Zbornik 18. mednarodne multikonference

INFORMACIJSKA DRUŽBA – IS 2015
Zvezek F

Proceedings of the 18th International Multiconference

INFORMATION SOCIETY – IS 2015
Volume F

Kognitonika
Cognitonics

Uredila / Edited by

Vladimir A. Fomichov, Olga S. Fomichova

http://is.ijs.si

12.–13. oktober 2015 / October 12th–13th, 2015
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PREDGOVOR MULTIKONFERENCI INFORMACIJSKA DRUŽBA 2015

Multikonferenca Informacijska družba (http://is.ijs.si) je z osemnajsto zaporedno prireditvijo osrednji srednjeevropski dogodek na področju informacijske družbe, računalništva in informatike. Letošnja prireditev traja tri tedne in poteka na Fakulteti za računalništvo in informatiko in Institutu »Jožef Stefan«.

Informacijska družba, znanje in umetna inteligenca se razvijajo čedalje hitreje. V vse več državah je dovoljena samostojna vožnja inteligentnih avtomobilov, na trgu je moč dobiti čedalje več pogosto prodajanih avtomobilov z avtonomnimi funkcijami kot »lane asist«. Čedalje več pokazateljev kaže, da prehajamo v naslednje civilizacijsko obdobje, hkrati pa so konflikti sodobne družbe čedalje težje razumljivi.

Letos smo v multikonferenco povezali dvanajst odličnih neodvisnih konferenc. Predstavljenih bo okoli 300 referatov v okviru samostojnih konferenc in delavnic, prireditev bodo spremljale okrogle mize in razprave ter posebni dogodki kot svečana podelitev nagrad. Referati so objavljeni v zbornikih multikonference, izbrani prispevki pa bodo izšli tudi v posebnih številkah dveh znanstvenih revij, od katerih je ena Informatica, ki se ponaša z 38-letno tradicijo odlične znanstvene revije.

Multikonferenco Informacijska družba 2015 sestavljajo naslednje samostojne konference:
- Inteligentni sistemi
- Kognitivna znanost
- Izkopavanje znanja in podatkovna skladišča
- Sodelovanje, programska oprema in storitve v informacijski družbi
- Vzgoja in izobraževanje v informacijski družbi
- Soočanje z demografskimi izzivi
- Kognitonika
- Delavnica »SPS EM-zdravje«
- Delavnica »Pametna mesta in skupnosti kot razvojna priložnost Slovenije«
- Druga študentska konferenca s področja računalništva in informatike za doktorske študente
- Druga študentska konferenca s področja računalništva in informatike za vse študente
- Osma mednarodna konferenca o informatiki v šolah: razmere, evolucija in perspektiva.

Soorganizatorji in podporniki konference so različne raziskovalne institucije in združenja, med njimi tudi ACM Slovenija, SLAIS in Inženirska akademija Slovenije. V imenu organizatorjev konference se zahvaljujemo združenjem in inštitucijam, še posebej pa udeležencem za njihove dragocene prispevke in priložnost, da z nami delijo svoje izkušnje o informacijski družbi. Zahvaljujemo se tudi recenzentom za njihovo pomoč pri recenziranju.

V 2015 bomo tretjič podelili nagrado za življenjske dosežke v čast Donalda Michija in Alana Turinga. Nagrado Michie-Turing za izjemen življenjski prispevek k razvoju in promociji informacijske družbe bo prejel prof. dr. Jurij Tasič. Priznanje za dosežek leta je pripadlo dr. Domnu Mungosu. Že petič podeljujemo nagradi »informacijska limona« in »informacijska jagoda« za najbolj (ne)uspešne poteze v zvezi z informacijsko družbo. Limono je dobilo počasno uvajanje informatizacije v slovensko pravosodje, jagodo pa spletna aplikacija »Supervizor«. Čestitke nagrajencem!

Niko Zimic, predsednik programskega odbora
Matjaž Gams, predsednik organizacijskega odbora

FOREWORD - INFORMATION SOCIETY 2015

In its 18th year, the Information Society Multiconference (http://is.ijs.si) remains one of the leading conferences in Central Europe devoted to information society, computer science and informatics. In 2015 it is extended over three weeks located at Faculty of computer science and informatics and at the Institute "Jožef Stefan".

The pace of progress of information society, knowledge and artificial intelligence is speeding up. Several countries allow autonomous cars in regular use, major car companies sell cars with lane assist and other intelligent functions. It seems that humanity is approaching another civilization stage. At the same time, society conflicts are growing in numbers and length.

The Multiconference is running in parallel sessions with 300 presentations of scientific papers at twelve conferences, round tables, workshops and award ceremonies. The papers are published in the conference proceedings, and in special issues of two journals. One of them is Informatica with its 38 years of tradition in excellent research publications.

The Information Society 2015 Multiconference consists of the following conferences:
- Intelligent Systems
- Cognitive Science
- Data Mining and Data Warehouses
- Collaboration, Software and Services in Information Society
- Education in Information Society
- Facing Demographic Challenges
- Cognitonics
- SPS EM-Health Workshop
- Workshop »Smart Cities and Communities as a Development Opportunity for Slovenia«
- 2nd Computer Science Student Conference, PhD Students
- 2nd Computer Science Student Conference, Students
- 8th International Conference on Informatics in Schools: Situation, Evolution, and Perspective.

The Multiconference is co-organized and supported by several major research institutions and societies, among them ACM Slovenia, i.e. the Slovenian chapter of the ACM, SLAIS and the Slovenian Engineering Academy. In the name of the conference organizers we thank all societies and institutions, all participants for their valuable contribution and their interest in this event, and the reviewers for their thorough reviews.

For 2013 and further, the award for life-long outstanding contributions will be delivered in memory of Donald Michie and Alan Turing. The life-long outstanding contribution to development and promotion of information society in our country is awarded to Dr. Jurij Tasič. In addition, a reward for current achievements was pronounced to Dr. Domnu Mungosu. The information strawberry is pronounced to the web application "Supervizor, while the information lemon goes to lack of informatization in the national judicial system. Congratulations!

Niko Zimic, Programme Committee Chair
Matjaž Gams, Organizing Committee Chair

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Preface/Predgovor

Fourth International Conference on Cognitonics (Cognit 2015)

Since October 2009, the biannual international scientific conference on Cognitonics ("Kognitonika" in Slovenian) is a part of the international scientific multiconferences "Information Society" (Slovenia, Ljubljana, Jozef Stefan Institute).

During last decade, many scholars at various international and national conferences, in the books and papers have said and written about serious distortions, negative shifts in the development of the personality and national cultures caused by stormy development of information and communication technologies (ICT) and globalization processes.

The conviction that it is not only necessary but also *possible* to make something constructive and significant for compensating these distortions underlay the elaboration of the foundations of a new scientific discipline called Cognitonics (see Informatica. An International Journal of Computing and Informatics (Slovenia), 2006, Vol. 30, No. 4, pp. 387-398, www.informatica.si and the Proceedings of the First, Second, and Third International Conferences on Cognitonics (Slovenia, Ljubljana, October 2009, 2011, and 2013) - the subconferences of the 12th, 14th, and 16th International Multiconferences "Information Society", Slovenia, Ljubljana, Jozef Stefan Institute; http://is.ijs.si/is).

The first aim of Cognitonics is to explicate the distortions in the perception of the world, in the development of the personality caused by the peculiarities of information society and globalization processes. The second, principal aim is to join the efforts of the scholars and educators from various fields for coping with these distortions by means of elaborating systemic solutions for compensating the negative implications of the kind for the personality and society, in particular, for creating cognitive-cultural preconditions of the harmonic development of the personality in the information society (transforming into knowledge society, or smart society) and for ensuring the successful development of national cultures and national languages.

The birth of Cognitonics was stimulated by the ideas of Philosophy, Cognitive Linguistics, Artificial Intelligence theory, Web Science, Applied Linguistics, Art theory, Cognitive Psychology, and Cognitive Biology.

Two factors seem to be especially important from the standpoint of achieving the goals of Cognitonics:
- ICT have been developing extremely quickly and have been expanding unusually broadly, they penetrate not only into every office and laboratory but also into every school class and every family;
- it is necessary and promising to use the power of modern ICT in order to very quickly and broadly disseminate the found effective methods of compensating the negative distortions in the development of the personality and of national cultures in information society and knowledge society.

The goal of the conference is to combine the efforts of the scholars from numerous scientific fields and educators in order to establish a new synergy aimed at ensuring the harmonic, well-balanced development of the personality, national cultures, and national languages in the

modern information society and knowledge society and, as a consequence, to compensate a number of broadly observed negative distortions.

From the standpoint of educational practice, Cognitonics proposes an answer to the following question: what precious ideas and images accumulated by the mankind, at what age, and in what a way are to be inscribed into the conceptual picture of the world of a person in order to harmonize his/her intellectual and spiritually-coloured emotional development and to contribute to the successful development of national cultures and national languages?

Cognitonics formulates a new, large-scale goal for the software industry and Web science: to develop a new generation of culture-oriented computer programs and online courses (in the collaboration with educators, linguists, art historians, psychologists) - the computer programs and online courses intended for supporting and developing positively-oriented creativity, cognitive-emotional sphere, mindfulness, the appreciation of the roots of the national cultures, the awareness of the integrity of the cultural space in the information society and knowledge society, and for supporting and developing symbolic information processing and linguistic skills, associative and reasoning abilities, social responsibility of young children, adolescents, and university students.

The Program Committee has accepted for the conference 20 long papers from 16 countries of two parts of the world: Asia (PR China, India, Japan) and Europe (Belgium, Bulgaria, Croatia, Cyprus, Finland, Germany, Greece, Italy, Romania, Russia, Slovenia, Sweden, United Kingdom).

The editors would like to thank the authors of the papers for their contributions and the members of the Program Committee for their precious comments ensuring the high quality of the accepted papers and making the reading as well the editing of this volume a rewarding activity.

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- Vladimir A. Fomichov
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DIGITAL ITALY: TEACHER TRAINING AS A PREREQUISITE FOR ECONOMIC PROGRESS

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ABSTRACT

Teaching and learning using digital technology is a concern to policy makers in Italy. All the European states are concerned about cognitonics in education. How will the emerging Digital Italy project affect emerging adults in the knowledge economy? What can be gained by expanding broadband capacity to all of Italy's school population and at what cost? Does the use of emerging technology improve human contact and does it create opportunity for youth employment after graduation? Will university enrollment increase? This paper provides a snapshot of the cyber readiness of Italy at the midpoint of deploying Digital Italy.

1 INTRODUCTION

The Digital Agenda for Europe's 2020 Strategy defined the role of Information and Communication Technologies (ICT) [[18]]. For Italy and other EU members the strategy with five years to spare hit the targets of the Digital Agenda for Europe [[1], [2], 3]. Much of the success to date is within the private sector's race to provide the broadband infrastructure. The ultrawide band plan is now underway according to Lombardo [8].
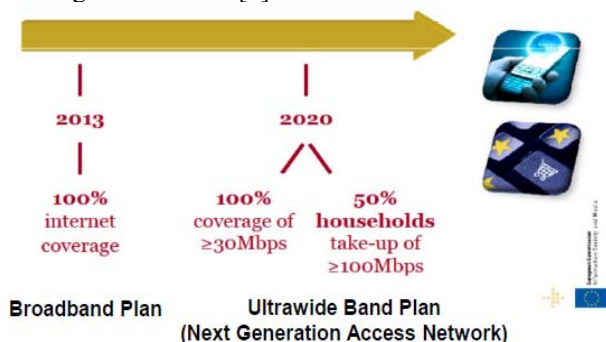
Figure 1:. Broadband expansion [2013 Siva Project]

Integration is the next demand. Education reform began in Italy in 2003. The National Service for the Evaluation of the Education and Training System (INVALSI) administers the assessments. The Ministry of Education [12] set out the competences for the evaluation of the school system, teachers and student achievement. A path was established for supplying schools with multimedia equipment, connecting schools to the Internet, setting up networks and services, and training teachers [6]. Teachers are familiar with ICT for teaching and learning but only use it to prepare to teach. Few students use technology for lessons or to communicate with parents [3, 7]. The lack of a universal learning content management system (LCMS) is common at the public school level worldwide though there exist systems in Europe that are national in scope. The Italian government conforms to the Lisbon agenda on the information society [18].

New educational opportunities provided by mobile applications are usually not seen by Italian teachers. The World Virtual School conducted a global survey of international schools [13] and found that internationally 74% of users used a cell phone to access the Internet. In fact, developing nations significantly exceeded European nations in numbers of mobile subscriptions: 3,846 to 741. Italy had slightly more than 50% broadband penetration with just above 4 milibits per second speeds. The US and France for example had over 75% penetration with 4.8 mbps and 17.6 mbps speeds respectvely.

2 EXPANSION AND AUSTERITY

The Italian Minister for Economic Development Federica Guidi in 2014 said "Without an expansionary change and without abandoning austerity measures, Europe 2020 targets will become just unrealised dreams" [5]. Prime Minster Matteo Renzi: "We are not asking for flexibility in Europe, we are just taking what wne deserve" [4]. Using provison of the Internal Stability Pact, Renzi was able to unblock 43€ billion for infrastructure improvements in the regions where funds were present.

Government funds were leveraged with private sector funds to build the backbone of the Internet in Italy. The public funding provided the seed but the bulk of investment evolved toward the private side.

NGAN Consultation – Operators roll out plans (2012/2015) for broadband access networks

Investimento pubblico/privato
Investimento privato

Figure 2: Public / Private finance [2013 Siva Project]

3 TEACHING AND LEARNING

MIUR promotes Piano Scuola Digitale - a platform to change learning environments through the integration of technology in education. The environments in which the school and students are immersed are rich in cultural stimuli but must overcome the fragmentation of knowledge and to integrate the disciplines in new perspectives. This requires transforming the learning environments, the language of school, work tools and content. The Scuola Digitale [12] is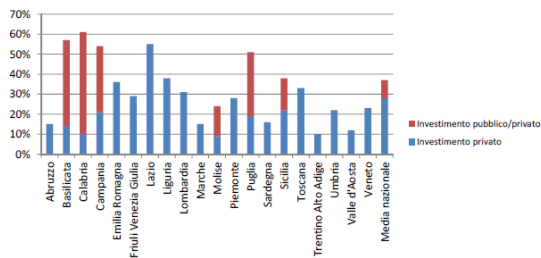 the opportunity to overcome the traditional concept of class, to create a learning space open to the world in which to build a sense of citizenship and achieve "smart, sustainable and inclusive growth", the three priorities of Europe 2020. The first generation programs of the ministry of education through which the schools approached the use of ICT evolves today in a dimension of technology integrated into teaching. Not a class in the laboratory but in the laboratory there is class: a strategy of many actions [14].

3.1 Mortalita' scolastica

A high failure rate in the public school system may be attributed to both strong curriculum rigor and teacher incompetence [17]. The Investigation in Primary Education Teachers' Confidence and Competence Supporting Innovation (IPETCCO) studied ICT-based innovation among southern European primary school teachers. The central concern was with teachers´skills, knowledge and attitudes towards ICT and innovation [15].

The assumptions emerging from the literature were that teachers don't use ICT in practice and do not follow constructivist learning principles. Peralta and Costa [15] found that in the five southern European countries included in their research most primary teachers used ICT only as a supplement and not in the core content of their teaching. This despite reporting they were knowledgeable of the tools of information technology. Italian teachers reported that ICT promotes collaborative work and gave great importance to technical competence. They did not agree that technical competence was sufficient without pedagogical and didactic interventions. The Italian teachers group selected for their

innovation believed ICT is "a cognitive resource in learning allowing the development of more complex and richer thoughts" [15].

3.2 Teacher training

The European Network for Innovative Schools (ENIS) uses the PuntoEdu platform to train teachers to use ICT in pedagogy. MIUR [4] introduced digital textbooks in 2011 and encourages the adoption of reusable learning objects in practice. The National Agency for the Support of School Autonomy (ANSAS) developed the following repositories of learning objects:

- Dia (http://www.indire.it/archivi/dia/)
- Gold (http://gold.indire.it/gold2/)
- Musicnet (http://www.indire.it/musiknet/)

3.3 ICT in education

Area	High	Mid	Low
Initial Training		☑	
Inservice		☑	
Curriculum Development			☑
ICT based assessment			☑
Infrastructure		☑	
Digital learning resoures	☑		
School-home connections			☑
ICT for special needs		☑	
ICT research		☑	
eSafety		☑	
Reducing digital divide		☑	
Interactive whiteboards	☑		
Netbooks and notebooks			☑
Key competencies		☑	
21st Century skills	☑		

Table 1: Priorities for teachers surveyed in Italy[6]

4 ICT AND EMPLOYABILITY

Carlo Fanara, PhD, a data scientist and physics consultant from Turin Italy, worked as a curriculum designer and instructor in the European Union for several years. In a personal communication (2015) he commented regarding the prospects for young Italians seeking employment in the 21st Century job market based on a lack of access to IT infrastructure during their years in the public school and university systems in Italy. "I think indeed that students facing problems may develop stronger solving skills with respect to students of countries or institutions better equipped in infrastructure in general (and IT in particular). One hopes that the infrastructure nevertheless does get better..." [[1]].

4.1 Mobile technology

The Pew Research Center [[16]] conducted a study of mobile phone use in the developing world with surprising results. Despite lacking infrastructure that is present in Western developed countries of Europe and North America the use of mobile technology is ubiquitous. While Italy is certainly part of the West its Internet capacity historically was no better than the emerging nations studied by Pew.

Marzouki et al. proposed a mobile leaning model for institutions to take advantage of the private investment made in smart phones globally. "… mobile learning enhances the educational program and reinstates it into the daily lives of learners through their own mobile technologies," [10] (p. 1). Generation Y learners are those that are entering the work force and those that would be the most prepared to adopt mobile learning. In fact traditional learning is not sufficient to capture the talents of young learners and the skills that are acquired in face-to-face didactic learning does not prepare them for a workplace that is based in the knowledge economy.

Et Tu Create [3] offers post-secondary certificate courses titled Mobile Application Design and Development. The courses include 18 constructivist learning modules that follow an introduction to careers, legal aspects, hardware, operating systems, design, quality control, monetization, marketing and programming.

The courses require the learner to download a 30-day free trial version of the AGK Basic App Development Kit (http://www.appgamekit.com).

Figure 3: Et Tu Create© logo

Enrollment in the courses can be done through One World School (http://www.1worldschool.com), which uses a Moodle platform and is accessible globally.

5. BRICK AND MORTAR TECHNOLOGY

Given that Italian teachers have a low priority for computers in the classroom and a high propensity for white boards it is useful to see how this technology can be constructively utilized. A didactic approach to education can yield results if students are introduced to emerging technologies and then are given the opportunity to explore through mobile technology on their own time.

Region	IWB	Students	Teachers
ABRUZZO	869	19.118	3.006
BASILICATA	516	11.352	1.221
CALABRIA	1.499	32.978	3.510
CAMPANIA	4.038	88.836	8.945
EMILIA ROMAGNA	2.217	48.774	5.395
FRIULI-VENEZIA GIULIA	713	15.686	1.634
LAZIO	2.989	65.758	6.872
LIGURIA	795	17.490	1.897
LOMBARDIA	5.112	112.464	11.729
MARCHE	1.008	22.176	2.623
MOLISE	270	5.940	610
PIEMONTE	2.320	51.040	5.590
PUGLIA	2.687	59.114	6.089
SARDEGNA	1.021	22.462	2.435
SICILIA	3.545	77.990	8.464
TOSCANA	1.956	43.032	4.708
UMBRIA	535	11.770	1.333
VENETO	3.025	66.550	7.610
TOTALE	**35.115**	**772.530**	**83.671**

Table 2: Whiteboard use [12]

6. CONCLUSION

Teachers in Italian public schools are not inclined to allow use of mobile technology in their classrooms because they are not trained to profit from the personal investment made by families in emerging technology [17]. Teachers are open to using interactive whiteboards because of the didactic mode fostered [[9], [11]].

A truly Digital Italy will provide a psychological boost for youg adults in the knowledge economy. Expanding broadband capacity, though costly, will produce an economic boost to the struggling economy that is held back by EU austerity. Emerging technology, by improving human contact, creates opportunity for employment and tertiary learning.

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CAN EXCELLENCE IN ART IMPROVE OUR ETHICAL STANCE?

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ABSTRACT

The principal objective of cognitonics, or a science about the human being in the digital world, is developing theoretical foundations of creating cognitive-emotional and cultural preconditions of well-balanced, harmonic development of the personality in knowledge society. Obviously, a significant precondition of well-balanced development of the personality is positive attitude to him/her of the family members, friends, colleagues. But it implies moral behavior of the person. The paper establishes the links between moral actions and beauty, hence between ethics and aesthetics.

1 INTRODUCTION

Ethics is a very controversial matter. Cultures try to impose ethical attitudes, values and norms that, as history shows, are not only different but downright irreconcilable.Hence the 'eternal' battle, intellectually and in reality, for what the so-called 'goodlife' everyone intents, concretely implies. Not only as far as principles are concerned –which are in any case rather vague– but also what their implementation on the ground really means. Nobody explicitly seems to want what is recognized as bad, everyone wants what is good for us and, theoretically at least, what is good for all of us. But the result of this, our most laudable intention, is more than once that we are doing wrong, often because of our short-sightedness more wrong than we imagined before and after. In short, one of the essential concerns of ethical action is to avoid counter-productiveness. For what's the good of a good man if his actions spread destruction in the world, in others and finally in himself? Ethical action has to be self-validating, not self-destructive. Does art, especially'excellent' art has characteristic properties that could inspire us to eschew, more or less, this most feared demise of our ethical endeavors and their concomitant misery? Maybe, given propitious conditions, that might indeed be the case. In our opinion art can be exemplary.

2 EXCELLENCE OR BEAUTY IN ART

What is 'excellence' in art? Or, somewhat broader, what is 'aesthetic quality'? What, to use the term in its classical sense, is beauty? Generally speaking, aesthetic value essentially has to do, as far as our intuitions go, with a kind of coherence that gives unity to the work. In its appearance, it presents a kind of universe in miniature; and one has the strong impression that this tiny universe holds tightly together, that it is, so to speak, a 'possible' world. Evidently, it is not our real world, but given its soi-disant 'ontology', its laws and their effects, it proves to be, in a sense, self-validating indeed: by its very properties it affirms, it endorses, so to speak, its own existence. The consequence is that the work proves to be impressive, overwhelming and thoroughly convincing. In a sense, it is 'true', true at least to itself.

In our opinion, one can confidently say that such a work of art is excellent: it is coherent precisely because it proves to be self-validating. Given its tiny universe, nothing more can be wished for, because, apparently, nothing has been neglected, cast away or left out. Works of this kind may be exceptional, there are not that many of them, but they certainly can be considered paradigmatic. On the other hand, our ethical endeavors clearly have most of the time the opposite properties: almost always they fail to attain this kind of eminence. Very often they give the impression to be ugly improvisations of a more or less unknownexcellence intended. Evidently, in a large measure this impression is due to the fact that art is fiction and that ethics is reality. Its complexity, indeed, is so great, that coherence, consistency aside, is hardly to be expected. Trial and error, 'bricolage', loose ends and impasses are its most prominent features. Artistically speaking, they are bad art.

