceptance of international Greek composer and honorary doctor of University Athens, Vangelis [Papathanasioy], to collaborate together us for the above aims.

Christos Kechagias,
Univerzitet u Atini,
Pedagoški fakultet za osnovnoškolsko obrazovanje,
Grčka

MULTIDISCIPLINARNI PRISTUP U OSNOVNOŠKOLSKOM OBRAZOVANJU

Rezime: Ova studija koju ukratko predstavljamo pripada Osnovnom i primenjenom pedagoškom istraživanju i njen cilj je da prouči primenu najosnovnijih pedagoških i strukturalnih pojedinosti sistematizovanih u multidisciplinarnom metodu predavanja starogrčkog jezika, koji će služiti kao primer. Novina ove studije zasnovana je na primeni jednog principa, koji je postavljen kao osnova za nastavu na kursevima klasične grčke antike kod dve grupe istog godišta (K-12), prema kome ritam, metrika i harmonija čine zajedničke karakteristične osobine svih umetnosti i njihovi principi se mogu primeniti u svakoj oblasti nastave. Ispitivački tim, koji od 2003. do danas radi pet (5) relevantnih programa ispitivanja, finansiran od strane Odbora za istraživanja Univerziteta u Atini i drugih privatnih i državnih institucija, izabrao je ova pravila, koja su takođe sistematizovana u pedagošku i funkcionalnu osnovu, stvorivši tako osnovne metričko-ritmičke porodice, sa ekvivalentnim lingvističkim i muzičkim primerima. Pored toga, osnova znanja je organizovana u specijalni softver koji prati ideju genetskog algoritma, u kome se poštuje gramatika i sintaksa grčkog jezika. Na ovaj način deca u Grčkoj imaju mogućnost učenja grčkog jezika, zajedno sa elementima matematike, geometrije, muzike, pokreta, rezonovanja i geografije.

Ključne reči osnovnoškolsko obrazovanje, multidisciplinarni pristup, nastava starogrčkog jezika, antička kultura, otkriće, razumevanje