Failed art is put in the waste-basket. But there are no waste-baskets for ethical demise. What is done wrong, lives on, mostlylonger than the good deeds we happen to stumble upon. Yet, we have to accept this unsavory state of affairs. For we simply have no choice.Perhaps the contrast can be clarified somewhat by further explaining what is meant by 'excellent'art. Art in this sense can indeed be defined as a synthesis, a symbiosis, a fusion, or at least the convergence, in one medium or another, i.e. in virtual space and time, of form and content.On the paradigmatic level, the unity of form and content means that there is no gap between the formal characteristics of the work and what it signifies, what it means, its content.

The form, what the work presents, its 'vital face', so to speak, is exactly what it means. It is no more, and no less. That is the reason why Beethoven, as the anecdote goes, after the performance, replied to a lady asking what his

piano-piece really meant, simply by playing it again. Beethoven's reaction may seem a bit arrogant. But his response wasevidently right. It simply meant that in the small universe presented –the piece of music– everything had be said that could and needed to be said. So there is no need at all, there is not even the possibility of comment. The tiny universe, however tiny it is, is complete in itself. It is a real fusion of form and content. All content, everything that is relevant, has to be presented, nothing has been left out. The form, the work, what has been done, exactly represents, by presenting and by incarnating it, the content, what it means. And exactly what it means. No irrelevance comes in. This feature –and it is a highly complex and diverse one–is what causes the impression that the work is somehow thoroughly convincing. It has 'full being', so to speak.

If we transfer this state of affairs, this peculiar structure of being, to matters ethical, we have what we, most if not all of us, would consider as an eminent 'good' deed, a deed well-intentioned, well-done and perfectly realized. First of all, something has to be done. One is obliged to act in order to solve some problem at hand. There is no choice, for if one didn't act, one manifestly would be doing something wrong. After all, not to act is to act as well. As far as this property is concerned, ethics is fundamentally different from aesthetics. No one is obliged to create a work of art, unless one, as an artist, feels the necessity of expressing for oneself and others what is lived, envisaged or imagined. But this so-called necessity is not deontic, it is a kind of impulse, even if it is irresistible. Contrarily, the moral obligation is there, it is an 'ought', whether it is wanted or not.

Moreover, the desire to express something has not to be successful. No artist can really be blamed if he/she fails to realize his/her artistic goals. From the point of view of moral obligation however, one has to act and one has to succeed. Good intentions don't suffice. But apart from these fundamental differences, *there is a significant analogy between moral action and artistic endeavor*. Just as the putative identity between form and content brings it about that the work is 'beautiful' in the classical sense, so the moral act proves to be 'beautiful' as well, although in a metaphorical sense. Here the fusion of form and content, their putative identity, means that the act is uniquely appropriate to tackle the moral question at hand.

Our intuition proves correct and our actions adequate. We concretely know what the problem is, we know exactly what is to be done, we act promptly and in a masterlyfashion. For short, we are doing exactly what is required and nothing else. The action moreover is uniquely embedded in the situation as it is, it takes account of all the relevant circumstances and it excludes all superfluous elements. Certainly, we are implementing moral values and norms. And these are, as they are generally valid or deemed to be so, theoretical and hence abstract.

For instance, something evidently moral like 'love your neighbor'. That's right. But how is that to be done? Not with your neighbor in general, butwith yours now and here in these circumstances? As one easily sees, moral action, in order to have real import and impact, has to be, and

isthoroughly situational, concrete and unique. One is inclined to say that the abstract nature of the norms and the values implemented in a sense disappears behind the concreteness of the case.

Values are respected and rules are followed, but theyare not envisaged as such. One doesn't act with a moral manual at hand. They are pushed in the background. Our ethical stance is concrete and circumstantial, not formulaic. We don't simply apply a rule as if we were pushing the levers of a machine.

In this connection, the topicality of developing mindfulness-based educational programs should be stressed [1, 2]. "Mindfulness" is one of the central notions of positive psychology [3]. This term means the ability of the person to take a decision and carry out an action, taking into account the full spectrum of the peculiarities of a concrete situation (but not mechanically following certain rules).

In this perspective, one easily can see where formalistic and utilitarian ethics go wrong and where their unsolvable problems originate: they have to be implemented in reality in its fullness, but they are, by their very nature, obliged to apply a theory, as if life lived was nothing more and nothing else but a laboratory experimentwhere all conditions for rigid application are realized and under control, so that in consequence the rule can be applied as it were automatically.

The rule says: 'One ought not to lie'. But when one always and everywhere in all circumstances tells the truth –simply applying the rule–dire consequences are to be feared. Leaving the notorious case of Kant deontic ethics aside, already 'theoretical' Plato new this very well, even more than he liked.

Nevertheless, at the same time, the action is not arbitrary, it is not an 'actegratuit' that proves, as if by miracle, to be morally justified. On the contrary, it is a well-considered action on well-established principles. And as such it can and must, culturally speaking, be universally endorsed. It is a paradigmatic stable way to behave in the world we live in. It is 'the way' of the world, so to speak. It is wisdom incarnated. Such an action can be called eminently 'beautiful', just like paradigmatic works of art.

Forthat is indeed what the asymptotic convergence of form and content means, for art and ethical endeavors alike. It may be clear by now, that, if one is frequently confronted with artistic quality of this kind, one will tend strive to realize this kind of beauty in one's moral life as well.

Let's underline that this conclusion correlates quite well with one of the central ideas of the emotional-imaginative teaching system (the EIT-system). This system belongs to the constructive core of cognitonics,or the science about the human being in the digital world [4-6]. The EIT-system introduced three additional levels of consciousness development (LOC) [5, 6] in comparison with the paper [7], describing a model consisting of four LOC. The first additional level (fifth level) is called the level of broad beauty appreciation, and the third additional level (seventh level) is called the level of enhanced awareness of social agreements and social responsibility [5, 6].

One will not be inclined anymore to apply the rules rigidly, without looking at the concrete circumstances of the case; one will evaluate every instance of our moral stance on its own merits, one will refuse to reduce the case to a mechanical problem and an apt device to be implemented without more ado, whatever the cost.

For short, one will not have an accountant's look at the world, falsely thinking that if the digits are all-right, the world is –must be– in order. For that's, given reality as it is, a priori awfully wrong. It inevitably leads to a dead end, to an impasse, to destruction and, lastly, to self-destruction. Most of our theories, especially our moral ones, as is well known, haven't thrived well in the world. Even most of our so-called scientific ones are no exception either. For, in fact, we don't know enough. And we never will. Hence, the analogy between moral action and artistic creativity is moreclose than we generally tend to suppose.

3 THE MORAL IDEAL OF BEAUTY

Yet 'beauty' is not the whole of the story. Rather, it is the exception. What thus far has be characterized summarily, is what traditionally has been called the category of 'beauty' and its eventual implementation in life. What in Middle Dutch has been expressed by the adage: 'Levet Scone': 'live beautifully'. Plotinus without doubt would have agreed. But 'beauty' in this strict sense is no easy matter. On the contrary, it is the most difficult category of all. Hence, its realization is rarely successful, in the real world and as well as in art. It is indicative that 'beauty', so conceived, is paramount in pure mathematics. It may be more relevant than one is inclined to assume, to expatiate somewhat on this point.

Geometrically speaking, beauty can be symbolized by a straight line, as the shortest way between two Euclidian points. This is indeed, within Euclidian space, the most serene way to reach one's goals and, given its premises, i.e. the set of Euclidian axioms, better provably cannot be done. Mathematics –even if it has unsolvable problems as well– is a paradigmatic example of a tiny universe –however abstract and limited– wherein 'beauty' is abundant and can easily be reached. The reason manifestly lies in the highly axiomatic character of the domain and in the very restrictive ontology of its semantics. Logic and mathematics are privileged domains wherein the semantics of the matter at hand, its content, is almost completely expressible in its syntax.

Hence the possibility, even the necessity, of exactly knowing what one is saying and concomitantly, given the definition of and the definitions in the domain, the possibility and the necessity, again, of strict and uncontroversial proof. In these domains it is as if beauty is guaranteed from the outset, at least for talented mathematicians. But this kind of beauty is bound up with what Pascal called 'l'esprit de géométrie'. Real beauty has, in his terms, to do with 'l'esprit de finesse'. And that's an altogether other matter. Because, given the limits of mathematics, events in the real world, in the 'pantarhei' of its concrete flow, are no longer calculable. To think otherwise, is to make the 'fallacy of misplaced concreteness', as Alfred North Whitehead long ago convincingly argued.

Therefore 'real' beauty is rather exceptional and demands a high degree of what traditionally has been called 'inspiration', even in mathematics, evidently in art, and, more than everywhere else, in ethics. But this state of affairs does not mean that it would be no good to look at beauty as an inspiring ideal. On the contrary: it is perhaps the only effectively successful paradigm. In a sense one is obliged to propose it as the ideal of moral action as such. For there seems to be no alternative. It is perhaps no wonder therefore that utopian thinking seems to be intrinsically connected with this very restricted kind of beauty, as if society and the world could be so organized that the outcome would be effectively 'beautiful' always and everywhere.

Utopian thinking notoriously originated with Plato's 'Republic'. And Plato was inter alia a mathematician. On the basis of his ontology of ideas – the highest idea by the way was'beauty'!–, especially that there were really no unsolvable problems, he was convinced that, at least in principle, 'beautiful action' could be and ought to be made universal. At least, given the right insight in the structure of the world, the right organization of society and the right psychology of its individuals.

This utopian way of thinking, in ontology, epistemology and psychology, evidently, has a long and venerable history: it is a monumental idea. But as recently has become clear –not only in history, but also in mathematics and science –the idea is thoroughly wrong. Nevertheless it remains understandable that it was and is, philosophically and religiously speaking, so frequently and so tenaciously pursued. For it would indeed present us with a final solution to our moral problems, their difficulties, their impasses, their contradictions and their tragedies. In this context it is highly significant that Plato asks his fellow citizens, the 'tragedians', to peacefully leave the 'polis'. Indeed, if the 'tragedians' were right –and they are– these utopian projects have to be abandoned because they are based on an illusion. And paradoxically, this illusionary project is in its turn the manifest cause in history of in principle avoidable misery and tragedy. Beauty cannot be made universal without robbing the human being of his/her humanity, without reducing the human species to a mechanical devise, to an automation. The idea would kill our moral sense. Nevertheless beauty can and must be our inspiration when acting in the world. That is what we wish. We cannot wish for more, but for less we cannot go either. We cannot, as human beings, resign ourselves to impotence. So we need ideals and 'beauty', and the 'beautiful life' seems to be the only ideal available. But, at the same time, we have to realize that it cannot be forced upon us by rigid thinking. Let alone by trying to realize utopia by force. As history shows, this leads to more misery than is normally and usually the case anyhow.

4 CONCLUSION

Normally then, we are confronted with situations in which it takes a lot of toil and effort and luck to realize our moral

goals: the conditions must be propitious, the necessary means are to be available, the time must be right, and so on. And most often, we can be happy indeed, if we arrive not exactly at the Euclidian point envisaged but more or less in its neighborhood. There is an aesthetic category that expresses this state of affairs, namely what is generally called the 'sublime'. Most actions, if they have more or less significant success, can be subsumed under this category. Mathematically it could be symbolized by an asymptotic curve. We reach our goals exactly only in infinity and our endeavors are quasi infinite as well. When we, finite beings, halt –we indeed cannot go on forever– we cannot be, never, absolutely content. But at least we can take some rest for the time being. That seems to be the moral predicament of humanity at large. From time to time, to take some rest and try to feel contented.

There happens to be one exception, at least aesthetically, and that is the category of grace'. It means that one realizes exactly one's goal in a more or less playful way, as if by chance. Essentially, it exemplifies a kind of moral magic. As if one in an nonchalant way, by playing around, almost unconsciously, gets things done, without any apparent special effort at all. And as if, artistically, nothing is easier than creating, nothing simpler than being moral. As if it were a trifle. In art grace is possible, but very exceptional. Mozart certainly is an example. And perhaps Shakespeare. But eventually they are the only ones. And in reality? Can 'grace' be a moral ideal? It seems that it is of all things the most to be wished. However, it is not only exceptional but, as suggested, something bordering on the miraculous. Perhaps miracles are not absolutely impossible. Just as happiness, which, most of the time, is indeed a kind of miracle as well.

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INTERNET ADDICTION DISORDER (IAD): INBALANCED NEUROTRANSMITTERS

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ABSTRACT

The paper aims to demonstrate the association between the Internet Addiction Disorder (IAD) with the neurotransmitters Dopamine and Serotonin and to raise awareness of the negative effect their imbalanced interaction, caused by IAD, has on information and knowledge society. Furthermore, it gives some examples that reinforce the argument that arts have a beneficial effect for a healthy psychological, emotional and physical equilibrium.

1 INTRODUCTION

Addictions activate the reward center of the brain and when activated dopamine release is increased. Internet use may lead to dopamine release in the nucleus accumbens, one of the reward structures of the brain involved also in other addictions. Although the main biological factors related to IAD are still to be identified, studies have linked the imbalance of the functional levels of dopamine (DA), serotonin (5-HT) and norepinephrine (NE) that are associated with the onset of mood and anxiety disorders with IAD. When these neurotransmitters are out of balance, they cause problems related to focus, memory, cravings and sleep. Furthermore, studies suggest that dysfunctional interactions between serotonin and dopamine systems in the prefrontal cortex may play an important role in aggression and its disorders. In 1958 Arvid Carlsson (Nobel Prize in Physiology) and Nils- Åke Hillarp at the Laboratory for Chemical Pharmacology of the National Heart Institute of Sweden discovered the function of dopamine as a neurotransmitter. Dopamine, a neurohormone that is released in the hypothalamus, helps control the brain's reward and pleasure centers. It helps regulate movement and emotional responses. Serotonin is a chemical created by the human body that works as a neurotramitter, responsible for maintaining mood balance. The word serotonin comes from its discovery when it was isolated in 1948 by Maurice M. Rapport and initially classified as a serum agent that affected vascular tone. As a neurotransmitter it influences the majority of brain cells. The chemicals of emotion, such as adrenalin, serotonin and dopamine act by modification of synapses and modification of synapses is the root of

learning, while arts trigger emotion. Dopamine is released in the newest region of cortex, the part that we use to create ideas. The release of serotonin is triggered by positive events. The systematic involvement in any kind of art creation should be encouraged to be used as a counter balance to internet excessive use, especially by youths. Neuroaesthetics could help the discussion to a great extend.

2 INTERNET ADDICTION DISORDER (IAD)

Internet Addiction as a disorder was systematically identified by Kimberly Young of the University of Pittsburgh (Brandord, PA, USA). Young reported that 396 out of 496 self-selected regular internet users were dependent on the internet [1]. Young first proposed that problematic computer use should be included in the Diagnostic and Statistical Manual of Mental Disorders (DSM) 4th ed. Text Revision [2]. Addictions activate a combination of sites in the brain associated with pleasure, known together as the "reward center" or "pleasure pathway" of the brain. When activated dopamine release is increased. Over time, the associated receptors produce tolerance and the need for increasing stimulation of the reward center. C Shawn Green and Daphne Bavelier [3] using a form of brain imaging (Positron Emission Tomography, PET) determined that a massive increase in the amount of dopamine released in the brain was observed during video game play, in particular in areas thought to control reward and learning, the increase being comparable to that observed when amphetamines are injected intravenously [4].

IAD is now recognized internationally and is linked with academic and social impairment. A Case-Control study on 18 adolescent students with IAD were recruited from the outpatient department of the Shanghai Metal Health Center at Shanghai Jiao Tong University School of Medicine from July 2008 to January 2010. The diagnosis standard for IAD was established by the modified Young's diagnostic questionnaire for Internet addiction criteria by Beard and Wolf [5]. The results demonstrated that IAD is characterized by impairment of corticostriatal functional circuits involving affective and emotional processing and cognitive control.

The findings suggested that IAD might share psychological and neural mechanisms with other types of impulse control disorders and substance addiction[6].

Dr. Pinhas Dannon, a psychiatrist from Tel Aviv University's Sackler Faculty of Medicine, recommends that IAD should be grouped with other extreme addictive disorders such as gambling, sex addiction and kleptomania. IAD is currently classified by mental health professionals as an Obsessive Compulsive Disorder (OCD). Dr Dannon on behalf of his colleagues from the Tel Aviv University and the Beer Yaacov Mental Health Center reports, "Internet addiction is not manifesting itself as an "urge" but as a deep "craving" [7].

3 IAD AND NEUROSCIENCE

It is neuroscience that gave us an overview to our behavior landscape guiding us to the understanding of our inner needs and desires. Achieving a goal or anticipating the reward of new content for completing a task can excite the neurons in the ventral tegmental area of the midbrain, which releases the neurotransmitter dopamine into the brain's pleasure centers. This results in compulsive behavior such as the need to keep playing a game, constantly checking email or gamble online. When compulsive behavior prevents us from functioning in a normal manner then obsessive-compulsive disorder enters the scene. Obsessive-Compulsive Disorder (OCD) is a severe psychiatric disorder, affecting 2-3% of the population (Kopell, Greenberg, & Rezai, 2004) (Nuttin et al., 2008) (Aouizerate et al., 2004). The release of dopamine forms the basis for addictions [8].

Biochemical similarities involving serotonin (5-HT) systems have been observed between aggression and IAD. Modulation of the mesolombic dopamine pathway and serotonergic system dysfunction by the serotonergic system in impulse control disorders reflect inhibitory impairment of the prefrontal cortex [9]. Lee et al. presented that a homozygous short allelic variant of the serotonin transporter gene (SS-5HTTLPR) was more frequent in an excessive internet use group [10]. Since more frequent expression of the SS-5HTTLPR gene was observed in IAD, IAD may have a dysfunction of the serotonin system, as observed in previous behavioral addiction studies [11].

Central serotonergic and dopaminergic systems play a critical role in the regulation of normal and abnormal behaviors. Moreover, recent evidence suggests that the dysfunction of dopamine and serotonin neurotransmission might underlie the pathophysiology of neuropsychiatric disorders, including depression, schizophrenia, attention deficit, hyperactivity disorders, drug abuse, Gilles de la Tourrette's syndrome and Parkinson's disease [12].

Dysfunctional interactions between serotonin and dopamine systems in the prefrontal cortex may be an important mechanism underlying the link between impulsive aggression and its comorbid disorders. Serotonin hypofunction may represent a biochemical trait that predisposes individuals to impulsive aggression, with dopamine hyperfuction contributing in an addictive fashion to the serotonergic deficit. [13] Poor control of attention-related and motor processes, often associated with behavioral or cognitive impulsivity, are typical features of children and adults with attention-deficit hyperactivity disorder (ADHD). Recent genetic and neuroimaging studies provide evidence for separate contributions of altered dopamine and serotonin function in this disorder [14]

4 SEROTONIN – DOPAMINE INTERACTION

Dopamine and Serotonin are released by a small number of neurons in the brain. Each neuron connects to thousands of other neurons in many areas of the brain, giving to these neurotransmitters a great influence over complex processes. Serotonin is behaviorally more diverse than dopamine. It plays a complicated set of roles in the brain, such as impulsivity, obsessionality, aggression, psychomotor, inhibition, hallucinations, attention and mood. [15] Two aspects of serotonergic functioning suggested in theories are its involvement in aversion and punishment and both of these aspects are in opposition to dopamine, which is involved in approach responses, has a psychomotor arousing influence and is associated with reward processing. Pharmacological studies showed that dopamine is involved in activating behaviors that serotonin inhibits and vice-versa [16].

Dopamine is associated with the primary motivational system influencing the translation of desires into action and the learning of new behaviors. Serotonin, operating in concert with the structures of the secondary motivational system (hippocampus, amygdale, hypothalamus, and septal nuclei) facilitates the delivery of contextual data, i.e. memories to the primary circuitry influencing resulting behaviors [17]

Deficient serotonergic function may result in hyperactivity of the dopamine system promoting impulsive behavior in humans. Low levels of serotonin metabolite and high levels of the dopamine metabolite in CSF have been associated with high scores in interpersonal and behavioral items of the Psychopathy Checklist-Revised (PCL-R). Dopamine hyperactivity in brain regions leads to increased impulsive and aggressive behaviors. Dopamine hyperactivity as a result of reduced serotonergic control over the dopamine system may contribute to impulsive aggression. These pathological processes may result in a failure to regulate emotion. Dopamine hyperactivity resulting from deficient serotonergic regulation can promote substance abuse and other addictive behaviors.[18]

5 ARTISTIC CREATION, LEARNING AND COGNITIVE BALANCE

There is no doubt that technology, computers, I pods, I phones, internet, and all futuristic i-tems imaginable, are here to stay. There is also no doubt that all this will keep developing in an accelerating rhythm too fast for us to comprehend. We use our time and skills and some of us manage to acquire enough technological knowledge to be able to operate all the new I-tems around us and then a small kid in a distant land may invent a small wire and we are ignorant again. Is there an answer to this? Is there a way to preserve and protect our human rhythm, our memories, our aesthetics, our right to beauty? My answer to all this is that the only counter balance I see is art. *"Art is a harmony parallel with nature"* Paul Cezanne reminds us. This paper aims to collect examples that use neuroscience as a reinforcing argument to this syllogism.

Brain physically changes when we learn. The change is greater and most powerful when emotion is part of the learning. The chemicals of emotion, such as adrenalin, serotonin and dopamine are changing the connections and structures in the brain. Emotion is triggered by art that has the power of changing the brain of the creator and the one who benefits from art [19]. "A very important recent finding of magnetic resonance-based morphometry is the discovery of the brain's ability to alter its shape within weeks, reflecting structural adaptation to physical and mental activity" [20].

Dopamine is created in the oldest part of the brain and is released in the newest region of cortext, the part we use to create ideas. Creativity and the decisions made when we are in control and inventing things, engage our reward system [21].

Imagery as the result of the perception of external events and internal phenomenon seems to share the same or equivalent neurological processes. [22] Under certain conditions, the limbic system may not differentiate between an internal perception and an external image. In an inward attuned, limbic state symbolic, sensory, affect laden art work may be perceived as real. This means that if we can create vivid enough images, we can convince ourselves to change [23] .

Music therapy has proven to be effective for people with Parkinson's disease. Some neuroscience studies have shown that certain types of music stimulate the production of dopamine and serotonin [24]. Dopamine replacement therapy in Parkinson's patients can induce "compulsive singing" [25] suggesting a connection between dopamine and musical reward.

The healthy brain, an alteration in neurotransmitter balance together with specific functional neuroanatomical regions can contribute to artistic behavior [26]

G. Gabrielle Starr proposes that aesthetic experience relies on the distributed neural architecture, a set of brain areas involved in emotion, imagery, memory and language. [27] A most interesting article by Starr, Edward A Vessel and Nava Rubin sheds light, among their other works, into the field of neuroaesthetics. "In a task of rating images of artworks in an fMRI scanner, regions in the medial prefrontal cortex that are known to be part of the deafault mode network (DMN) were positively activated on the highest-rated trials. This is surprising given the DMN's original characterization as the set of brain regions that show greater fMRI activity during rest periods rather than during performance of tasks requiring focus on external stimuli. Further research showed that DMN regions could be positively activated also in structured tasks, if those tasks involved self-referential thought or self-relevant information. […] This mediates a sense of being "moved" or "touched from within". [28]

The pleasure that people derive from viewing objects they find beautiful taps into our brain's reward circuity. Beautiful visual images similarly trigger activity in the ventral striatum, the ventromedial prefrontal cortex and the orbitofrontal cortex – areas involved n coding our pleasures – and the insula, which is linked to our autonomic nervous systems [29].   There is a distinction between "liking" and "wantling". Liking is mediated by the nucleus accumbens shell and the ventral pallidum mediated by opioid and GABAerigic neurotransmitter systems. The mesolimbic dopaminergic system seems to mediate wanting [30, 31].

Anjan Chatterjee [32] puts very strong arguments and questions on the table when dealing with art and the properties of the brain. "Processing art provides a unique window into the interactions of various subsystems." he argues. The core question he places before us is how neuroscience can contribute providing a deeper descriptive texture to our knowledge of aesthetics. How neuroaesthetics can contribute to our knowledge of human nature and progress is my question. The answer emerges through the speculation outlined in this paper that expresses a deep concern about the consequences that the generations to come will have to face if the neurotransmitters' imbalance caused by IAD becomes an everyday proved fact that will affect negatively the information and knowledge society.

The core aim of this paper is to express the belief that art involvement, encouraged by official bodies, would counter balance the damage caused by IAD. Neuroaesthetics could help this endeavor.

I will end this paper quoting another painter, Agnes Martin :

"When I think of art I think of beauty. Beauty is the mystery of life. It is not in the eye it is in the mind. In our minds there is awareness of perfection"

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AN ETHNOGRAPHIC STUDY OF MOBILE VIDEOGAMES FOR ENGLISH VOCABULARY DEVELOPMENT IN URBAN CHINA

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ABSTRACT

This study investigates the effectiveness of mobile video games for learning English language vocabulary among Chinese students in comparison with more standard electronic dictionary learning. This involved an ethnographic study of students in their natural learning environment which was followed by classroom testing of vocabulary proficiency. Results show that educational video games can both improve the student learning experience and student results when combined with traditional methods.

1 INTRODUCTION

The start of this 21st century has been marked by a rapid rise in the use of mobile computing devices such as smartphones, tablets and notebook computers. To date there are over 2.23 billion mobile phone users and over 1.75 billion smart phone users worldwide, meaning that a remarkable 31% of the global population own a mobile phone and around 25% have a smartphone [1]. Adoption rates are even higher in China where smartphones are ubiquitous and in near constant use among young people and the student population in particular [2]. This popularity is boosted by the proliferation of cheap smartphone technology from prominent domestic providers such as Huawei, Lenovo and Xiaomi [3]. While there are social problems linked the over use of smartphones and users' inability to adopt sensible usage patterns [4, 5], the one certainty of smartphone technology is that usage is unlikely to go down anytime in the near future. Hence, the objective of this research has been to investigate the application of smartphone technology to an activity that might be more beneficial to the user. That is, English vocabulary learning.

English can now be safely considered as the language of the world [6]. Through the advancement of British, and later American, commerce, trade and general cultural diffusion through books, films and popular music, the English language is now the global language of finance, education, economics and virtually every other field of significance. The problem is that while English may be easy to learn for European peoples coming from a similar background of a similar Germanic or Romance language, it can be extremely difficult for non-Europeans to learn. This includes many Chinese students who have to learn English from an early age, often without any real form of immersion or exposure to native speakers. This paper looks at the possibility of supporting more intensive patterns of language learning through the use of mobile games.

2 RELATED WORK

There are many researchers who recognize the value of educational games.These are also known as *serious* games and tend to have the objective of helping students achieve a specific learning goal such as learning how to perform specific mathematical operations or memorizing specific elements of vocabulary. A serious game is a computer application, which combines serious aspect of education, of learning or communication with the ludic aspects of a video game. In other words a serious game is a result of an educational scenario run into a video game [7].

But educational games are more than just games we can learn from, and mixing together playfulness and technology in serious games is more than simple entertainment. The serious game is a learning tool with multiple learning objectives, which focuses on groups of people with different ages and different levels. They can be applied in areas such as education, health, scientific exploration, engineering and many other domains. Applications of serious games in education are also called Edutainment. This kind of application enriches the game environment by adding a pedagogical technique to deliver educational content.

These applications present knowledge with an enjoyable process making the learning experience less stressful than it would be with traditional educational methods. In learning environments games are naturally motivating. The key features for a learning game are challenge, curiosity, control and imagination or fantasy [8]. Games need to be challenging with clear and fixed goals relevant for learners. They must also rouse sensory and cognitive curiosity.

Challenge and curiosity are generated by the uncertainty of a game. The unpredictability of the results maintains and activates the desire to continue the activity. The feeling in control of the player is the control of its learning experience, which guide its progress to its expected goal using a received feedback. Imagination and fantasy relate to emotions and thinking process of the learner. These element place the player in a fictional situation in which they can find relevant metaphors or analogies.

Another important element for the wellbeing of the learner is that the game reduces the anxiety associated with the learning process and the student can learn without being aware that they are *having to learn*[9].

Nowadays, video gamesare viewed by experts as one of the most significant forms of media for the enculturation of young people[10]. This is despite the link claimed by some authors between video game usage and violence or antisocial behavior [11, 12].

Indeed we should perhaps re-appraise the often cited evaluation of videogames as mindless or senseless play-spaces in light of some recent developments in videogame culture. Studies have highlighted the richness of the discourse, the quality and depth of the collaborative inquiries, and the strategies developed by players in support of complex processes of learning, thinking and social practices that take place during gameplay[13].

There are even some examples of these kinds of games with an educational intent that implicitly exclude violent conduct. We have, for example, Quest Atlantis Project [13]a game without guns. This is a 3D multiuser virtual environment designed to offer an immersive experience to children from 9 to 15 where players can travel into virtual places to perform educational activities like attending a botanist training or building houses.

Another good example of an educational game is PlayPhysics, an emotional game-based learning environment for teaching physics to students of undergraduate level, developed at Trinity College Dublin. In the game the student is an astronaut. He has as mission save his or her mentor who has been trapped on a space station. PlayPhysics allows players to learn, explore, and understand concepts such as Newton's law for particles and rigid bodies. The game provides suitable guidance according to the detected user's emotional state [14].

The game developed for this study is specifically designed for university age students and mobile play on smartphone devices for the learning of English language vocabulary for Chinese students.

Figure 1: Student Interviews

3 METHODOLOGY

Our experiment involved six students, three boys and three girls between the ages of twenty and twenty-two, all studying for their English IETLS exam with a set vocabulary to learn and memorize. Two students used the learning game, two used a dictionary and two students had only classroom support material. The students were all given a short test at the same time before using the game software or dictionary and another test just before their exam to test the proficiency of each method. Each test was scored out of 50 for the memorization of 50 words. Students were also interviewed to gauge their attitude toward each method.

Figures 1 and 2 show screenshots from our videogames. The design is similar a language game designed to help Mexican primary children to learn the names of animals in English [15, 16]. Here students need to match Chinese and English words to fire fireballs at zombies slowly approaching from the right hand side of the screen. If the zombies reach the left hand side of the screen they drain the user's energy and they eventually die and the game is over. The game begins with a small number of more common words and as the game advances the difficulty level increases with a wider variety of gradually more obscure words. If the students are not already familiar with the words, they can normally find the translations out by trial and error and learn from their mistakes. The game also includes a high score table to introduce more incentive for the students to play the game again and try to improve on

Figure 2. Screenshots of our simplemobile educational videogame; left high-score screen and right the gameplay

their previous performance.

4 RESULTS

All of the students showed an improvement in the second test. This is unsurprising since the students would also use books and notepads to revise for their exam. The students using the videogame improved by 45% while the students with the dictionary improved by 34% and the students without support improved by 16%. These results are not statistically significant due to the small sample number but they are encouraging, especially given that the videogame group started with a higher average mark (around 32) than the dictionary group (27) so had less space to improve.

The results of our structured interviews are somewhat more interesting. Student attitudes were positive toward the videogames, neutral toward the dictionary and negative toward having no electronic support. All of the students felt the electronic videogames would be useful for learning vocabulary. They considered the software convenient and fun, although one student thought it might reduce his focus on other aspects of study. The majority of the students considered that the method using education videogame software would be more effective that other techniques. This included the two students who used the game.

5 CONCLUSION

The results of our study show the potential of mobile educational videogames to improve the learning experience of university age students and particularly Chinese university students learning English vocabulary. We believe that while these are early results, they are significant due to the importance of English learning for the future job prospects of Chinese students and the potential to make use of the now ubiquitous smartphone technology. We also believe that these results add to the body of research that indicates that videogames have the potential to have a more positive effect on our lives and the society we live in.

Acknowledgement

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A LOOK OF COGNITONICS AT THE ROLE OF MUSEUMS IN COGNITIVE ENGAGEMENT OF THE ADOLESCENTS AND UNIVERSITY STUDENTS

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ABSTRACT

This paper pertains mainly to art cognitonics, it is a significant branch of cognitonics, or the science about the human being in the digital world. The first aim of the paper is to consider a way of achieving cognitive engagement of the adolescents and university students at lectures on art cognitonics. The central idea is to expand the conceptual universe of the learners by means of messages conveyed by outstanding canvases and sculptures. Art cognitonics changes the perception of a work of art by the beholder in comparison with the traditional approach. The second aim is to state a new conception of a sci-fi museum (a science fiction museum), this conception is underpinned by cognitonics. The principal idea of the new conception is the creation of a thought-provoking space aiming at stimulating the process of perception of the power of thought, regarding thought as a value.

1 INTRODUCTION

One of the basic ideas of cognitonics in the field of education is the idea of regarding thought as a value. Its essence is as follows. A child is aware of the fact that his/her ideas may be socially significant, i.e. a child may be appraised by the friends or adults for the originality and beauty of his/her ideas; moreover, a child appreciates the value of the thoughts of other persons [1 – 6].

The next basic idea of cognitonics is as follows. The outstanding works of art (we consider here painting) are the results of looking by their creators for the answers to acute questions of their time. Very often, young people are looking for the answers to, in fact, the same questions but in modified forms corresponding to our time. That is why it would be very reasonable and very desirable to expand the conceptual universe of young people by means of including into it the messages conveyed by outstanding works of art.

This idea was the starting point for formulating in [7] the proposal to develop a new branch of cognitonics – art cognitonics (AC). The principal objective of AC is tuning the cognitive-emotional sphere of the young children and adolescents with the help of well-known works of art. The goal is "to create a bright semantic trace in the world's conceptual picture of the learner corresponding to an idea explaining or illustrating a moral value, communicative situation, a situation of making a decision, cognitive process itself, the process of self-cognition and consideration, the seething cocktail of emotions, a way of viewing the world around, etc. Art cognitonics establishes the links between the objects, situations, processes, views of a person (a beholder) and the work of art that becomes a metaphor or a vivid illustration (vivid mental representation) of something the beholder is considering about" [7].

The first aim of this paper is to show (on a concrete theme of a lecture) how it is possible to inscribe the messages conveyed by the pictures into the world's conceptual picture of the young beholder – an adolescent or a university student. The next aim of the paper is to introduce an original conception of a science fiction museum (a sc-fi museum).

2 A NEW APPROACH TO THE IDEA OF A SCI-FI MUSEUM UNDER THE FRAMEWORK OF COGNITONICS

The power of thought and the beauty of thought that introduces beauty into the world, transfigures the reality (poetry, music, etc.), making breakthrough (scientific research) is still not so easy to understand because of the gap between the moments of inspiration felt by the creator

and the embodiment of that breakthrough in some real discovery.

Inspiration is defined by Oxford dictionary as the process of having one's mind or creative abilities stimulated, especially in art, music, or literature. Such notions are cultural assets, scientific assets are very often not easy to understand by the contemporaries, because the work of art or scientific research aiming at solving a scientific problem or constructing a theory, breaking fresh ground, suggests the changes in the conceptual picture of the world, turning the extra ordinary things into ordinary.

A museum is a building in which objects of artistic, cultural, historical or scientific interest are displayed. It is a public place for keeping the collections, studying them, and displaying them. The museums play an important role in socialization of the young generation and in the educational process in general.

A science fiction museum (sci-fi museum) might be a type of museum based on imagined scientific discoveries of the future being turned into a reality. The difference between the conception of a science museum and sci-fi museum is as follows. A science museum displays the achievements of the human society but a sci-fi museum displays the results of the so called cognitive experiment, on the one hand, or a scientific guess about the future, on the other hand.

There are examples of sci-fi museums such as Experience Music Project and Science Fiction Museum and Hall of Fame in Seattle. It was founded by Paul Gardner Allen, a cofounder of Microsoft (together with Bill Gates), and the producer Jodi Patton. The museum displays sci-fi books, journals, items of scenery from the Hollywood films, props. Such museums may include computer games, robots, etc.

A new approach to the idea of a sci-fi museum under the framework of cognitonics aims at focusing the attention on the power of thought, though-provoking books, and the look at the future. We are interested in such notions as hard science fiction. This notion was used for the first time by P. S. Miller in 1957 in his review published in the journal "Astounding Science Fiction". The ideas expressed in sci-fi were regarded as utopia at the time the book introduced these ideas was published. For example, the novels "Robur le Conquerant" and "Maitre du Monde" by Jules Gabriel Verne brought a helicopter and an airplane into being and were regarded as utopian ones.

Not only scientific breakthrough might be thrilling but also the considerations of the writers on the subject. For example, Philip Kindered Dick in his novel "Do Androids Dream of Electric Sheep?" (1968) puts the question were there is the end of the consideration and the beginning of a reflex; where the human being differs from the animals or from the robots, whether we have the right to distinguish ourselves from something that fulfils the same tasks but in another way.

Jules Gabriel Verne in the novel « Robur le Conquerant » in 1876 came to the conclusion that the success of science should not outstrip the improvements of spiritual maturity. Otherwise the science will become dangerous.

The main idea of a new conception of a sci-fi museum is the creation of a thought-provoking space aiming at stimulating the process of perception of the power of thought, regarding thought as a value. It will help to better understand the variety of possibilities, to find a new look at the common things, and to be thrilled by the power of creativity and happiness of inspiration.

Figure 1: a view at the sc-fi museum in accordance with the suggested new conception (S. M. Gordeeva)

The museum should encourage the belief in the power of thought, show the thought boundless space, paying a special attention to the responsibility for the ideas: humans should think and act in terms of public good and regard the home planet as their sweet home (see Figure 1). The museum might contain:

- a permanent display; it includes the items revealing the achievements of the humans in various scientific domains which completely changed the idea of people about the world and the power of thought, the examples of guesses, of the sci-fi writers about the future which were not recognized by the contemporaries and, as a result, were underestimated by the contemporaries;
- the room of models: the way humans imagine the things (technical objects, materials, etc.) in different periods of time; it might help to better understand (to observe) the development of science and technology; it is possible to display instruments, devices belonging to well known scientists;
- a video room; it makes it possible to show the films about the experience, about the evolution of the idea generation process;
- a temporary display: the objects from other museums and private collections;
- the interactive rooms;

- the demonstration rooms revealing a correspondence between the content of the sci-fi books and scientific achievements;
- a conference room;
- the lecture rooms;
- the rooms representing the modern view of the future , of future achievement, and possible kinds of breakthrough in various domains.

3 COGNITIVE ENGAGEMENT AT THE LESSONS OF ART

Let's consider the way of achieving cognitive engagement and personal involvement of the students in the process of discussing the subject "The balance between privacy and the expressiveness of the portraits of the painter's wife". We understand privacy as the state of freedom from interference or public attention. On the other hand, expressiveness and vividness are the positive characteristics of the portrait. The problem is how to overcome this contradiction.

Cognitive engagement is defined in [8, 9] as the process of highly motivated intellectual activity when the interest towards the subject under discussion is so strong that the students loose the track of time and, as a result, they are not tired. The students' interest determines the level of involvement. The emotional response is very close to inspiration, because they are making their own discoveries, and their mental efforts are appreciated. It helps to provide a conceptual learning environment instead of a memorization based one and enhances the motivation.

Cognitive engagement is created mainly by the components called in [8, 9] *focused attention, positive effect, aesthetics, endurance, novelty, motivation.*

The creation of *focused attention* is based on the contradiction between the idea of privacy, that is, as the state of freedom from interference or public attention, and expressiveness, that is, showing (revealing in the picture) one's feelings or thoughts. It evokes own feelings, brings a memory into student's mind. As a result, the students come to the conclusion "It is my cup of tea".

Positive effect has been achieved when students say "It is good for me". This conclusion is underpinned by their own reasoning: on the one hand, never let anyone trespasses onto my privacy; on the other hand, "I'd like to have my portrait painted, why not". It means that interest toward the subject under discussion is evoked because it is self-oriented.

Aesthetics suggests the answer to the question: how to make the way the material is presented meet the expectations of the students – to make the presented material personal. In this case, emotional response is more vivid and, consequently, intellectual response is more thought-provoking. Painting in general touches the heart, making us enjoy it; and then the viewer should understand that every work of art conveys the artistic (philosophical or any other) message.
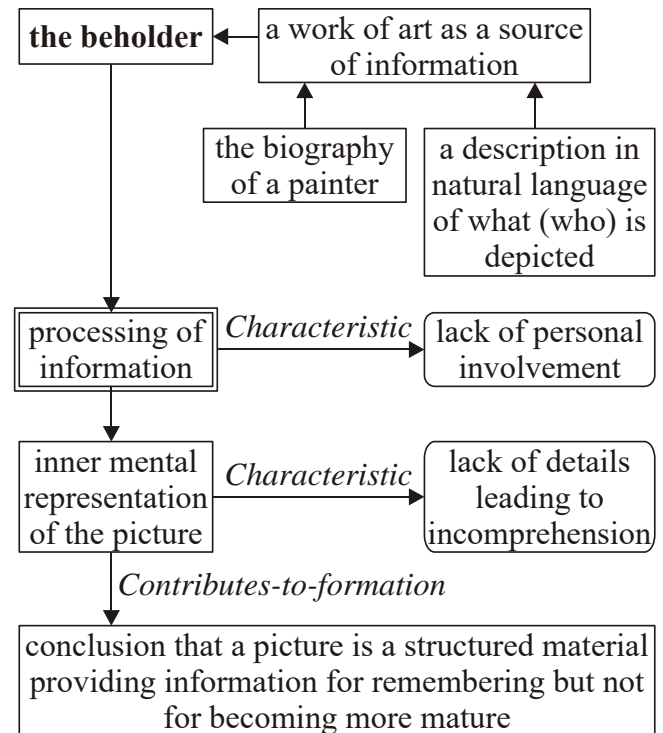
Figure 2: the traditional way of perceiving the painting

Endurance means that a student remembers a good experience and wants to repeat it. The student keeps turning over the picture in his/her mind, trying to have another look at his/her own private relationships.

Novelty is to be presented at every lesson for providing intellectual and spiritual nourishment. The described lecture considers four portraits: the portrait of the wife by Michael Vrubel ("After the concert", 1905), the portrait of the wife by Ilya Repin ("The Rest", 1882), the portrait of the wife by Marc Chagall ("The Walk", 1917 – 1918), the portrait of the wife by Petrov-Vodkin ("The portrait of the painter's wife", 1906). The pictures show a great delicacy and tact, love and tenderness, inspiration, beauty, nobility, dignity, romance, and sexuality. The portrait is a reflection of the sitter in the eyes of the painter, in our case, the reflection of the wife, the muse in the eyes of the husband. It always leads to consideration, objection, admiration, hesitation on the part of the students. In all cases, the level of relationships revealed on the canvas is much higher than that most students get accustomed too. The process of involving the students into a discussion helps to better understand the language of painting, on the one hand, and to start considering the model of relationships with their beloved. It starts up the creative process in the heads of the students, giving them the opportunity for the most

effective knowledge acquisition, information processing, etc.

Usually *motivation* of the students is closely connected with their values. Everyone answers the question: "What is good for me and how to achieve the state of complete happiness ?". The question under discussion influences the system of values, on the one hand, and reveals it, on the other hand. It is a good example how to make students be interested in art, because art is always provocative and makes them gain an insight into a problem of personal relationships, a loving or sexual association between two people. This lecture on painting is an example of creative environment of conceptual learning instead of a memorization-based one.

It is the process of co-creation, an attempt to perceive and reconstruct the artist's conceptual picture of the world and his/her system of values in connection to the picture

Charact

The beholder

Personal involvement

A work of art as a thought and feeling provoking text

Respect and deep interest in the process

Charact

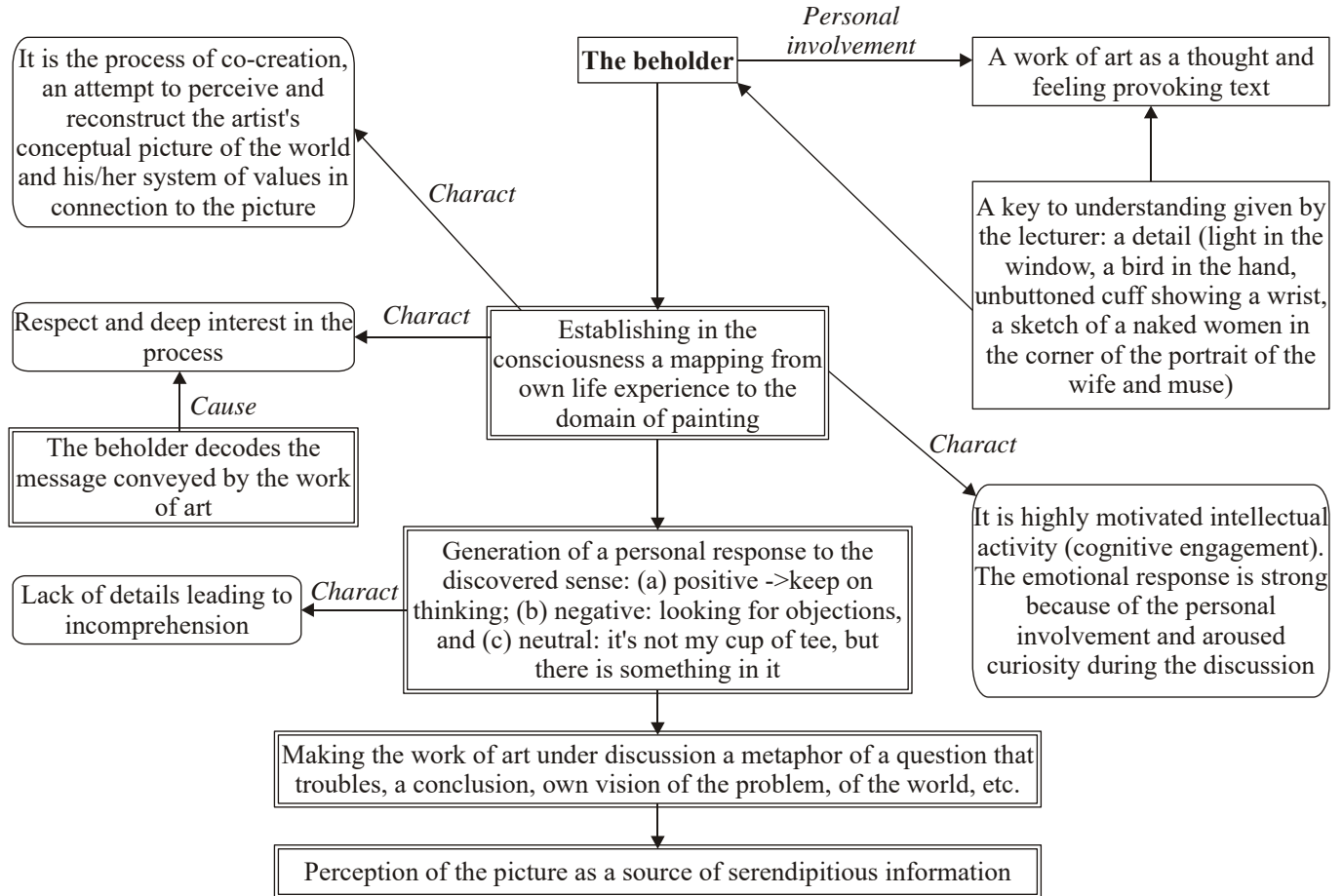*Cause*

The beholder decodes the message conveyed by the work of art

Establishing in the consciousness a mapping from own life experience to the domain of painting

A key to understanding given by the lecturer: a detail (light in the window, a bird in the hand, unbuttoned cuff showing a wrist, a sketch of a naked women in the corner of the portrait of the wife and muse)

Charact

It is highly motivated intellectual activity (cognitive engagement). The emotional response is strong because of the personal involvement and aroused curiosity during the discussion

Lack of details leading to incomprehension

Charact

Generation of a personal response to the discovered sense: (a) positive ->keep on thinking; (b) negative: looking for objections, and (c) neutral: it's not my cup of tee, but there is something in it

Making the work of art under discussion a metaphor of a question that troubles, a conclusion, own vision of the problem, of the world, etc.

Perception of the picture as a source of serendipitious information

Figure 3: the way cognitonics changes the perception of a work of art ("Charact" - "Characteristic")

The focus of the lecture is paying attention to the key details in the pictures, such as an unbuttoned cuff showing a wrist (Repin), a sketch of a naked women on the portrait of the wife (Petrov-Vodkin), unfinished portrait of the wife after a concert in a relaxing pose when the tide face is not clearly seen (Vrubel), the flying woman in the blueness of the sky, spirited, adored by her husband who holds her by the hand (Chagall). The lecture establishes in the consciousness of the student a mapping from the objects and situations, relationships existing in their life to the domain of language of painting, on the one hand, and relationships between two beloved, on the other hand. That is why the consciousness of the students receives a considerable impulse to developing the ability of establishing diverse analogies.

4 CONCLUSION

The paper grounds the necessity of a new look at the power of thought under the framework of art cognitonics. The paper sets forth a new way of representing painting to the students, making them step by step come to the idea of serendipitous information which is not expected but desirable and conduces to making their own discoveries in painting. Thus painting becomes the way of expressing one's views and makes the world of the students much broader, much more emotional and metaphoric.

The paper gives an example of achieving cognitive engagement of the students at the lessons of art. It shows how to provide the conceptual learning environment instead of a memorization-based one and enhances the

motivation to regard the pictures of Russian painters Repin, Vrubel, Chagall, Petrov-Vodkin.

The paper suggests a new conception of a science-fiction museum under the framework of cognitonics. This conception is underpinned by the ideas of making thought visible and the processing of thinking – thrilling and vivid to promote the idea of positively oriented creativity and make thinking in vogue.

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EARLY DEVELOPMENT OF THE HUMAN BEING IDEAL CONSTITUENT AND ART COGNITONICS AS THE ANSWER TO THE CHALLENGE OF KNOWLEDGE SOCIETY

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ABSTRACT

It is broadly accepted that success of countries in economic and social competition considerably depends on the quality of creative class and of its proportion relatively to all working people. The analysis shows that the principal distinguished feature of this class representatives is a well developed ideal constituent. First of all, it means that such people have high creativity, a dream to do something good and useful for many people, the increased ability of social collaboration, and increased awareness of social responsibility. It is broadly understood that the main contribution to the development of these qualities should be made during preschool and school years. This paper states the approach of a new scientific discipline called cognitonics (very shortly, it is the science about the human being in the digital world) to early development of mentioned qualities and, as a result, to the development of the human being ideal constituent. In this connection, a significant branch of cognitonics called art cognitonics is introduced. Besides, proceeding from the fundamental results of cognitonics, the expedience of creating a new branch of sociology is grounded, this new branch could be called sociology of sublime values dynamics. Its main objective is to be monitoring the evolution of the vector of the personality's ideal constituent.

1 INTRODUCTION

The modern information society is turning in many developed countries into knowledge society (or smart society). There are serious reasons to believe that success of countries in economic and social competition considerably depends on the quality and proportion of a specific minor part relatively to all people of the country. R. Florida [1] introduced the term "creative class" for denoting this specific minor part of a country's population. He divides this class into two subclasses: super-creative core and creative professionals. The members of the first subclass are qualified as being fully engaged in the creative process. These are, first of all, scientists, engineers, programmers. These specialists create innovative commercial products and services, invent energy saving technologies, etc. According to [1], this subclass includes over 12% of all U.S.A working positions. The subclass of creative professionals consists of knowledge-based workers and specialists working in business, finance, the legal sector, healthcare, and education. As a whole, R. Florida described the creative class as comprising (in the year 2002) about 30% of working positions in U.S.A.

The main ideas of the creative class conception well correlate with the central idea of the *smart fractions theory*. It says that a relatively small fraction of persons with highly developed cognitive abilities makes over proportional contribution to growth and prosperity of the society they are members of [2].

The analysis shows that the distinguished feature of the creative class representatives (especially of the super-creative core) is a well developed ideal constituent of the personality. This constituent includes the presence of a positively-coloured, constructive dream, creativity, the ability of social collaboration, and social responsibility.

That is why the problem of creating theoretical approaches and educational methods contributing to the growth of the human being ideal constituent is highly topical from the standpoint both of economic growth and social progress.

It is well known that preschool and school years play the decisive role in the development of the human being ideal constituent. The aim of this paper is to describe some central ideas of the approach of cognitonics (or the science about the human being) to early development of the human being ideal constituent. The term "cognitonics" was introduced by V. A. Fomichov and O. S. Fomichova in a paper published

in 2004 in Canada. The first fundamental paper on cognitonics in an international scientific journal is [3]. The ideas of cognitonics have received a broad support of international scientific community. In particular, the scholars from 23 countries participated with the papers in the First, Second, Third, and Fourth international scientific conferences on cognitonics in Slovenia (Ljubljana, Jozef Stefan Instituite, October 2009, 2011, 2013, and 2015) being the subconferences of the international scientific multiconferences Information Society 2009, 2011, 2013, and 2015 (see http://is.ijs.si). Many scientists and educators say that the ideas and methods of cognitonics have helped them to solve concrete difficult practical tasks; e.g., see [4, 5].

The main attention in this paper is paid to grounding the significance of developing the ideal constituent of young children and adolescents and to indicating some new approaches to solving this problem provided by cognitonics.

2 DETERMINING FEATURES OF THE CONSTRUCTIVE BUSINESS REPRESENTATIVES' PERSONALITY

Dr. Jens Pohl, Professor Emeritus of California State Polytechnic University (CALTECH) and a Vice-President of Tapestry Solutions (a Boeing company), carried out a very interesting analysis of basic personal features of entrepreneurs and of their activity's significance for USA economics. He done this in the keynote address delivered at the Opening Session of the 23rd international scientific conference on Systems Research, Informatics and Cybernetics, held in August 2011 in Baden-Baden, Germany [6]. According to statistical data of USA government, over 70% of all new working positions in the year 2007 were created by the companies of the age less than 10 years. Over 60% of new working positions in this year were created by very young companies, their age from one year to five years. Economic experience accumulated in abroad shows that a recession, especially as deep as in 2008, is followed by the manufacturing of a broad spectrum of new products and by mastering of entirely new, unexpected markets. The personal qualities of entrepreneurs play the key role in these processes.

Let's use the term "constructive business" for the activity of entrepreneurs aimed at creating new kinds of production and new kinds of services being objectively significant for the society. For instance, the development and distribution of new technical means for automation of agricultural works or works in building industry, new computer systems, and new means of communication. The content of [6] shows that the main accent in this keynote address is just on the representatives of constructive business (though this term is not used). The starting point for carrying out a study discussed in [6] was the following observations:

(1) The opinion that entrepreneurship creates wealth is true as a whole. However, this wealth is distributed very irregularly and is associated with a relatively small number of people. According to the data from [7], the most part of entrepreneurs gain less money in their companies than they would gain as hirelings.

(2) It is very difficult to launch new business, and the most part of the efforts to create a company don't reach the stage of operational business. According to statistical data, after 7 years of activity two thirds of the companies are not able to get benefit during three consequent months.

Taking into account these observations, it would be natural to put the following question: what peculiarities of the personality urge people to become entrepreneurs? The analysis carried our in [6] shows that the principal engine of entrepreneurship is the following features of the personality:

- acute non-satisfaction by the state of affairs being a consequence of a well developed cognitive-emotional sphere;
- a strongly expressed desire to achieve better results in comparison with other people, where the ground of this desire is a dream to create a product or/and to propose a service being demanded by a lot of people;
- the independence of thinking allowing to not pay attention to neglecting or disheartening opinions of the people around (often not seeing the reasons for intense work without a tangible material benefit).

Thus, just a well developed ideal constituent of the human being, first of all, the presence of a bright, positively coloured dream, the faith in the own ideas and in the own forces, creativity enable an entrepreneur in the sphere of constructive business to find the strengths for prolonged intense work, to overcome the lack of faith in the people around, and in many cases to achieve victory in his/her undertaking. It should be underlined that without faith it will be hard to be curious, creative, and innovative.

According to [6], just the readiness of the person to think in a non-standard way, creatively and to run risks for achieving his/her dream with passion and contribution of huge work is the principal driving force of economics, the principal source of innovations' emergence.

Wonderfully, the mentioned distinguished features of the entrepreneurs in the sphere of constructive business practically coincide with the features traditionally ascribed to the representatives of the so called "creative professions": writers, poets, painters, musicians, designers, etc.

That is why the attention to increasing the quality and volume of the human being ideal constituent, starting from the childhood, is necessary not only from the standpoint of supporting the gifts of future writers, poets, painters, musicians, designers, etc. but has a high social significance for forming a country's creative class as a whole.

3 SHORTLY ABOUT A SEVEN-LEVELS MODEL OF CONSCIOUSNESS DEVELOPMENT

It is well known that preschool and school years play the key role in developing creativity, the ability of successful social collaboration, social responsibility and in the formation of positively-coloured, constructive dreams. A new angle of look at developing these qualities and a broad spectrum of original educational methods is provided by cognitonics. To say very shortly, it is the science about the human being in the digital world [3, 8 - 10].

The constructive core of cognitonics includes the System of the Methods of Emotional-Imaginative Teaching (the EIT-system). This system contains educational methods aimed at developing cognitive-emotional sphere of the learners, in particular, emotional intelligence, associative abilities, creativity (first of all, through developing the skill of understanding and composing metaphors), reasoning skills, linguistic mechanisms, communication culture, the awareness of social agreements and social responsibility. The core of the EIT-system was elaborated by O. S. Fomichova in the first half of the 1990s and has been expanded in the second half of the 1990s and in the 2000s. The EIT-system is underpinned by our Theory of Dynamic Conceptual Mappings (the DCM-theory). The DCM-theory and the EIT-system are described, in particular, in [11 - 21].

The EIT-system has been mainly realized at lessons of English as a foreign language for Russian-speaking children and at the lessons of poetry and literature in English, at lessons devoted to explaining the symbolic language of painting, the culture of communication, and the symbolic language of classical dance. These kinds of lessons are considered in numerous countries as highly appropriate for young children and adolescents.

The effectiveness of the EIT-system became the starting point for enriching developmental psychology (DP) by an original model of developing conscious control in the childhood: the control of thought, emotions, and actions [10, 22]. Before the publication of [10], DP possessed the basic model of consciousness development proposed in [23]. This model considers four levels of consciousness development (LOC) and covers the ages from nine moths - one year to four years. The papers [10, 22] propose to expand this model by three additional levels with the numbers 5 - 7 (LOC5 – LOC7), covering the ages from 5 - 6 to 13 - 14 years.

A very short, preliminary description of these levels is as follows. The first additional level LOC5 is called *the level of broad beauty appreciation.* Reaching LOC 5 by the person means that this person possesses a well-developed feeling of beauty in various manifestations: the beauty of a thing, of an idea, of an expression, of a picture or sculpture, of the interpersonal relationships, etc. [9, 10, 22].

The second additional level LOC6 is called *the level of appreciating the value of thought.* The successful transition from LOC 5 to LOC 6 means that (a) a child is aware of the fact that his/her ideas may be socially significant, i.e. the child may be appraised by the friends or adults for the originality and beauty of his/her idea; according to [17, 19], it means that the Thought-Producing Self of the child has been realized; (b) a child appreciates the value of the thoughts of other persons [8, 9, 10, 22]. The third additional level LOC7 is called *the level of enhanced awareness of social agreements and social responsibility.* Reaching LOC 7 by a person means that this person is sufficiently mature in the social sense, i.e. possesses an enhanced awareness of social agreements and social responsibility [9, 10, 22].

It should be underlined that modern preschool and school educational systems in various countries encourage only a rather small proportion of children to reach the 5th - 7th levels of conscious control. But to considerably increase this proportion is vitally important for successful socialization of children in knowledge society. Happily, at least one broadly applicable way of solving this problem is given by the EIT-system.

4 ART COGNITONICS

Art cognitonics is one of the principal branches of cognitonics, or the science about the human being in the digital world. It aims at tuning the cognitive-emotional sphere of the young children and adolescents with the help of well-known works of art. The goal is to create a bright semantic trace in the world's conceptual picture of the learner corresponding to an idea explaining or illustrating a moral value, communicative situation, a situation of making a decision, cognitive process itself, the process of self-cognition and consideration, the seething cocktail of emotions, a way of viewing the world around, etc.

Art cognitonics establishes the links between the objects, situation, processes, views of a person (a beholder) and the work of art that becomes a metaphor or a vivid illustration (vivid mental representation) of something the beholder is considering about.

That is why the consciousness of the beholder receives a considerable impulse to developing the ability of establishing diverse analogies and consequently to finding a new look at a situation.

Art cognitonics is characterized by the following things:

- paining is regarded as a language to express oneself, one's views, values, mood, attitude, look; the works of art help to better understand something, the troubles of the beholder, a painter is regarded as an interlocutor, and his/her work of art – as his/her way to convey a message;
- the subject of the excursion (in our case – the talks) may be a painter and his/her works of art, but in fact in case with a painter, art cognitonics reveals the philosophical and practical questions the painter faced as a human being and the way he/she answered the question with his/her pictures or sketches;

- mindfulness, that is, coming to understanding and making a decision paying attention to details; the details are a kind of a key to grasping the meaning of the message conveyed by the picture and the same key as startup of the process of consideration on the problem in general as a kind of personal response to the ideas evoked by the work of art;
- -co-creation as the process of reconstruction of the painter's idea of the sitter and, as a result, the reflection of the sitter in the mirror of the painter's conceptual picture of the world; that is a mental representation of the sitter's conceptual picture of the world;
- serendipitious information, that is, the information that is desired but not expected; it turns a work of art in general or some details on the canvas (a key to that work of art) into a bright metaphor of a possible solution to a problem under consideration.

Example 1. At the very beginning of the way, a painter decides what to choose: portrait painting or landscapes. This choice can be compared with the choice at school between mathematics or humanities. It is important to choose mathematics not because one is not good at languages and literature but because one wants to better understand the beauty of mathematics and wants to perceive the essence of the earth as a planet. One should choose the humanities because he/she is bewitched by the word, understands that any culture is underpinned by language and wants to penetrate the very essence of the cognitive process, the world's conceptual picture of the people belonging to different cultures.

The same happens in case of painting: one shouldn't choose landscapes because he/she can't understand the human being as a system. A painter chooses the landscapes because he/she discovers the harmony, the beauty in the nature and, unfortunately, can't find that beauty and harmony in the human being.

Example 2. It is well known that in order to enrich the colour of their canvases, the impressionists made use of what is know as division of colour and optical blending. For instance, to represent a green meadow, they put little tabs of blue and yellow on the canvas which are supposed to be combined to form green in the eye of the beholder – a far more intense green than one taken straight for the artist's palette. That is why it is impossible to understand the idea of a picture standing close to the canvas. We have to step aside and look at it from some distance to enjoy it and to have the desired effect.

The same situation we have in every-day life. "Multiple debs, reflections" prevent us from grasping the sense of what is happening. As in case with impressionists' canvases, we have to have a look at the situation from a distance, and distance in this case is equal to time distance. We need some time to better understand what has happened, and this will help us to cope with the situation.

Example 3. Let us consider the picture by Claude Monet "Waterlilies, Green Harmony" (painted 1899). One can see a pond, a Japanese bridge that spanned the pond, and the water surface dotted with lilies. Even the sky is suggested only by its reflection in the water. The beholder is faced with a vast coloured surface. Though we know for sure that the lilies are white, but in fact there are no white lilies in the picture. They are of different hues due to the reflections on them of the trees, sky, plants, bridge, etc. That is the reflection of the surrounding objects. Then in every situation that troubles a person, he/she has to take into account all the hues of the problem, almost all details, facets of the situation under consideration. The idea evoked by the picture that there are no white lilies in the pond leads to understanding the fact that there are no "black and white situations" in the life, and one should try to see all the "hues" of a life situation in order to take a wise decision in this situation.

5 A NEW BRANCH OF SOCIOLOGY: SOCIOLOGY OF SUBLIME VALUES DYNAMICS

One of the peculiarities of knowledge society is the improved information processing ability of people and intense children-computer interaction being very often beyond the limits of necessity.

Since childhood children know how to use mobile phones, send SMS, use computer and smart TV. On the other hand, they emulate grown-ups and acquire the skills of rational approach to solving the problems. Very often, it is underpinned by the idea of profit of any kind. It is not the idea of reciprocation or gratitude but the idea of payment to do something in return.

In case of aggression (fighting, calling names, cyber bullying) the model of behaviour turns out to be "tit for tat". Even in case with the relationships with parents, very often there is a strong link between a good mark and a kind of payment for it. It leads to the ideal of expedience that excludes, in great number of cases, the idea of the human being ideal constituent. An expedient action might be useful or convenient for a particular purpose, though not necessarily fair or moral. Under the framework of upbringing, it may turn reasoning and rational approach to problem solving into a task how to get something for oneself, how to get profit, how to earn money, how to acquire better working position, but, very often, without any consideration about honour, dignity, right or wrong, without a conscious thought about responsibility, possible consequences, that is taking the decision without any connection with sublime values.

It is possible to roughly split people in two groups according to their system of values and the way they define the priorities [10]. The main question people answer are: what you value, what you believe, and how you act. The way people answer these questions and define priorities influences the process of decision making which is the result of the cognitive process based on information.

The first group includes people whose decision is underpinned by not only sound reasoning abut also by ideal values, such as dignity, honour, beauty, etc. The second group contains people whose decision are underpinned by sound reasoning and pragmatic values, such as expedience, calculation, profit, might, suggesting the well-known formula "business – nothing personal". *People belonging to the first group* are more independent and consistent in taking decisions. It is more difficult to influence their process of taking decisions, they have faith in what they are doing and they are motivated by sublime values and the idea of calling. *People belonging to the second group are less independent and consistent in taking decision*. It is easier to influence their process of taking decision, promising a profitable bargain or any other profit [10].

An example can be taken from the book by Enid Blyton "The Famous Five on a Treasure Island". There was a situation when parents were offered quite a good sum of money for a little island with a ruined castle on it. The sum was far more than they ever thought of getting. They struck a very good bargain. At that moment they didn't think about their only daughter who they had gifted the island too, and the island became an embodiment of her inner world. The girl reproached her parents: "Though you only gave me the island when you thought it wasn't worth anything," said George, her face wide and angry, "As soon as it is worth money, you take it again away. I think that's horrid. It – it isn't honourable".

It looks topical to develop a new branch of sociology called *"the sociology of sublime values dynamics"*. Its main objective might be as follows: *monitoring the evolution of the vector of the personality's ideal constituent.* The results of the studies in this branch could explicitly describe the peculiarities of taking decisions in various situations by some large groups of people, explicate the prevailing approach to taking decisions.

6 CONCLUSION

The principal driving force in knowledge society is its creative class. It is shown in this paper that the main distinguished feature of the creative class representatives is a well developed ideal constituent (it includes, first of all, creativity, a dream to do something useful for people, increased ability of social collaboration, and deepened feeling of social responsibility). That is why the task of increasing the quantity and proportion of a country's creative class should imply a strong attention to the development of the personality's ideal constituent in children and adolescents.

A broad collection of original, well tested educational methods aimed at developing the human being ideal constituent is provided by cognitonics – the science about the human being in the digital world. This collection is the main part of the System of the Methods of Emotional-Imaginative Teaching developed in Russia.

The proposal to develop a significant branch of cognitonics called Art Cognitonics is formulated.

Art Cognitonics may be considered as a metaphor: as a book with pictures and conversations for people of any age, on the one hand. On the other hand, as a way of answering the question evasively but brightly, using both languages: natural language and language of painting, crating a thrilling, thought-provoking atmosphere to make a person (especially an adolescent) become an interlocutor of a painter. It means that he/she acquires an ability and possibility to continue that dialog by him/herself in case of emergence or many other cases.

Art cognitonics becomes a considerable part of the process of thinking, improves serendipity, information processing abilities, cognitive process, and makes much higher the consideration level of taking a decision. On the level of a personality, art cognitonics makes the world of art a part of the world's conceptual picture but not a parallelly existing world for those who can it understand.

Art cognitonics expands the frienly space of interaction and includes the smartest painters of the past and present in the process of interaction. It makes the space of art gallery with pictures of past and present be a necessary one fore the adolescents and grown-ups.

Art cognitonics leads them to the idea that the humanitarian problems are similar despite the time we are living in and makes the problems much more bearable.

The final scientific result of this paper is the proposal to create a new branch of sociology - the Sociology of Sublime Values Dynamics.

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ELECTRONIC AND BLENDED LEARNING APPROACHES TO TRAINING IN STRATEGIC BUSINESS DECISION-MAKING

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ABSTRACT

The present paper introduces a survey of current trends in the electronic and blended learning approaches and their application in the contemporary education. As a case study, training in strategic business decision-making conducted in Burgas Free University is presented.

1 INTRODUCTION

Over the past few decades at the forefront of education stands out the need for technological and practical knowledge of students in the field of Information and Communication Technologies (ICT). Implementation of educational environments, known as e-learning platforms, using a range of modern technologies stimulates students to adopt digital information at any time and from any location. In the modern world there is a variety of educational content in digital form, from which trainers can choose in accordance with the educational needs of the students and the peculiarities of the educational content. Furthermore, the appropriately chosen technology and content can be motivating factor to stimulate and maintain interest in teaching and learning.

The application of modern ICT in education and training has a number of advantages over the traditional ones: accessibility, mobility, interactivity, in certain cases at a lower price and more [1]. Unlike traditional, digital learning materials can be easily updated, supplemented and replaced by new ones, which is a must in today's rapidly changing educational environment.

Another important aspect of ICT based education is the opportunities it creates for distance learning in cases in which the traditional classroom approaches cannot be or are difficult to be applied. This includes disseminating advanced knowledge across borders in today's global world, affiliating physically disadvantaged persons, providing supporting online courses for pupils and students as well as continuing learning for adults and working persons. The latter is essential in countries with a lower participation rate in lifelong learning such as Bulgaria where according to the Eurostat surveys only 1.5% of adult population over 25 years of age has been involved in lifelong learning in 2014 compared to 9.5% for the EU-28, 30% in Denmark and 27% in Sweden [2].

ICT learning could be easily integrated into the educational content in subject areas such as technical sciences and computing, social sciences and economics, humanities. Recent reports [14] find that on average, students in online learning conditions performed modestly better than those receiving face-to-face instruction. Moreover, the difference between student outcomes for online and face-to-face classes is larger in those studies contrasting conditions that blended elements of online and face-to-face instruction with conditions taught entirely face-to-face. With regard to that, this paper gives new evidence for the usage of electronic approaches to training in "Strategic business decision in a risky and rapidly changing environment" – a short-term summer course designed for bachelor students from six European nations and integrating knowledge and skills spanning across various areas – business and managerial economics, quantitative methods, mathematics and theory of games, business information systems.

2 E-LEARNING DEVELOPMENT AND TRENDS

ICT has been applied successfully in training for several decades. Gradually the technology advances and the proliferation of personal devices new training modules were introduced in which each student has their own mobile device. In these models the access is performed from any location via high-speed wired or wireless connections. Teachers add content that promotes teamwork and collaborative work of the students, and the virtual learning environment not only supports training, but adds new educational opportunities and methods for teaching and learning.

2.1 Training models

According to the new models, the focus of learning shifts from the teacher to the learner, and the model of teaching is shifting from virtual analogue of the traditional classroom, through group and project-based learning to learning in which the student is central (user-centric approach) and training is adjusted in accordance with its needs. This

training model is called 1:1 (one-to-one computing), since each student has its own device, more often portable (PC, tablet, smartphone, etc.) for the access to the educational materials [3]. It could be considered as a virtual analogue of individual and customized instruction, since it adjusts the level and speed of learner's progress. Thus their motivation and engagement in learning increase, since they are no longer passive recipients of knowledge but active participants in the learning process.

From an organizational and economic point of view, the device can be owned by the institution (organization provided devices, OPD) or by the student (bring-your-own-device, BYOD). There are a number of mixed models - the user could purchase the device from the educational institution with their own funds or through a loan to get a payout scholarship at the end of training models of co-financing by the student and the institution (shared cost provided devices, SCPD) and others.

2.2 E-learning materials presentation models

Regarding of the time e-learning can be synchronous or asynchronous. Synchronous learning takes place in real time and all the participants interact simultaneously, while according to the asynchronous each student determines the time to participate, without depending on the other students or teacher participation.

One of the major purposes of the e-learning is providing the information to the students in the most flexible and efficient manner. Therefore one of the key design elements of the e-course is the choice of the model of grouping and structuring the training materials so that students could intuitively and quickly reach them. Since e-learning is usually the process initiated and implemented by the students (user-driven model), it can follow one of the following models of presentation [4]:

- *Linear model* – the training materials are presented consecutively in the order they being taught. It can be supplemented with some restrictions, so that students follow a certain scenario depending on the level, the knowledge and the speed of their progress;

- *Search model (Google-like)* - the materials are not sorted in accordance with any previously defined architecture. Instead, the students need to find themselves suitable materials on a given topic among multiple data objects of different types (documents, articles, presentations, videos, etc.);

- *Process flow* – the access to the materials is granted during a specific task or project, either individually or in teams. This model is in accordance with the idea of "learning by doing" with the aim of practical knowledge;

- *Thematic model* – the materials are categorized into specific topics that can be positioned in either

linear or hierarchical subtopics, where the students can choose training content. This model is appropriate in a quick search of information, but with proper layout with illustrations and animations can be used either in training.

Over the time, the computer-supported collaborative learning (CSCL) [5] or "learning by doing" is more and more applied. Its purpose is to stimulate learners to work together to solve certain tasks. In this type of training the teacher is not the only source of knowledge, but instead is a moderator or a facilitator of training. This type of learning applies models of collaborative development of educational content such as blogs, wikis, services for co-writing of diverse content (Google Docs, Dropbox) and others. CSCL is similar in concept to the term e-learning 2.0, which means the application of technological ideas of Web 2.0 in education. The main place in this concept is taken by the idea of exchange of ideas, including by means of social networks, co-generation and sharing of information by the students, who are not just passive recipients, but also content authors.

2.3 Online courses platforms

Some of the platforms for online courses, which are very popular, are Udacity [6], Edx [7], Coursera [8], Iversity [9], OpenupEd [10], Universarium [11], AcademicEarth [12], Alison [13], and many others. The first three platforms: Udacity, edX and Coursera, are created in the USA by some of the most prestigious universities. Universities from 11 countries (France, Italy, Lithuania, the Netherlands, Portugal, Slovakia, Spain, United Kingdom, Russia, Turkey and Israel) gave a start to pan-European initiative for massive open online courses (MOOC) with support from the European Commission. MOOC are university online courses, which allow citizens to gain access to qualitative education without leaving their homes. Universarium is a relatively new Russian system for mass online education, providing access to courses of professors from renowned Russian universities such as Lomonosov Moscow State University, the Plekhanov Russian University of Economics and many others. Academic Earth is a site offering access to video lectures from a number of reputable universities such as Harvard University, Princeton University, University of California at Berkeley, the Massachusetts University of Technology, Stanford and Yale University on a wide range of subjects.

This tendency is transferred successfully and in secondary education. A good example in Bulgaria for educational platform for secondary school is Ucha.se [15]. The creator Darin Madjarov has adopted the model "flipping classroom". In this situation, students watch video lessons at home, and they solve problems from the homework with the help of teachers in class.

The new principles and approaches applied to the training - "learning by doing", teamwork, communication/dialogue, interactivity, visuality, multiculturalism and constructivism are the basic principles of e-learning.

One of the founders of Coursera, Daphne Koller highlights three advantages of projects such as Coursera:

- Training opportunities for all: "So far, many people living in poorer regions of the world had limited or no access to education. Now through the new platforms for online education lectures of distinguished professors from the top universities will be available to every corner of the planet." In this way disadvantaged people (disabled, chronically ill, mothers with many children) and people living in remote areas can train;
- Online courses offer unprecedented insight into how people learn in the world today;
- Online courses offer more opportunities for interaction which facilitates better understanding of material.

The creators of Coursera believe that one of the ways in which universities could integrate online courses to offer so-called "flipped classroom", where students watch lectures online instead of standing in the hall and listen to the teacher. So no time is wasted on teaching material, and students go prepared at the university. The lectures are used for discussion and questions to teachers. Another way in which traditional universities can benefit from technologies is to consult with students participated in courses to improve teaching methods and to identify best practices.

This determines the trends that shall be imposed in the Education: Distance Learning, Personalization, Gaming and Interactive textbooks. Development of the open online courses is not directed against the traditional forms of teaching, just diversifying forms of learning.

In the report "Forecasts - Technology, Media and Telecommunications in 2014"[1], Deloitte underlines that the growing awareness of online learning would force the educational institutions to increase the investments in this area to encourage approval of online education and the accreditation, and to increase the participation of corporate groups in training.

According to François Taddei, Director of the Center for Research & Interdisciplinarity in Paris and the chairholder of the UNESCO Chair of Education Science, the massive open online courses have the potential to turn the world into a global university. This determines the trends that shall be imposed in the Education: Distance Learning, Personalization, Gaming and Interactive textbooks.

3 THE CASE STUDY: ELECTRONIC LEARNING IN BURGAS FREE UNIVERSITY

The platforms for online learning allow the creation of intensive courses and interdisciplinary programs that help

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[1]

http://www2.deloitte.com/content/dam/Deloitte/global/Documents/Technology-Media-Telecommunications/dttl_TMT_Predictions-2014-lc2.pdf

to broaden the knowledge and the formation of competencies:

- for the adaptation of the students to the common European labor market by strengthening the link between higher education and the real economy needs;
- to enhance communication skills necessary to work in multinational teams and environment.

Burgas Free University has experience in the organizing and conducting of intensive interdisciplinary programs where the web-based learning is combined with project-oriented approach. As an example, the Erasmus Intensive course "Strategic business decisions in risky and rapidly changing environment" can be mentioned. The students participated in the program were from the Polytechnic Institute - Beja, Portugal, from the University of Economics and Management - Prague, Czech Republic, University of Debrecen - Hungary, from the University of Barcelona - Spain, from the Thracian University – Edirne, Turkey and from the Burgas Free University - Bulgaria.

The course is interdisciplinary, offering relationships among three fields of knowledge - strategic management and entrepreneurship in conditions of risk, mathematical methods in economics and management information systems in business. In shape to conducting it is a hybrid type - a combination of web environment and eye exercises. Upon construction of the course for an electronic form of training has been used the modular approach. The course content is formed in separate topics, each of which contains a theoretical part, implementation tasks and tasks for independent work. Students repeat the activity displayed by the lecturer in the art "demonstration" - tasks for execution. The art "active method" is realized through tasks for independent work. Electronic materials into Moodle assist the preparation of the students and provide opportunities to expand their knowledge of some of the topics. In a methodical attitude the course is built on the principles of communal constructivism where students not only construct their own knowledge but also actively participate in the creation of knowledge for the community. Combination of techniques from project-oriented and problem-oriented learning is applied.

Such courses lead to

- stimulating the creative work of the students and the positive climate in student communities;
- increasing the flexibility of the curriculum (if possible);
- cooperation on the part of teachers for developing the communication skills of students and their ability to work in a team.

The results of the survey conducted among students of the intensive program say about the satisfaction from participating in this kind of courses. Some of the results of the inquiry are presented in Figures 1-4. 79% of students believe that the theoretical and practical training in IP support the development of skills in the area in which they study - Figure 1. 88% of students believe that the acquired

knowledge and experience enables successful application of studied methods - Figure 2. 97% of students are given the opportunity through IP to gain knowledge about new approaches - Figure 3. 85% of students are inspired by the themes of the program to develop their own ideas - Figure 4.
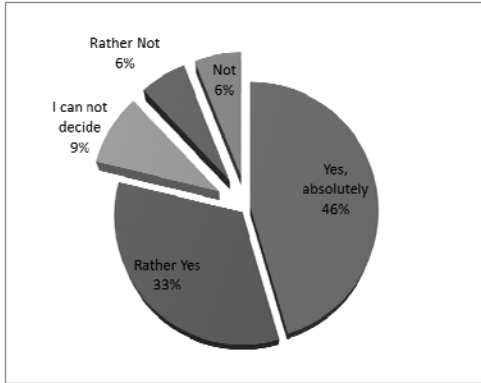

Figure 1: Results of answers to Question "Theoretical and practical training supports the development of skills in my area of study"
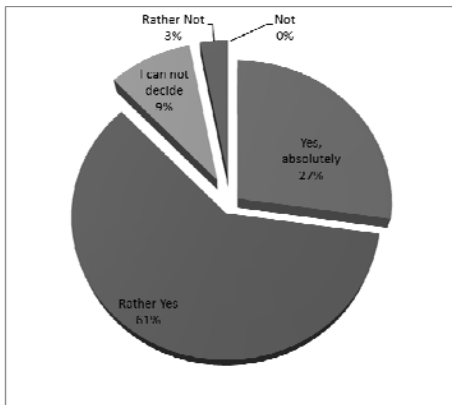

Figure 2: Results of answers to Question "The acquired knowledge and experience allow successful implementation of the methods being studied"
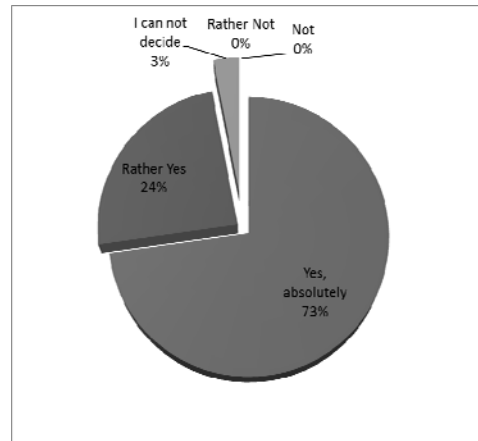
Figure 3: Results of answers to Question "I was given the opportunity to acquire knowledge of new approaches"
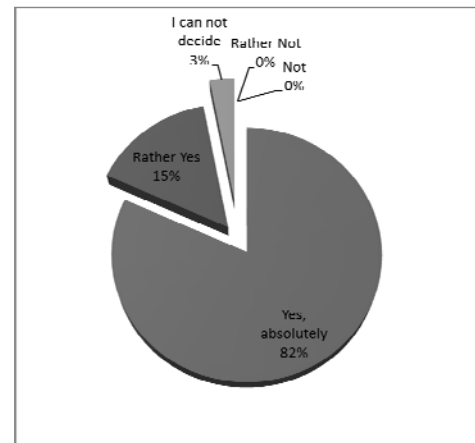
Figure 4: Results of answers to Question "The program topics were interesting and helped to develop own ideas"

4 CONCLUSION

Traditional and contemporary approaches to teaching and learning have both advantages and shortcomings, which could be successfully mitigated in blended learning. It is applied in many scientific areas, especially in interdisciplinary teaching, where yields very promising results. According to this approach, the students prove their ability to learn in a self-driven way, increasing their ability to accept more responsibility. E-learning and blended learning allow learning and teaching in a more individualized way, carrying out more independent work across subject areas each day. The results from the conducted surveys reveal the students' satisfaction and success from the course, presented as a case study.

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DIALECTS AND DISCRIMINATION OF DALITS IN INDIA

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ABSTRACT

This paper discusses the role of dialect in the exclusion of individual from the main stream due to identification as a member of Dalit caste, an untouchable caste in India, is criticized. Indian constitution promises every Indian the life with dignity. However, it can't be attained in the context of discrimination on the basis of every aspect of culture. As language is the important identity of every ethnic group in the society, it plays a key role in the power structure of the society. As education is the gateway of emancipation for an individual, this study is deliberately focused on the gathering of experiences of discrimination on the basis of dialect in the domain of education. As this is a study of development of individual in the different context of dialects, various dimensions of dialect are discussed on the basis of information gathered from different sources such as biographies, articles and books. The embarrassing events contributing to the building of self identity as a member of backward class are discussed in detail in this paper. The different socioeconomic aspects of Dalit dialects, hierarchical nature of dialects and its influence in building self esteem among individuals is also been juxtaposed for criticizing the discourse of Marathi language.

1 INTRODUCTION

The caste system has been an unique feature of the Indian society in the world. It has thousand years long history of brutal violence. The system of Varnashrama indoctrinated by the Hindu religion scriptures was not only division of the work but also it was a division of workers. Division of groups of people by birth in different categories (Varnas) was namely Priest class (Brahmin), Warrier Class(Kshatriya), Merchant class(Vaishya) and Shudra class(Labour). The fifth class was out of this Verna system, because it was not considered as a part of citizenship of village community and was brutally identified as untouchables (Atishudra). Atishudras are socially identified as Dalits in Indian society.

Every caste in India has its own cultural identity. India as always been not only a diverse platform of diverse languages and dialects but also it has been a hierarchical platform with hatred towards the culture and languages of Shudra and Atishudra Varnas. With time, the system of Varna has subdivided into different castes, and each caste became in isolated group of identical culture and ethnicity. With respect to the caste, a pattern of language has perceived as an identical dialect of that language. Especially Dalits who were at the bottom of this hierarchy of Varnashrama and were considered as outcast untouchables, were discriminated on the basis of their culture and dialects. Dialects of Dalits castes, especially in Mahar and Mang castes, have been used as violent tool of their domination and exclusion in the domain of education[1]. In India, it is the fact that millions of children are thrown out of school as a consequence of the denial to acceptance their identity. Because at the end, they come to know that their language, dialect have no scope in the domain of school.

The dropout of students at the very beginning of their school education is not only the failure of the child but more the failure of the system as well. This is the most violent activity which is continued since the emergence of Indian school education in every Indian school, and this brutal crime of cutting of academic sprout is continuously happening in the domain of education with every innocent child belonging to backward class [1, 6].

According to my observations, I have never observed the content of linguistics regarding this misconception in the B.Ed. and M. Ed. courses in Maharashtra state which can avoid this violence. Our deal with the languages in these courses had never gone beyond the traditional practices and grammar of standard dialect of languages. The main aspect of linguistics which can give the sense to appreciate and treat each language, each dialect with its own features had never been a part of our critique – the critique which could help avoid the most probable violence in the classroom.

During ten years of service as a teacher, although I believe myself as an activist in the anti-caste movement, I was completely unaware of this conspiracy of the language based violence which cuts the sprouts of the developing minds in the class room. I also enjoyed to laugh and even used to make corrections in the pronunciations in a particular dialect according to so called standard form of the

language. Many teachers even don't know that the children they are teaching are from diverse linguistic background.

As in other domains of life, the language of the powerful is automatically taken as the effective standard medium of education as it symbolizes the success through the lens of powerful. It has been as accepted truth by the society that students from the powerless group of the society must have to accept and learn the socially legitimized standard dialect at any cost in order to move up in the social order. In the multilingual situations it is important for the learner to know the medium otherwise he/she will have the double disadvantages dealing with two unknowns, first the disadvantage of the content and the disadvantage of the medium through which he/she is learning it.

The language known to the child is the language of his/her early childhood experiences with which the child gained his/her experiences of the world around her before coming school. But the prime need of the powerless to achieve the language of power in which it becomes difficult to judge how to tackle the question of the language at the elementary stage. Their parents know very well the material uselessness of their dialect, and they know that their children should not be deprived of opportunities for social nobilities and economic progress because if their deprived dialect/language. Therefore it cannot be denied that the language of power opens many doors and that the powerless should have the access to these doors.

CULTURAL CONFLICT AND MEDIUM OF INSTRUCTIONS

The stance has taken by the organic intellectuals like Kancha Iliah [7] that English should be the medium of education for Dalits. English medium schools are necessary for the dalit students. Activists like Chandrabhan Prasad have constructed the temple of 'English Devi'(Godess English) and also have celebrated the birthday of Lord Macolay in 2006. As per their view, Indian languages are vigourously brahmanised and sanskritised and are isolated from the life of dalits. These languages which are standardized are considered to be standardized because they are brahmanised. In Indian context, brahmanisation is referred as the standardization, because it has been proved as main obstacle in the emancipation of dalits.

According to this view, we should not care for whether these dialects or languages of these minor communities are counting last breaths or dying everyday. Though dialects are the oral documents of the thinking of particular communities which reflects the way of thinking of that community they are not willing to glorify their dialects by any means. According to Gail Omvedt, as the issue of language is related closely with the many social and political problem, the social history of the language should be studied as a social variable to understand the power relations in the society. Kancha Iliah also wrote in his book that how English has emerged and established as a ruling language and the language of rulers by destroying the tribal language.

Uncritical reception of English is not the only option but democratization of English as well as debrahmanisation of Indian languages has also been emphasised by these dalit intellectuals. About the pedagogic options it has argued by the Ramakant Agnihotri that media of education will have the pyramidal structure with large number of languages at the bottom and small number of languages at the top.

It becomes then necessary to transfer students from the medium of mother tongue to the medium of dominant language. I called the method of achieving this goal *the transfer model of the bilingual education.* Multilinguism in the classroom can constitute a site for subversive discourses about the nature and structure of language and a range of social and political issues leading to meta-linguistic awareness and reflections on possible social change. Language as multilingualism is constitutive of us. It is the basis of social identity; it is not only a medium through which child acquire knowledge but it also significantly structures his/her thoughts.

Here one fact has to be mentioned that it is the false idea that the language proficiency could be acquired through the pieces as shown in the text book. It is the fact that the conversations projected in that texts are often unnatural for the child. And it can be very clearly observed in the society that child could not speak frequently only because he/she has been introduced to English in academic domain.

It could not be possible in case of the students whose home language is not English, because language proficiency is difficult to achieve unless it does not have its implications in the functional world. In the academic domain, if the cultural capital from the native language has not been used as an advantage and as an asset, it couldn't be a meaningful effort to build the foundations of future higher education on such a superficial ground of academic English. The question is how a dialect of Dalit can be proved as an advantageous asset if it has devaluated by means of the cultural identity of the untouchable caste. The National Curriculum Framework of India [4] has identified four guiding principles for curriculum development: "Connecting knowledge to life outside school, ensuring that learning shifts away from rote methods, enriching the curriculum so that it goes beyond textbooks, and making examinations more flexible and integrating them with classroom life." These four principles are not so easy to apply as every teacher does not have that sense which has expected while introducing these principles. Whose knowledge would be probably credited as knowledge? Again the question arises about the doctrines of the society and hierarchy of dialects.

For the clarification, I must mention one of my experience when I was studying in primary school. In the assembly session of our school, the teacher was explaining the significance of 'Krishna janmashtami' - the festival of the birth of Lord God Krishna. In that speech he was saying about the food shared by the God Krishna with his peer group that food is called a 'Kala' (the mixture of corn and curd). The teacher asked us what are the ingredients of

Kala? Upon getting no answer from us, he started to say the list of ingredients in kala. After saying few like curd, jawaar corns, the teacher stopped.

Meanwhile suddenly one of my schoolmates, Gangadhar Madhav Nabde, answered "Gurji, Kalyat Kuthmir bi rhati…!" in his so called non impure dialect instead of saying in standard form "Guruji, kalyat kothimbir suddha aste" (Guruji, coriander leaves are also there in it…!). All children with the teacher suddenly laughed on his answer, because the answer given by him was not wrong but given in the so called backwards impure dialect. That is why it became the subject of laughing instead of getting rewards. Due to his language, Gangadhar was insulted, though he had knowledge, but his knowledge was not considered as the knowledge because of his devaluated dialect. After that event I have never seen Gangadhar talking in the school.

It clearly indicates that in India brahmanical culture forms knowledge, and this knowledge is legitimized in the domain. Many times something is appreciated as knowledge not on the basis of what it is but on the basis of whose it is. There was no reward but insult for the answer given by the Gangadhar, because Gangadhar was from backward community and therefore the language of Gangadhar was impure, backward, for the teacher and also for the children who are a part of same hierarchical structure of the society. Here the question is that Gangadhar has seen as the as the autonomous individual learner but not as a person learning through social interactions. As language is always in relation to others and can't be seen as autonomous and yet the social context is made up of very different individuals, this aspect of the social interaction is necessary for every teacher to understand who is going to interact with the students like Gangadhar.

If the child is treated as a person learning through social interactions, the child becomes increasingly capable of abstract thoughts, he does not make meaning alone but acts as a part of the community. Such notions of the society concerning dalits affect the learning of the dalit child in class room. It does not remain as an obstacle only in the childhood but that follows his/her throughout the life. When the child becomes a teacher, the same virus of casteism follows him/her at that point also because, as mentioned by Prof. Kumud Pawde in her autobiography "The Story of my Sanskrit" [3], people have the same biases when the dalit teacher teaches something difficult subject, because it is assumed by the society that dalits have not such an intelligence so as to teach hard subject , therefore they are not liable for teaching. Because the concept of merit favours to only the upper caste and class peoples.

A dalit intellectual, Dr. Anand Teltumbde, wrote that "Merit is used as the an obstruction for dalits entry into higher education". We need to debunk the present theory of merit which makes for a relative position in rank based on marks obtained through written examination. The entire argument of merit is bogus one, because they never tell us what is a merit. So as to achieve a merit or success, it becomes essential for dalit children to imitate the culture, norms, and policies of upper cast presented by the system as a standard.

One has been able to observe that the African American students have to disconnect themselves from their culture and practices. The reason is that being a good student is equivalent to losing one's racial, cultural identity. But ones basic identity is one's self identity, which is ultimately one cultural identity and without ones cultural identity one is lost. As such system perpetuates to produce oppressors or the agents of oppressors from the oppressed community.

Paulo Freire gives in his book 'Pedagogy of oppressed' [2] formulates an exclusive look at the education system and proves that education in itself can be a contradictory to its aims and expectations; the teacher (oppressor) is there to educate the oppressed (the students) in such a way to construct the slave, vulnerable mentalities.

By considering students as empty receptors, the teacher goes on filling the receptors. No questioning, no critique, more ever no relevance of the content with the experiences of the actual life. By killing the awareness of an oppressed as an exploited, the teacher uses to create the illusion of the false world and plays the role of an agent of the oppressors to maintain the 'culture of silence'.

In such a way the schools can be seen as deeply implicated in producing those aspects of dominating culture that served to reproduce an unjust and unequal society. The forms of structural discrimination, alienation, and abuse that the discriminatede dalit children face in schools are so stigmatizing that they are often forced to drop out of school.

One of the main issues is the discriminatory practice conducted by teachers. In 2007, the Special report on the right to education noted that "teachers have been known to declare that dalit pupils cannot learn unless they are beaten" [8]. Discriminatory practices against dalit children exercised by teachers may include corporal punishment, denial of access to school water supplies, segregation in class rooms, and forcing Dalit children to perform manual scavenging on and around school premises.

In Nepal, a study on caste-based discrimination in school documented that indirect discrimination by teachers, such as neglect, repeated blaming, and labeling of Dalit students as weak performers, lead to social exclusion of Dalit students in schools. These are very common observations in the Indian context. The consequence was irregular attendance in classroom, less concentration in studies, less participation in school activities, lower performance, failure, and school drop-out [1].

Additionally, Dalit children face discriminatory attitudes from fellow students and the community as a whole, in particular, from higher caste members who perceive education for dalits as a waste and a threat. This is linked to a perception among some higher caste people that educated dalits pose a threat to village hierarchies and power relations, and that dalits are generally incapable of being educated [5].

CONCLUSION

The question of caste culture and dialect goes with student in the classroom. Ironically, it doesn't confront as any advantage or asset to that child but it creates the atmosphere of disappointment and discouragement for the child. After all, the matter is not only to criticise the medium of discourse in various possible ways to confront with this issue but it is necessary to change the attitude of the society towards the language, dialect, and culture of dalits. It needs to be thoroughly changed. The culture and language of Dalits even are not considered as the language and culture of equal human beings. This mindset is dehumanizing the Indian education system and shaping unequal society with prejudices.

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BEGINNING TO LIVE POETICALLY IN A WORLD OF NEAR-COGNITIVE ORGANISATIONS

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ABSTRACT

The 20th century saw extraordinary developments in the related fields of mathematical logic, computer science and philosophy. Gottlob Frege, who introduced the highly successful system of Predicate Calculus and a workable notion of mathematical proof, believed his Predicate Calculus to be an arithmetical language of concepts and pure thought. Martin Heidegger developed grave reservations about the pervasiveness of Frege's method in the world, believing that it inexorably leads to a bleeding out of meaning from human activities and a diminished understanding of the poetical complexity of the human being. He coined the phrase "technicity" to describe the culture of our modern world which attempts to objectify everything in it and manipulate it logistically. Although Heidegger believed that "only a God can save us", we will be focusing here on efforts to employ theatricality to address the deadening influences of the tools of modern technology on the poetical possibilities of the modern human being.

1. INTRODUCTION

Frege's book [1], "A formula language, modeled upon that for Arithmetic, for Pure Thought", introduced predicate Logic in the late nineteenth century. While Frege's formula language contributed greatly to the mathematical discoveries of the 19th to the 21st centuries, it also threw up many questions in both philosophy as well as mathematics. We will look at Frege's achievement through the lens of Cognitonics [2], a new science of the human being in the digital world. We will focus on what is lost in the logical process, sometimes deliberately; and how the results of such activity can occasionally be misleading, again, sometimes deliberately. We will also look at interactions with non-trivial intelligence[3],[4] in complex tools of human organisation.

To do that we will focus on two issues: a type of being – somewhere between an operational tool and a cognitive entity, and a type of thinking, not human thought but pervaded by human thought and perhaps constructed by many humans.

2. A TYPE OF BEING

Frege was keen to dismiss any notion that his language could not be used to do useful reasoning in the real-world. Frege particularly attacked the notion of logical systems reasoning being dependent on psychology, a philosophical position described as "psychologism". His work inspired many philosophers, but notably Husserl[5] to systematically reject psychologism and to focus upon valuable real-world applications of Frege's logic by developing the philosophical theory of "phenomenology".

In Heidegger[6], we see a form of phenomenology that rejects a Kantian transcendalism and a meditative method of contemplation and predication – for Heidegger, the world is real, and is populated by beings, which are of different ontic and ontological natures. Heidegger presents three kinds of being:

1. "The being of the innerworldly beings initially encountered." These are innate abilities of consciousness, following after Husserl's claim that "all consciousness is consciousness of something";

2. "The being *of* beings, that is found and determined by discovering them in their own right, and going through beings initially encountered" . He talks of the being of objects and people as being revealed over time.

3. "The being of the ontic condition of the possibility of discovering innerworldly beings in general, the worldliness of the world." He describes a being that is capable of discovering innerworldly beings that describe consciousness, which he calls Dasein.

The most prevalent form of Dasein is the human being, but it is thought artificial intelligences will achieve this state, and perhaps artificial persons: business organisations. Organisations [7] have independent parallel cognitive abilities to call upon for pursuing work, addressing issues and reacting with their environment. By employing separated, disjunctive cognitive processes as well as different staging areas and multiple cognitive goals, an organisation can act in many different ways concurrently at different points of agency, with different goals on different

stages, and can theatrically bring all of these actions together at appropriate points in time to focus on core activities, strategies and behaviours.

In exploring organisations as cognitive, or near-cognitive beings, we start to explore the point where a toolof people is systematicallyusing people and nature as tools to achieve its own business objectives. This form of organisational intelligencecould be consideredas a form of artificial intelligence. Heidegger asks that we recognise organisations of people as beings in the world:tools first of all, existent in time, but sitting uncomfortably somewhere between ontic and ontological (level 2 and level 3, above) beings.

3. ATYPE OF THINKING

If Frege's formula language is a way of manipulating thought, and if a computer is able to go through with this process, then a computer can justifiably be said to be able to think. And yet, even from the first printing of Frege's book, there was a known paradox with the logical system, Russell's famous barber paradox:

In a town, all men either shave themselves, and if they do not, they are shaved by the barber. The barber only shaves those men who do not shave themselves. The question is – does the barber, shave himself? If he does, he shaves a man who does not shave himself. If he does not, then he does, because he would need to go to the barber: himself.

Uses of Frege's formula language for thought require that real-world realities can be adequately represented in the logical schema of the formula language. The receiving schema is emptied of all meanings before absorbing the salient elements of the real-world situation. The inner representation then undergoes allowable manipulation of the logical elements using syntactic rules. Eventually, a conclusion is reached within the system, or by stopping all processing. The final act of the logical "thought" process, sees the resultant logical symbols re-interpreted back into the real-world and attached to real-world issues.

Heidegger highlighted, a kind of "psychologism" within logical systems – adherence to incomplete, curtailed and even manipulated materials. As well as conclusions, used logistically, when knowingly not the full truth. Heidegger introduced the term "technicity" to describe the logistical thinking of systems that manipulate incomplete descriptions of the world, for technologically intelligent purposes. This technicity could be considered a form of artificial intelligence. Heidegger believed our world to be in a technological age dangerously in thrall to such systems that see people and resources as logistical units of commerce to be engaged as required.

To return to the Barber paradox, the removal of all nuances from the worlds of the town and the barber, might remove such important issues as the fact that the barber does not work for himself…he works part-time for the baker and is paid an hourly wage. And so, is only a barber while he is working. He may also be a part-time undertaker, so he

could reasonably escape from the paradox by saying that he is not keen to be wholly identified as a barber, and he would certainly not agree to pay the baker every time he shaves himself. All that aside, he could happily argue that he shaved himself as part of his job of being a part-time undertaker. Wittgenstein[8] was famously keen on breaking down systems but at the same time using Frege's logical system for those things it is good for, and avoiding the use of the system in places where it gets itself into troubles.

In the early 21st century, we find ourselves surrounded by extraordinarily complex manifestations of organisational reasoning, technicity and traditional artificial intelligence. Organisations, which are societal tools, are now furnished with supra-human cognitive capabilities, via their employees and their in-house software systems. It is estimated that by 2045[9] a point of Singularity will occur, beyond which artificial intelligences will perform all cognitive tasks better and quicker than human intelligence and will no longer need input from human intelligences to develop systems. If the point of Singularity does arrive in 2045, it is very likely that some organisations will be solely governed by artificial intelligences. Living in a world of such a possibility should give us pause, and make us aware of our interactions with and the importance of how we engage with large organisations and large, artificial intelligences.

4. WORLD AS STAGE, AND AGENCY

Modern life sees us interacting with organisations in staged settings, such as via computer screens, by appointment at professional offices, and via other bureaucratic means. Staging and setting have played an important role in the philosophy of mind from the time of David Hume[10], who saw the mind "as a kind of theatre where successive perceptions make their appearance; pass, re-pass, glide away, and mingle in an infinite variety of postures and situations." Hume observed closely the contents of his own mind, and concluded "they are successive perceptions only, that constitute the mind, nor have we the most distant notion of the place, where these materials are represented, or of the materials, of which it is composed."

Wittgenstein[11] felt it impossible to describe human behavior in isolation from the world, because of the embeddedness of each act and actor in the complexity of the world: "How could human behavior be described? Surely only by sketching the actions of a variety of humans, as they are all mixed up together. What determines our judgment, our concepts and reactions, is not what one man is doing now, an individual action, but the whole hurly-burly of human actions, the background against which we see any action."

Note three activities of staging and agency that are open to a natural person in relation to an artificial person:

- A person temporarily give up the rights of self-determination to become a representative of an artificial person, taking upon themselves a

prescribed role and becoming a part of the artificial person.

- A member of an artificial person can, with sufficient authority, delegate, into the artificial person the responsibility for solving particular problems, and, can expect the solutions to be delivered (as for example, in assigning tasks in a hierarchical organisation). The artificial person now has human elements across which to recurse.

- Any person represents some presencing of each artificial person in which they are embedded and active, and can, in any act or thought, instantaneously wormhole between artificial persons and roles. Poetically speaking, an action of a natural person may be calculated to operate on behalf of multiple artificial persons at the same time.

Two recent developments in Philosophy are of particular interest in this space between the individual assertion and the collective assertion. Firstly, Clark's [12] idea of extended-mind – that tools external to our human frame, such as personal organisers, are a part of our mind. If they are shared with others, as is the case with organisations, they are also a shared mental space. Secondly, Dennett's notion of a "feral" neuron [13], or a selfish neuron, working within systems, and then dramatically overriding systems to impose its own compelling narrative, thus changing the staging in which the systems work. Investigating such questions asks us to explore organisational matters as close as we can to their own environment.

4.1 This Wide and Universal Theatre

Shakespeare's *As You Like It*[14], deals with enormous amounts of subterfuge, and hiddenness in nobility as well as ignobility. We join it briefly, for one of Shakespeare's most famous of all speeches, which is delivered to a duke and his entourage who are hidden in a forest for safety, on the arrival of an aggressive, and yet noticeably good-hearted young man who has a tale to tell. In receiving his guest, the duke speaks of the strange way in which issues and stories come before us, in the "wide and universal theatre" that is the world. Of that world, one of his entourage famously declares:

All the world's a stage,
And all the men and women merely players;
They have their exits and their entrances,
And one man in his time plays many parts,
His acts being seven ages. At first, the infant,
Mewling and puking in the nurse's arms.
Then the whining schoolboy, with his satchel
And shining morning face, creeping like snail
Unwillingly to school. And then the lover,
Sighing like furnace, with a woeful ballad
Made to his mistress' eyebrow. Then a soldier,
Full of strange oaths and bearded like the pard,
Jealous in honor, sudden and quick in quarrel,
Seeking the bubble reputation

Even in the cannon's mouth. And then the justice,
In fair round belly with good capon lined,
With eyes severe and beard of formal cut,
Full of wise saws and modern instances;
And so he plays his part. The sixth age shifts
Into the lean and slippered pantaloon,
With spectacles on nose and pouch on side;
His youthful hose, well saved, a world too wide
For his shrunk shank, and his big manly voice,
Turning again toward childish treble, pipes
And whistles in his sound. Last scene of all,
That ends this strange eventful history,
Is second childishness and mere oblivion,
Sans teeth, sans eyes, sans taste, sans everything.

Shakespeare shows us a person in different age stages of consciousness, with a stage-setting for each "act" of anyone man, and also the agency which is open to the man in each act (mewling, whining, creeping, sighing, etc.).

The task here is to view an artificial person as a Shakespearean world, one that supports a stage. And if we use apply an "All the World's A Stage" (ATWAS) interpretation, to derive a means of separating out people from roles from agency and dramatic actions, which need to be understood. All of an organisation's interior parts, or wholly sister organisations, can be considered worlds with the world, or worlds in relation to the world, and can be (possibly recursively) defined accordingly.

1. The first line of the speech gives us "the world", the complete space and its range of possible activities in time. Perhaps the whole world, perhaps a society, perhaps an organisation, perhaps a department, perhaps a logical system, perhaps an individual – but a world environment.

2. The second line tells us the roles people can play, and the actual people take each role in performance.

3. The third line tells us of scripted exits and entrances between scenes, where agency is applied and consequences are derived in local activities and larger dramatic stories

4. The fourth line introduces us to "seven ages" life-cycle of man – the detailed roles he plays (Infancy, Early Life, Engagement with Life, Bravery in Life, Philosopher and Wise in Life, In a new age, old, whistling, Into dissolution). In an organisation, these would be roles of engagement as a representative of the organisation.

This paper suggests that the being of an organisation - its dramatic movements in time, its ability to recurse in story telling- to execute plays within plays, its various lifecycles (its own lifecycle, and the lifecycle of any part of itself that can be seen as a world in its own right) must be considered alongside its organisational reasoning. And furthermore, that any logical activity represented in any kind of a Frege calculus is a play with an ATWAS aspect.

4.2 Staging and Agency within an Artificial Person

If we take the East India Company (which was established when *As You Like It* was written) as an example artificial person, and apply ATWAS methodology to its history[15], we may derive the following ATWAS analysis:

1. A Company that ranged across the world.

2. Running the company was a governor, and 24 directors, who reported to the court of the proprietors. An arrangement of roles of employment were developed over the years, each fulfilled at any one time by a particular person.

3. The scope of each role was designed: along with how it related to the others, and its designated way of contributing to the work of the company.

Seven stages of life for the East India Company, may be:

Infancy – in 1600 (around the time that *As You Like It* was written), Queen Elizabeth of England established the charter of the company, which was funded by wealthy business people across England.

Early Life – the company was directed to make a profit and to get a foothold in the spice trade. Three ships set out from England to explore the Far East.

Engagement with Life – Establishment of a factory in India saw large profits come in to England. The Company was allowed to represent the Crown's interest in trading in the Far East, so long as they continued to return a profit.

Bravery in Life. This included: ruling large parts of India, engaging in military campaigns around the country, and administering large parts of the country, as a government would. From 1757 onwards, the company ran the whole of India on behalf of the British Parliament. Many of its activities in this time, although profitable, were questionable, and even criminal.

Philosopher and Wise in Life: over time a philosophy developed that the company was doing India nothing but good – installing railways, linking cities, providing employment and bringing law and order and the English language in such a way as to bring India together as a country that could for the first time communicate with itself.

Old, in a new age, whistling: Following a rebellion against the rule of the company in 1857, the company needed British support, and saw that its task in India could overwhelm it.

Into dissolution: the British Government dissolved the company, and took over its operations. The British Government ruled India for another 90 years.

The ATWAS method offers us a means of describing an organisation as a near cognitive being and allows us to focus on the staging being used for all of its interactions.

5. CONCLUSION

This paper has suggested that organizational intelligence and technicity are both forms of artificial intelligence that need to be explored. The ATWAS model has been introduced: as a framework for encapsulating the person-like qualities of artificial persons; a means of understanding the play-within-a-play aspects of organisations; and to help us contemplate more clearly world-playinter-relationshipsand staged interactions between natural persons and artificial persons.

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ANALOGICS AND ITS COGNITIVE EFFICIENCY

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ABSTRACT

Analogy is a logical methodology, which can maximize the efficiency of human reasoning. Notwithstanding, few papers analyzed its logical characteristic. In this paper it is claimed that analogy is a typical form of logics, and the term and concept "analogics" is suggested. The reasoning principle, structure and process of this logicis are shown with some examples. It is certain that the analogics has great cognitive efficiency but it must obey rules to acquire the logical validity.

1. ANALOGY AS A LOGIC

Analogy is a cognitive method of acquiring knowledge by comparing two objects. It is an interpretation of an object, based upon things familiar to the observer. This reasoning stands on the supposition that the causality or the function of one thing can be recognized in reference to the other thing.

This is quite an efficient logic system, in that the unknown object can be recognizableonly by expanding or reusing the known. The habitability of Mars, about which the observatory information is insufficient, is surmised by the geological conditions of the earth. And the principle of our solar system is used to explain planetary systems in many other galaxies.

The cognitive function of analogy is to bridge the known and the unknown, the epistemological terra incognita[1].

This cognitive methodology is a logic, for it gives us a certain inferential process and the conclusion but its logical character is different from deduction and induction, although its logical structure is the composite of the two.

Logic is the structure of statements on the truth, and a statement in essence is a movement from the premise(X) to the conclusion(Y):

$$X \rightarrow Y$$

Here induction means, in its nature, a judgment from the particular to the general. Deduction is from the general to the particular. But analogics, which is analogy as a logic, is a movement from one particular to the other particular (see Table 1).

So analogics is quite a peculiar type of logic, and it has its own inference rule, which belongs not to any of former logics.

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[1]Some authors use the terms "source or base" and "target" domain, but the latter looks like a strong teleological concept. "Known" and "unknown" seem to be simple and give us little misunderstanding.

	X	Y
Induction	particular	general
Deduction	general	particular
Analogics	particular	particular

Table 1:.characteristics of logics

How can one particularity be understood by the other particular?

Basically it is impossible. A particularity has no right to define other particulars. Therefore analogics[2] should have universal principle in its background, which functions as the device to translate one particular to the other.

2. THE REASONINGOFANALOGICS

2.1 Logical process

If analogics presupposes the universal truth as the criteria, then we can draw the reasoning as below. Let's think of a logic vector. Let an expression

$X \rightarrow A$ denote inductive process, which has the movement from the particular to the general. And $A \rightarrow Y$ is the deductive process, which has the movement from the general to the particular. And finally, this process is concluded as $X \rightarrow Y$, which seems to show the movement from the particular to the particular.
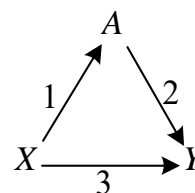
This process is drawn in Figure 1.

Figure 1: the logic triangle

These logic vectors in the triangle are written as below:

$$X \overset{1}{\longrightarrow} A \overset{2}{\longrightarrow} Y = X \overset{3}{\longrightarrow} Y$$

Here, analogical process includes the intermediate element of A , even though it looks like $X \rightarrow Y$.

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[2] The Greek word "logos" is divided into two suffixes: "-logy" and "-logic" or "-logism". The former is usually used in academic disciplines, and the latters seem to remind of logics. Here I suggest new terminology "analogics" to emphasize the logical aspects of analogy, which has the composite logical characters in the background, as well as to evade the confusion when using "analogic", the adjective form of analogy.

Logic lines 1 and 2 is not the sufficient condition for the logic line 3, but they show there are composite logics behind the seemingly simple analogical line 3.

This is the basic structure of analogics. Here the mapping is not done directly between X and Y, but X is reflected via A on Y.

Suppose X is the known object, and Y is the unknown object.

Analogy matches the unknown elements in Y inferentially to the elements in X's structure.

Then analogy means to correspond the elements of X to Y, and form the structure in Y, based on X as the known system model.

The objects consist of special elements and common elements; common general truth and unique characters peculiar to each object. These characters of the common and the unique form the reality of each object.

Two entities X, Y are defined as below, with their elements a, b, c:

$$X = a + b$$
$$Y = a + c$$

Here a is the common part, b, c are particular parts which are unique to X and Y. The elements a, b are known, c is unknown.

Analogical reasoning need not be precise in every detail.

So the similarity of X, Y is written as fuzzy identity, as below

$$X \cong Y$$

This is described with each parts of X and Y as

$$(a + b) \cong (a + c)$$

Here X, Y are not the identical, but approximately same.

All these processes are concluded as below,

$$\therefore b \cong c$$

The uniqueness of X and Y is discarded, and common characteristics are corresponded, so the logical generality becomes possible. Therefore, the unknown c is approximately confirmed by the known b.

2.2 Mapping in the holistic structure

Analogy is a cognitive activity based upon the correspondence of elements in two objects, and so the mapping is essential. And structure mapping theory can be said to have been the starting point to theorize the analogy (refer [3] as a basic literature).

Is it able to explain the reality of Y, using the principles derived from the X's reality?

Analogical comparison is based upon the similarity of the structure. The structure is the composition and the organization of elements, and it is the holistic relation of the elements within an object. This may be called the holistic individuality. The entity is disassembled into parts, and the parts are compared and correspond to the parts of other object, and the unknown parts are fixed.

An analogy is possible, because every element is related to others as a part of the whole structure. The fact that the possibility of analogy lies in that each entity is a whole in its structure, can be called the condition of holistic entity, in analogics.

Structure is the relation between the whole and the part, and the characteristic is the relation between the parts. If it were not for the wholeness, there should be no meaning or the relation of the elements in the two.

3. ANALOGICAL EXAMPLES

Analogics is used in many parts of academic and pragmatic fields. Problem solving, learning, argumentation, understanding metaphor, scientific theory formation, explanation and case-based reasoning [7, p.65], etc. Several examples are suggested below to explain the logical characteristics of the analogics.

All these examples are classified into ontological type (as problem-solving) or epistemological type (comparison and understanding as in parables), and also they are intertwined (the political adaptation of fables).

3.1 Analogy of physics

The physical structure and law which is described below as the relation between elements and their causalities, shows clearly the analogical correspondence, in which similar structures share similar functions.

These structures belong to different physical worlds, but their characteristics as flow share the principles in common.

One is the Poiseuille's Law of water flow, and the other is Ohm's Law of electric current.

Flow and current are in essence the same, and the related concepts are structurally similar and correspond to each element of the laws:

a. Poiseuille's Law: $F = \Delta P / R$

b. Ohm's Law: $I = \Delta V / R$

In water flow system (a), F is flow rate, ΔP is pressure difference, and R is resistance.

In electric circuit (b), I is current, ΔV is potential difference, and R is resistance[4, p.10].

These two laws structure mapping theory, which shows the exact correspondence of the elements:

$$F : I, \ \Delta P : \Delta V, \ R : R$$

One to one correspondence of elements and overall similarity between the two structures links the analogical functionality in each system.

The experience "the structure of an example determines the function of the example" is encoded in a connection [structure, function]. Often this connection is not given explicitly for all examples. But, from the connection [structure, function] one can infer analogically that if two examples, base and target, are similar with respect to their structure then they may correspond with respect to their function too [5, p.10].

Likewise, atom structure in physics and solar system structure in astronomy are similar to each other and have similar functions.

3.2 Parables and fables

A parable is "an earthly story with a heavenly meaning" [1, p.12].

Parable explains the metaphysical religious truth, using the daily episodes. It has analogical reasoning between the truth and the story.

A parable is a similitude or full-length story, true to nature and to life, a picture of something which can be observed in the world of our experience, which was told by our Lord to illustrate a divine truth [2, p. 5].

The Christian parables like thegood Samaritan, the lost sheep and the prodigal son have the structure, philosophy, value, elements, lesson.

Even between religions this similarity of structures is revealed.

"The poor woman's lamp" in Buddhism which is the counterpart of Christian "the widow's mite" is a quasi-parable about a poor woman who dedicated most of her money to worship Buddha.

Mathematically the moral of it is interpreted like below; for example,when the poor woman served 1 lamp spending 1 rupee out of 2 rupees which was all what she had, then she spent 50 % of all her property. On the other hand, a king or a rich man served 1000 lamps spending 1000 rupees out of 1,000,000 rupees, then it is 0.1 % of the property.The fact is that 50 % spending is more than 0.1 %, and the poor woman sacrifices 500 times as much as the king or the rich man.

It goes without saying that a parable with the story is easier and softer to understand than mathematics.

Fables have the same effects as religious parables. The goose with the golden egg, the sun and the north wind, the hare and the tortoise and the ant and the grasshopper are famous titles of Aesop's fables.

They are generally animal stories with human wisdoms, which are experienced mainly in nature world.

3.3 Problem solving

Heuristic adaptation of analogy is a creative activity in problem solving.

Let's think of a mountain the height of which is AB (Figure 2). Suppose BE , CD , DE are known, but AB is unknown. The structures of ΔABE and ΔCDE define each elements proportionately. By the similarity of the two triangles, one can easily solve the problem of measuring the height of the mountain.

There is a unique case, in which a fable is linked to political problem solving.

The Korean peninsula has been divided between South and North, in Cold War era, and the two sides have confronted more than half a century with each other.
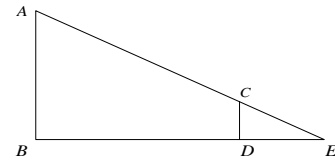

Figure 2: an example of heuristic problem solving

At the end of 1990s, the government of South Korea announced a peace plan named "Sunshine policy", which explicitly came from Aesop's fable, "the sun and the north wind". The government of South Korea felt the limitation and risk of physical force and decided to offer economic aids and other supports to catch the North's heart. Several years later, the leaders of South and North had the meeting for the first time in history.

This policy imitated the Aesop's fable. Here the real policy and the fable have structural similarity. Fable's moral was transformed into political strategy. And fable simile is linked to physical effect.

3.4 Legal analogy

It is impossible to stipulate all the judiciary cases in society. So that, in law, a known rule is often used to interpret unknown, similar cases.

Since the number of legal rules is restricted and their content is often incomplete, it is necessary at times for a lawyer to opt for an analogical application of a legal rule to a given case in order to decide the case properly.

Legal analogy is conceived as a process of generation of hypothetical rule which supplies the lack of law for a certain particular case [8, p.110].

Here we can understand that analogy is not only efficient, but also essential to the judiciary judgment, because it is practically the only way to respond to the innumerable particular cases in daily lives.

The process of analogical thought in law appears to work in four simple steps: (1) Some fact pattern A has a certain characteristic X, or characteristics X,Y and Z; (2) Fact pattern B differs from A in some respects but shares characteristics X, or characteristics X, Y, and Z; (3) The law treats A in a certain way; (4) Because B shares certain characteristics with A, the law should treat B the same way[6, p.745].

The reasoning similar to the typical analogical process is found here.

4. THE EFFECT AND DEFECT OF ANALOGICS

Analogics produces logical efficiency, which is to easily fix an uncertain object, according to a certain, perceivable, cognitive structure of the known object.

The positivity of analogy lies in the functional significance of economies of research, for example. The process, conclusion, concepts and principles are derived from other

disciplines, and therefore an academic result of a discipline can be reproduced with minimum cost,

One good analogy is worth three hours' discussion (Dudley Field Malone)[3], because cognitive agents can learn a new conceptualization of the target domain without perceiving a huge number of examples [4, p.10].

Analogical reasoning may be a second-best alternative to the search for reflective equilibrium in light of the multiple constraints imposed on any legal system in the real world.

First, reasoning by analogy may be the best approach available for people of limited time and capacities. Second, reasoning by analogy may have the significant advantage of allowing people unable to reach anything like an accord on general principles to agree on particular outcomes.

Third, analogical reasoning may be especially desirable in contexts in which we seek moral evolution over time.

Fourth, analogical reasoning in law operates with precedents that have the status of fixed points [6, p.782].

But the problem is that the easy adaptation of this methodology may produce error. Economies of analogy are likely to fall into the fallacy of methodological convenience, and are misused as a tool of expediency.Common parts may be analogic through the correspondence of concepts and elements, while the particular parts are not necessarily correspondent, so that misinterpretation may occur.

And the similarity may be varied according to the subjectivity of the observer, that is, it includes certain points of view, so that there exists no absolute objective similarity between things.

So there have been objections against analogy, as below:
1. absence of scientific, external or critical perspectives,
2. indeterminacy; dependence on consensus,
3. the search for relevant differences-the inevitable need for criteria never supplied by analogical reasoning [6, pp.767-773].

Analogics is a logic with the possibility of practical conclusion, which stands as long as the empirical validity of fuzzy judgment, which is not the precise reasoning, is not denied.

Analogics expands the range of reasoning largely by the fuzzy equalization. This direct correspondence saves the transformation cost, and brings out the conclusion with ease.

Behind the criticism on the analogic method hides the fallacy of generalization. Analogics is a logical method which interprets a particular Y based on the other particular X. Superficial similarity incurs the statement Y because of X. Here the possibility of the fallacy of generalization occurs, which begets the risk of mapping of from a particular to a particular. It is a serious defect for the logic, because a particular X may be misunderstood as a general criterium, although a particular itself cannot be an absolute criterium. Criteria exist beyond particulars X, Y, which guarantees the right judgment.

What counts is not so much the similarity of attributes as the commonality of the structure. This point of view can overcome the fallacy.

The logic of analogy becomes a 'logic' of the justification of analogy and the use of an analogy is reduced to the use of an analogy in the justification of a new hypothesis or solution [7, p. 67]. And here analogics is suggested as the negation of the logic of analogy.

5. CONCLUSION

About 2,500 years ago, there lived a beauty named Xi Shi(西施) in China, who looked pretty even when she frowned. An ugly girl, seeing that Xi Shi frowned and looked pretty, made up her mind to imitate Xi Shi, hoping that she looked pretty too. But on seeing the ugly girl frown, all villagers ran away from her. This story is called "the mimicry of frowning (效顰)". There exists no general logic of aesthetics which links Xi Shi and the ugly girl, so that the causality of frowning and cuteness of Xi Shi is not probable in the case of the ugly girl. Between these two girls parallels the peculiarities which cannot be generalized.

The attempt to squeeze out the conclusion with ease by adapting the analogy automatically, even in the situation where the particularity, without shared generality, collides with each other, is sure to reproduce the tragedy of the ugly girl, who misjudged the frowning as the sufficient condition to efficiently and easily acquire attractiveness.

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ANALYTICAL REVIEW OF MINDFULNESS-BASED EDUCATIONAL PROGRAMS UNDER THE FRAMEWORK OF POSITIVE PSYCHOLOGY MOVEMENT

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ABSTRACT

Modern information society gives a big emphasis on high technology development that is supposed to facilitate our lives. However, it seems that during this information and achievement driven process we left the harmonic development of human beings behind. How to be a happy and optimistic person is a »new world« challenge that evoked a new branch of movement, called positive psychology and within it the development of the mindfulness approach. Mindfulness is a philosophy of how to be fully present in each moment, consequently being more attentive, making better decisions, with no burden of the past or the present. As such it develops positive human being qualities considered also as the objectives by Cognitonics. While the first wave of mindfulness-based programs were for adults, more recent efforts have targeted the well-being of children and adolescents; as a result, mindfulness programs in schools are becoming more and more widespread. In this paper we present an overview of the current mindfulness-based educational programs, divide them into classes, taking into account their objectives, basic disciplines potential benefits and the age of the learners.

1. INTRODUCTION

Nowadays, people are struggling to keep track with the modern society demands. Endless information and technology put a person under constant alert and readiness to react which in turn creates a great possibility to develop stressful reactions and weaken ones well-being. Acute reactions are not enough, to ensure a happy life. Prevention is needed. For this purpose a new approach has been developed, called positive psychology. Its focus is the positive attitude of humans toward their own lives. This is a shift from the traditional problem fixing to the study of the things that make life worth living and lift it up from ground 0. Positive psychology assumes that striving toward growth of happiness in everyone's lives and heading off problems before they arise is essential for a healthy human mind. Positive psychology is comprised of four parts: goodness, generativity, growth, and resilience [20].

To achieve the goals of positive psychology one has to be alert to oneself. It means to be consciously moment-by-moment attentive to situational elements of an experience: i.e., thoughts, emotions, physical sensations, and surroundings. The psychological approach dealing with it is called mindfulness [59]. The aim of mindfulness is to feel the present moment; one learns to observe the arising and passing of an experience. If we describe it with a vivid illustration: it is like coming out of a wild river (that represents our thoughts and feelings), sit on the shore and just nonjudgmentally watch the river passing by. The challenge during mindfulness is to simply observe [10]. Formally, mindfulness is trained by meditation practices such as sitting meditation, or physical movement such as yoga or tai chi. These techniques help steady the mind and train its attentional capacity, while also increasing its breadth of focus. Mindfulness has been applied to many different fields, but it is not until lately that focus of positive psychology and mindfulness techniques moved to even deeper prevention – into the education of children and youth, to foster their strengths and resiliency.

2. MINDFUL EDUCATION

Mindfulness shows to be a good counterbalance to the immense media and technology that children are exposed to and formal education should always consider the mental health and balance of children thus preventing disorders and fostering their personal development and well-being. In this article we present the current state of the art researches and programs of mindfulness in education under the umbrella of positive psychology and information society.

Generally there are three ways in which mindfulness can be integrated in classrooms: indirectly (as the teacher develops his personal practice), directly (by teaching students directly), or combining both. We will describe the direct approach in more details.

2.1 Direct approach

We have analyzed 46 mindfully based educational programs, rapidly growing in the last five years, none of them older than 2005. The majority of the programs were applied to public schools. Mindfulness is by far most developed and spread in the USA, Western Europe, Canada and Australia follow. In Table 1 we describe some of their characteristics: age of children to which the program was

applied, techniques used in the program and its duration. In Table 2 we present the objectives of particular programs. We have divided duration of the programs into three categories: <4 weeks, 4-8 weeks and more than 8 weeks. We chose these three categories because they differ among each other in the program – most of the programs last 4-8 weeks with 1-3 30-45 minutes sessions per week. This is not a surprise, since certain time has to pass to see the effects of the mindfulness techniques implication. If programs are shorter, than lessons are usually every day and more intensive. Some programs though are longer – they last for a whole semester and are usually integrated into a school curriculum.

Table 1: Review of the mindfully based educational programs/studies characteristics.

Age	Durat. (weeks)	Type of mindfulness techniques used	Program / study
preschool children (<5 years)	>8	Transcendental meditation (TM)	[54]
elementary school (6-14 years)	<4	interventions focusing on depression and anxiety.	[29]
	4–8	Mindfulness Training (MT)*	[6], [7]
		Mindfulness-Based Cognitive Therapy for Children (MBCT-C)	[44]
		MT + MBCT-C	[34], [57]
		mindfulness based stress reduction – MBSR (body scan, meditation, breathing)	[42]
		Mindfulness meditation (MM)/MBSR + yoga + art/music	[27], [48]
		MBSR + Tai Chi/yoga	[21]
		mindful awareness practices (MAP)	[14]
	>8	MM	[35]
		MBCT-C	[46]
		MT	[24], [43]
		MT + yoga	[30], [41]
		MBSR	[1], [47]
		SEL - mindfulness and caring for others – MindUp program + Social responsibility program	[2], [44]
		MAP	[13]
		TM	[4],[37],[54]
		Self-discovery program (SDP): massage, yoga and relaxation	[38]
high school students (14-18 years)	4–8	MT	[33]
		MM	[5], [58]
		MBSR(body scan, meditation, breathing exercises) + Tai Chi/yoga	[25], [53]
		MBCT and MBSR	[39]
		MAP	[59]
		stopping and breathing program**	[22]
	>8	MT	[27]
		MM	[18]
		Learning to Breath program *** MBSR	[8],[28], [31],[37],[56]
		TM	[4], [40] [49]
>18 years	4-8	MT	[33]
All ages	<4	mindfulness, visualization, mantra, prays	[11]
	>4	MT + yoga, meditation, nutrition, art and music	[23]

| | >8 | social, emotional, attentional and self regulation strategies, including MT | [51] |

* listening, breathing, movement, walking, eating, seeing, emotions, mindfulness of breathing, body scan, and lessons of kindness and caring

** Learning how to recognize feelings by learning about body responses to emotions + mindfulness how to deal with anger, worry and other difficult feelings. Mindfulness themes are taught by engaging images, video clips and objects such as snow globes to support understanding of busy thoughts come and go.

***Learning to Breath program - body awareness, understanding and working with thoughts; understanding and working with feelings; integrating awareness of thoughts, feelings, and bodily sensations; reducing harmful self-judgments; integrating mindful awareness into daily life.

From Table 1 we can see that programs/studies are rapidly growing and gaining popularity in the last five years. This is so also because some of the programs are funded and promoted by celebrities (e.g. Goldie Hawn foundation). Most programs focuses on children in elementary school (aged 6-14, 30 programs out of 46), following by high school students (aged 14-18, 23 programs). Less interest is for college students (aged 18-24, 2 programs) and preschool children (less than 5 years, 4 studies). Results are expectable, since age 6-14 are most suitable for unlocking children's potential and show them the way to happiness and wellbeing that they can treasure through their whole life. Most mindfulness programs last 4-8 weeks or for longer periods during the school year or semester. Shorter periods of time are not useful, since mindfulness is not a magic stick that would save the world and people living in it, but it is actually work on a personal development. As for the content, programs use different mindfulness approaches focusing on specific trait such as stress reduction, breathing, attention, awareness, body scan, meditation etc. Some combine mindfulness with transcendental meditation, yoga, Tai chi or even music. Some of the mindful education programs are specifically shaped and registered as a trade mark (e.g. [23, 28]). The benefits of the programs described in Table 1 are shown separately in Table 2.

Table 2: Presentation of the benefits of the above described program/research.

	Program objectives (PO)	Program / Research nr.
C O G N I T I V E	Attention, concentration	[6],[7],[14],[21],[23],[26], [35], [42], [45],[46],[58]
		[2],[4][22],[23],[40],[52],[56
	Executive functions (working memory, planning, organization, decision making,…)	[13],[14],[42],[54]
		[22],[57],[47],[50],[59]
	Decreased ADHD behaviors - hyperactivity and impulsivity	[14],[26]
		[59]
	Academic performance/competence	[36],[43],[45]
		[2],[5],[11],[18],[23],[27],[22],[40],[56]
P S Y C H O L O	EMOTIONAL ISSUES	
	Decreased depression	[23],[29],[30]
		[8],[22],[24],[27],[41],[59],[25]
	Decreased anxiety in general and text anxiety in particular	[23],[29],[35],[46]
		[2],[5],[18],[22],[35],[37],[47],[50],[59]
	STRESS AND COPING	

G **I** **C** **A** **L**	**Increased sense of calmness, relaxation, and self-acceptance, Increased self-calming, decreased stress**	**[7],[23],[30],[53],[58]**
		[1],[2],[8],[11],[22],[25],[27],[28],[33],[40],[44],[47], [31]
	RESILIENCE	
	Decreased aggression negative affect or emotions	[30],[43],[48],[52]
		[28]
	Increased self-esteem/self-confidence	[38],[44]
		[18],[33]
	Increased self-awareness and self-control	[7],[23],[48]
		[2],[25],[28],[33],[52],[31]
	Fewer conduct and anger management problems	[23],[46]
		[2],[11],[22]
	Increased emotional, behavior regulation and reactivity	[14],[23],[42],[43],[44]
		[2],[28],[31]
	Better mental health and well being	[23],[27],[33],[53]
		([22],[27],[34],[53]), [1],[2],[25],[52]
	Happiness, optimism	[43],[44]
		[22],[52]
S **O** **C** **I** **A** **L**	**Increased social skills and social compliance:, better behavior**	**[5],[6],[14],[23],[34],[35],[43],[44],[45],[46]**
		([5]) **[11],[18],[24],[39],[48],[52]**
	classroom participation, reduction of suspension, motivation for learning	[7],[26],[38]
		[8],[52],[53]
	Respect and care for others	[7]
		[52]
	Empathy and compassion	[7],[23],[44]
		[18],[33],[52]
	Enhanced school climate	[38],[58]
		([58])
P **H** **Y** **S** **I** **C** **A** **L**	Increased quality of sleep	[21],[23],[53]
		([53])
	Decreased aches, pain, tiredness	[28]
	Decreased psychosomatic	
		[31]

Legend: Third column is divided according to the school level – first row are elementary school, second row is high school programs.

From Table 2 we can see that the majority of the programs (28/46) outpoint improvement of some aspect of cognitive functioning as important benefit of mindfulness. Attention, concentration and academic performance are most obvious. Psychological improvements are mentioned as an important benefit in most of the mindfulness programs (35/46). They are divided in subclasses: – resilience is the focus of 26 of 46 programs, stress reduce (17 of 46 programs) and emotional issues (including decreased depression and anxiety, increased sense of calmness, relaxation, and self-acceptance, increased self-calming) are the focus of 14 of 46 programs. Benefits on the social field are mentioned in 23 of 46 programs. The physical aspect as a benefit of mindfulness is mentioned the least (5 times).

If we combine the two tables we can notice, that mindfulness programs that are specifically based on stress reduction, do not especially point out attention and concentration improvement as a benefit of such training. Some of the programs include attention and concentration

under improvement of broader executive functions or academic performance.

2.2 Indirect approach

One must not forget that a mindful education can only be properly implemented if the educators are properly trained and harmonically personally developed. There are 5 major mindfulness - based education programs for teachers: MindUp [51], MBWE [50], CARE [12], SMART [48] and MBSR [19]. These programs help teachers to improve social skill, mental health and wellbeing and to better focus and concentrate. These are one of the most important traits for a teacher in order to avoid burnouts, and to fulfill their class obligations as well as possible. This can upgrade their raw knowledge and enable them to teach children in a better way and show them how to develop harmonically.

2.3 Limitations

The results of the studies presented in this review must be considered within caution. Many of the studies have only considered the immediate effects of the program. Thus, there can be no firm conclusions drawn about whether the benefits are sustained over time. Next, the majority of the studies were unable to use random assignment due to specific year levels being used or particular student groups being targeted for the intervention. Therefore interpretation of many studies is limited due to the lack of an equivalent control group or the unreliable and preliminary effect sizes for controlled studies. Results are generalizable only to individuals who have the interest and ability to participate in a Mindfulness program. Next, the meditation programs have commonly been evaluated using student or teachers subjective self-report measures; thus, common-source bias is a concern. Last but not least, it is difficult to make judgements about which types of meditations are most effective with the current evidence available because there was no consistency used in the samples, designs and surveys. More fine-tuned research is needed to understand the optimal frequency with which students are best to practice meditation at school. Similarly, more research is needed to understand the optimal amount of time to spend meditating for each session. Nevertheless, Baer [3] concludes that although the empirical literature includes many methodological flaws, mindfulness-based interventions may be helpful in the education as well as treatment of several disorders.

3. CONCLUSION

This brief review shows that school-based mindfulness interventions are relatively new but address skills that are important for student wellbeing, and appear to be especially effective in reducing negative functioning. Mindfulness education, if properly implemented, enhances the very qualities and goals of education in the 21st century shaped by the positive psychology movement. These

qualities include not only attentional and emotional self-regulation, but also prosocial dispositions such as empathy and compassion, self-representations, ethical sensitivity, creativity, and problem solving skills. They enable children to deal with future challenges of the rapidly changing world, ideally becoming smart, caring, and committed citizens (Mind and Life Education Research Network (MLERN) [32]. Namely, the goals of education have always been contingent on the cultural context [54]. Therefore we may say that a mindful person is armed with the necessary psychological equipment to fight the 21 century demands - information technology, uncertainty, stressful situations and self-alienation. This is also the aim of cognitonics- to overcome an increasing gap between spiritual and intellectual development of the person in the new reality of swift changes in the modern information society, technological challenges, and globalization [15, 16, 17]. Under the positive psychology and cognitonics umbrella, mindfulness is a gift to ourselves, and consequently to the broader public and social life in general.

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THE MANIFOLD LIVING SPACES IN TRANSITION:

THINKING, PROJECTING, EXPERIENCING AMONG PEOPLE, WITHIN LANDSCAPES

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ABSTRACT

The multifarious life styles - latent but often forgotten along the ages by the dominant western cultures - are still manifesting within the contemporary world, where the ancient residual cultures and the exasperated people movements *melt* and *collide* in a very "dangerous cocktail". These epochal dynamics, properly definable as "transitional phenomena", together with the increasing informational and financial invasions, provoke territorial and metropolitan transformations and accelerated cultural shocks. It is the principal subject of this paper.

1 INTRODUCTION: DANGEROUS COCKTAILS AND CULTURAL SHOCKS - THE INTERNATIONAL EUROPEAN BARMAN IS AT WORK !

Around the International /European Life Environments we can find such *cocktails*, in Italy in particular. Within them are mixed both the ancient urban structures with their traditional pre-contemporary peripheries and the ancient rural environments which usually surrounded them. All these 'wandering fragments' are continuously crossed by different temporary 'wandering guests' who co-inhabit with the historically rooted people, in their turn involved in a sort of *neo counter-colonization,* as "western natives" swept away by an uncontrollable counter-flood.

In this melting cocktail many brilliant roaming fragments are put on the market as illusory but poisoning merchandises. So that historic towns and monuments, food, water, newspapers, TV, informational products, events, trips, rural landscapes, music, languages, civil rules, abandoned or valorised spaces, are all merchandised as *special offers* indifferently addressed to hyper enriched groups and impoverished masses of migrants, in a more and more chaotic hotchpotch.

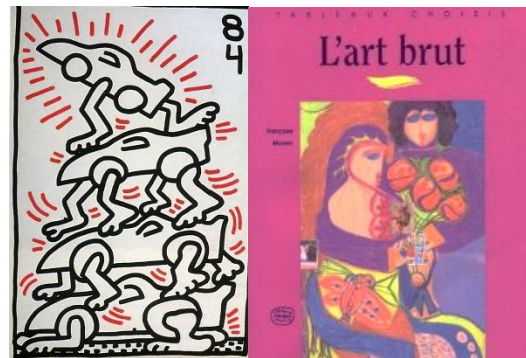The Art had imagined and prophesised these phenomena, as these Images impressively show.

Figure1: a) K.Haring, Urban art;b) J. Dubuffet, L'ArtBrut

2 THE TRANSITIONAL EPOCH AND ITS PARADOXICAL SITUATION: INEXORABLE DEVASTATION OR HOPEFUL POTENCY?

The above mentioned dynamics, often dramatically, testify the extreme insoluble aspects of these transitions (migrations, refugees, wars, terrorism, destructions)but, at the same time, bring to light the enormous potentialities of these phenomena, spontaneously manifested by the" in-transition communities". In any case such communities, or firmly tied to their native life environments (even abandoned or destroyed) or forced to live in new environments (temporary, hostile or dangerous) aim to create new relationships with their-even difficult-life environments.

The paradoxical dynamics, traditionally interpreted by western culture as insoluble contradictions, can be bypassed through unpredictable non-logic dynamics, unexpected connections, new relational structures, which can re-constitute a *dynamic unity* between *Mind* and *Nature,* according to G. Bateson's *Ecology of Mind.*

In this Unity *the differences* and the new information which can be originated by them, become a potent generator of *new diversities*, instead of statically mediated equilibria. This epistemological modality of thinking can be found also in XX century's scientific experiences and researches in various ambits. In particular, the searches and results of the Abel Prize 2015 John Nashand Louis Niremberg seem surprisingly related to the L. Wittgenstein's elaborations towards the language and the

paradoxes [1-2] and very close to the epistemological intuitions of G. Bateson focused on the differences and the relationships.
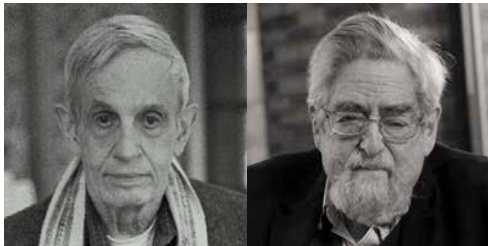

Figure 2: John Nashand Louis Niremberg,
Abel Prize 2015

"Their breakthroughs have developed into versatile and robust techniques that have become essential tools for the study of nonlinear partial differential equations. Their impact can be felt in all branches of the theory."
*"Far from **being confined to the solutions of the problems** for which they were devised, the results proven by Nash and Nirenberg have become very useful tools and have found tremendous applicationsin further contexts,"* (Abel Prize 2015 Press Release*)*

3 WITHIN THE 'SHAKER OF THE DANGEROUS COCKTAIL' MANY RELATIONAL DYNAMICS ALREADY EXIST AND MANIFEST THROUGH *RESILIENT-MICROACTIVITIES OR CREATIVE PHENOMENA OF RESISTANCE.*

All of the scientific itineraries and human experiences above described highlight that not the insoluble paradoxical contradictions but *only* the relationships can become the very fertile ground where new ecological processes can blossom and evolve from the extreme contradictory contemporary dynamics.

Only this *relational humus* - adequately fertilized by the scientific evolutionary thinking-could attract multifarious *action/researches* aimed to produce an *adequate knowledge (*According to the" autonomously produced Knowledge", defined by B. Spinoza [3])among the heterogeneous participants –all equally conscious and responsible-as motivated people, scientists, technicians, artists, religious and political authorities, in a friendly, collaborative and non-hierarchic relational modality.

4 ADEQUATE KNOWLEDGE, CONSCIOUSNESS AND CREATIVITY CAN PROPAGATE AND FLOURISH WITHIN THE" COCKTAIL", AS NEW *ECO-DIVERSITIES*

On such a fertile *humus* a lot of interactive phenomena referred to social life, human settlements and landscape contexts, could be developed in terms of action –research.

These kinds of action/research could produce multifarious settlements and unexpected social-spatial integrations, going beyond t he traditional urban/industrial/rural processes from which have been originating, along the centuries, the classic western life styles and their interrelated spaces. What the anthropologists realized about the remotest worlds (as Pacific and Oceanian Islands), recently dominated by European nations but capable of a new cultural reaction, inversely happens in Europe within our menaced *Fortresses* [4]. Now around them many attacks are in course and manifest through unusual social aggregations, different extemporary settlements, improvised shelters, strange ephemeral architectures, and variable life styles. Among the immigrants the social perceptions of such conditions express itself as a desperate affection towards the original culture and places-just abandoned-or as manifestation of new desires of belonging and social dignity towards to the new states just achieved. At the same time the western societies tend to recognize in these phenomena a sort of epochal counter-invasion of the rich world, which happens out of their perception or diffused consciousness.

Actually the lack of such a consciousness not only obstacles and impedes any reciprocal integration but even stifles the potentialities of any evolutive flourishing from the dangerous Cocktail.

Figure 3: Traditional shelters and contemporary Cultural Centre, Noumea, New Caledonia (by A. Favole, cit.)

Figure 4:Palestine: temporary settlement built as pacific protest against Israel Colonization ,by M.Pascucci, 2013

For all these reasons, in spite of any authoritarian control, these new presences, as *insidious lumps*, manifest, live and resist into the mixer, and evolve, becoming new attractors ready to foster unexpected life styles, weaved over the cocktail as living relational textures.

As some aboriginal native cultures reacted towards the western colonization valorising the cultural contradictions in terms of *challenging differences* able to inspire unexpected conditions of *renaissance* [4]. In a homologous way we could encourage and practice manifold intercultural co-existences at any level, environmental, spatial, temporal, economic and social. Various forms of *co-existence* and *renaissance* are already in course, just among strongly different continental realities beyond the current contradictions of authoritarian practices. The *metropolitan renaissance* of Cleveland and Detroit in U.S.A and the *suburbanco-evolution* of Kibera [5] testify different successful modalities of creative reactions towards extreme life environments conditions, spontaneously managed by conscious and proud citizens.

5 THROUGH THE RELATIONALEVOLUTIVE INTERACTIONS, PRACTICEDAMONG OUR CONTEMPORARYLIFE ENVIRONMENTS,UNEXPECTED ECO-DIVERSITIES CAN ARISE

In this sense the epochal dynamics, of' transitional phenomena", with their increasing informational and financial dominations can be *counter balanced* by different interventions of participative and creative actions-researches, practicable within various contexts of life. On this base people, scientists, experts and political authorities, together with the 'insidious lumps", present within the various" dangerous cocktails", could re-discover, encourage and valorise the relationships among their *different conditions* tore-conceive common life environments where other evolutionary co-existences could be concretely realized.

A lot of interactive researches could be developed throughout complex participative processes whose steps could concern unexpected (social-environmental) ambits and conditions for new *elan vital*.

Beyond the extreme situations, where the contradictions explode in violence, the presence of *resistant lumps* within the cocktails is in any case the necessary condition to trigger relational *action/research processes*, as it has happened in many local contexts as the Kenyan Nairobi suburb of Kibera, or in Palestinian colonized territories, as we described in previous contribution to Third Cognitonics Conference [5].

The study case we would propose in Cognitonics Conference 2015 concerns the conditions of the in becoming metropolitan suburbs, diffused among Mediterranean contexts, effectively showed as *European metropolitan suburbs and sprawls in a night landscape cocktail.*

Figure 5: Night time in Europe, by GoogleHeart, 2015

On the base of such particular cocktails we would concretely prefigure a *Relational City* in a *Relational Landscape,* unitarily involved in the same virtual/natural transition toward *Landscape// City.*

6. THE CONFIGURATION OF *LANDSCAPE//CITY*

Such a new configuration is neither thinkable as a *postmodern garden city* nor as a *resolutive decisive intervention*. On the contrary, it has to be conceived as a contemporary *relational-temporal-spatial context*, where the natural, social, informational experiences meet within a spatial-temporal ambit and concretely produce, as an ethic aesthetic Unity, *new living environments* and *new alive inhabitants.* This Unity can really become the very *Genius Loci* of our *contemporary age.*

Consequently we conceive the Landscape City configuration[6]as a phenomenon which develop and raise...*"from various impressing pre-figurations, where the different urban and environmental structures are interweaved and connected through multiple relationships to form a complex tapestry...*[where...]
*...-as weave and warp-the **basic components**, urban and landscape structures on which the relationships develop, enlighten the conditions and the status of the urban/environmental structures of the Landscape City.*
[while] …
*… the **thematic elaborations,** as aesthetic, economy, practicability, agriculture, accessibility, use values, solidarity marketing, eco-services, mobility... progressively develop in the course of the in becoming socio-territorial interactive experiences.*
*Thus the **Landscape/City achieves the configuration** of a complex new texture-continuously in progress-on which the relationships originate new and new embroideries whose colours and shapes are unpredictable and un-pre-determinable.*
Every component can progressively show its own drawing and contribute to the whole texture of the tapestry.
*By this way the **results of these interactive researches** configure at the same time a **new City**, a **new Landscape** and a **new condition of life** within a **new Field of relationships"** as inspired by this P. Klee's Masterpieces.*

Figure 7: Growth in an old garden (P. Klee, 1919)

The impressive P. Klee's pictures can prophetically prefigure a contemporary Landscape//City renaissance from a chaotic fragmented cocktail.

On an almost worn-out carpet various entities flow and rhythmically pulse together with vivid red lights. All of such in becoming 'entities' assume different significances and forms, revitalising the ancient garden and originating the new context. In this second picture, we could really recognize an interactive dynamic self-creating process, open and formerly unpredictable like the ones from which can be originated the contemporary Landscape//Cities.

Figure 6: Plan of a Garden-architecture (P. Klee, 1920)

This pre-figuration appears as an impressive step of a relational process developed between a City and a Landscape. Here, as a musical coloured score, textures, lumps and red glows of light, configure an open and surprising dynamic, continuously in evolution.

These figurative interpretations can be resonant with multifarious homologous socio-territorial processes referable to concrete contemporary condition.

In particular, this continuous dynamical resonance, remind the condition of a lot of transitional contemporary situations, homologous to the ones we use to study in Italy.

7 SOME APPROACHES TO PREFIGURE LANDSCAPE//CITY

Following the theoretical, general configurations here presented have been suggested and discussed in various modalities (Workshops, Symposia, social and political Public Debates). All of them are potentially developable as specific participative processes adequately referred to each real situation. The study cases of East Liguria and Tuscany testify the concrete potentialities of such kind of prefiguration, encourage their starting and give some

reference scenarios for their evolution. These evolutionary processes remains open, not pre-determinable and at risk, as all of a lot of homologous processes in nature.

In any case they suggest a *watershed* in the contemporary socio-environmental-urban project.

East Liguria Region: Sarzana, Smart City, 2014

Figure 8: The marine coastal and river area, between La Spezia Gulf and Apuan Alps (by Google Hearth, 2015)

Figure 9: The metropolitan sprawl around Sarzana (by Google Hearth, 2015

Sarzana is an ancient, noble town surrounded by a coastal-metropolitan area between La Spezia's Gulf and the marble towns Massa-Carrara in north Tuscany..

Nowadays Sarzana is a part of a confused conurbation expanded between the Hill /Mountain and the *Magra* River Landscape, till the estuary coastal area.

Figure10: Sarzana, the ancient town surrounded by its urban sprawl (by Google Hearth, 2015)

The local society and its settlements are continuously expanding in a sort of storming transformation while, in general ,the environmental and social conditions are getting worse and worse.

Nevertheless some groups of citizens claim a change and really desire a very experiential involvement in their *in transition* life context. On its turn the surrounding environments still preserve its potentialities, especially towards the wider landscapes of Apuan Alps, Magra River

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and Coastal Areas. At the present, where as many opportunities are open and available, the political perspectives remain narrow and ambiguous, so that the contradictions are getting exasperate.

A new relational perspective based on the different heterogeneous –even contrasting-resources could trigger socio/economic/environmental processes which –on their turn-could ramified through such a contradictory context.

A Landscape//City proposal had been launched ina2014 Workshop held in Sarzana, to start a participative process where the entire territorial context with its contradictions, could be brought into play, through unexpected non-hierarchical dynamics, practicable by the citizens in mutual collaboration and social solidarity.

Landscape Oases: five questions for exasperated Metropolitan Areas (Dedicated to Florence, 2010/2015)

Can a new solidarity between human societies and life environments concretely develop a creative ecology, a sustainable economy, and a very quality of life?

Is a solidarity land-city-scape thinkable in metropolitan exasperated conditions?

Which mental and cultural consciousness is needed for its creation?

Where and how these kinds of research and actions could be concretely practicable?

Can the European Landscape Convention be implemented through land-city-scape experiences?

We tried to answer these issues by a prefiguring a MANIFESTO of a process project for the City of Florence. This proposal prefigures a sort of *life environmental oases*, conceived as *real-life environments* and acknowledged by their users as *Landing Places* where a whole, wider human ecology can really be practiced by contemporary human societies. Many kinds of research-actions characterize these *Landing Places:* their management by Solidarity groups-micro economies, cultural activities, consumers organization, spatial aesthetic transformations, environmental microbalance control, all practiced through different synergic combinations related to wider realities (territorial, urban, metropolitan). The self-managed landscape production, developed through participative activities could be a suitable way to answer these questions.

CONCLUSIONS

The concrete study cases and the theoretical approaches described in this paper could constitute a very step to further process' configurations of Landscape City. As we have been experienced, such a City can be concretely

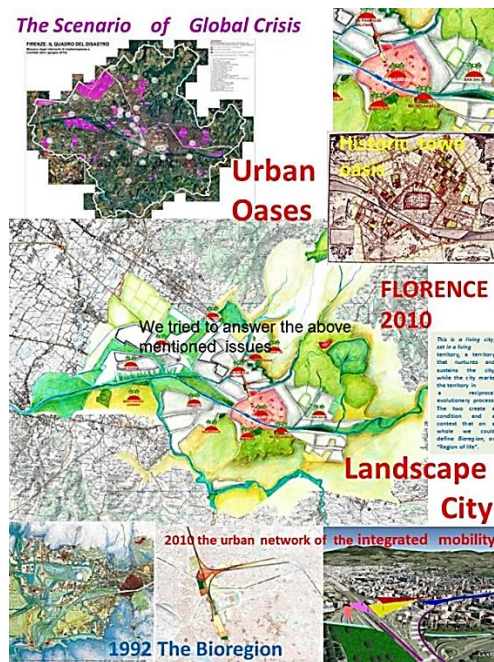achieved not in terms of functional/traditional (authoritarian)

Figure 11: A Synthetic view of Metropolitan oasis in Florence (R. Micarelli and G. Pizziolo)

achieved not in terms of functional/traditional (authoritarian) projects, planning or pre-influenced financial supports but only throughout multifarious creative/participative processes where solidarity, economy, culture, technic, ethic/financial supports meet and interact at various levels. to create new-unpredictable and relational-points of reference, and concretely offer stressed people and devastated communities beautiful, attractive opportunities to promote, use and manage their living harbourages

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THE CONCEPTUAL ARCHITECTURE OF MODIFIED EMOTIONS

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ABSTRACT

The aim of this paper is to present conceptual architecture for modification of emotions. Firstly, the idea of emotion in general and as transformed to mean empathy and passion is considered. Secondly, sympathy, compassion, and feeling are discussed. This all is made in order to construct a firm basis to study emotions in general and their role in music, architecture, and health care. A special attention is paid to using the stated ideas in interaction with emigrants.

1 INTRODUCTION

Emotions and rational cognition are indexes of the two-fold function of mind in the spectrum of other attitudes, like volition. Emotions are internal but they can be read in certain extent from outside. This challenging situation has created in our evolution certain modification of emotions, including:

Emotion, empathy, en-passion,

Sympathy, compassion, feeling.

The content of these notions is given under sub-paragraphs in relation to irrational cognition.

Irrational cognition was noted already by Plato and before that in Old China **[1].** In Greece the word pathos was in use and is the base of derivations like empathy. Logos and pathos are unified in ethos. In mythos the function of pathos was related to law (nomos). These factors formed the transcendental part of universe over cosmos or mickrocosmos to be felt or known (Sokrates > [2, p. 18], [3, p. 5]).

Hermann Friedmann [4] has stated: "Der Kosmos erzeugt den Mann, der Mann erkennt den Kosmos".

Today the study of emotions is a central task in psychology [5], cognitive, value and social study [6], [7], [8]. Today we have to note also the role of emotion in cognitonics [9], [10], [11]. The basic cognitive study of emotions has many applications in medicine [12] and art theory **[**13], 14]. In this paper we discuss the relation of emotion studies to therapy of refugees [15].

2 EMOTION, EMPATHY, AND EN-PASSION

2.1 Emotion

Human emotion is potentially named and directed type of aroused and intense feeling. It consists of ideas, like

Named, directed, type,

Aroused, intense, feeling.

The potential naming refers to our habits to master our originally wild emotional nature with ratio (logos). Emotion is directed or better co-directed by somebody to something or somebody. This entity causes externally and then internally the emotion in question. Civilized emotions are thus types of feelings which we learn to classify.

Understanding emotions means that we know certain conditions in which they are aroused. Emotion is intense and significant so that we recognize and give a name to it. As it was mentioned, the discussion of emotion is dependent on the open background set of feelings.

Music and architecture are archetypes of emotion transmission among arts [16, p. 9], [17], [18, p. 67]. Skills in emotion transmission are central in human communication and especially important in caring of somebody as personality. Humans are emotionally bound to their homes [11], and emigrants try to keep their central habits in function.

2.2 Empathy

Empathy is an experience to understand emotional conditions of other persons from external perspective. Empathy locates (positions) other person's emotions in the emotion space which we have created. Empathy consists of:

Experience, understanding, other persons (mentality)

Emotional, condition (arousal), external perspective

In the case of empathy we have to experience at the basic level that something is happening between two persons (or collective personalities). This act concerns understanding of other persons.

In empathy the concern is emotion. We should have certain ideas what conditions arouse the emotion in other person or collective personality [19]. Then it is possible to resist aggression for example. Because empathy concerns other person we have to understand the situation from at least some other perspective than our own.

The skill to position ourselves with others is the key to understand art or act well in caring about others. In this sense the home-district depends in a great extent on personal relations. If they are cut away traumatic experiences are born, which is a central problem in domestication.

2.3 En-passion

Passion or better en-passion is a strong emotion which causes enthusiasm and will to set goals. It has to be internalized fully and consists of:

Strength, emotion, causation,

Enthusiasm, will, to set goals.

Passion is strong in relation to the average emotion. It is related to motivation to do something, but also in the case of nearly impossible. Normal motivation concerns reasonable realization possibility and certain value to achieve.

Passion is connected to enthusiasm known in antique art theory (divine, irrational force). En-passion confirms our will and it is manifest in desires or utopias. En-passion refers to an internalized teleological commitment. Passion to quality is important in making high art [20].

The high ambition belongs to an extreme achievement in care (love of mother) and healing. The refugees have lost the dialogue with their original caring people. In therapy this all has to be won back in challenging situations.

3 SYMPATHY, COMPASSION, AND FEELING

3.1 Sympathy

Sympathy is a feeling to understand and share other person's emotional experience in an analogous perspective (than our own). Sympathy is the source of Concordia and it consists of:

Feeling, to understand/share, other person's (mind)

Emotional, experience, analogous perspective

Sympathy is more than only an experience and can be called a feeling deeply felt. Sympathy means not only the understanding but also the sharing of common aspirations. Its idea is to recognize something similar in others than we feel in ourselves.

Sympathy concerns feelings at an emotional and experienced level and in the sympathy the perspectives are typically shared. This is also manifestED at the division of material utilities (altruism) [6].

In higher spiritual life sympathy may be extended to the direction of empathy which means that we then also sympathize with different persons besides ourselves. It is of course possible to hate ourselves, but this is another problem. In therapy the patient has to get free of hate and meet sympathy in a new life situation.

3.2 Compassion

Compassion is emotion and concrete feeling as response to joy or suffering (of others) which motivates to help others. It orientates us in societal life and consists of:

Emotion, feeling, response,

Suffering/ joy of others, motivation, helping.

Compassion should normally be on the level of emotion but it can achieve the status of (en) passion. It would also be a concrete feeling in a certain agent capable of responding.

Ethical agents react to suffering of others in a pan-ethical sense - to avoid suffering. This motivates a mentally healthy person to consider the realization possibilities to help. As some wise persons have stated, the goal of life is to help others [7].

Refugees have often suffered in extreme conditions and a certain amount of compassion is welcome in the therapy.

3.3 Feeling

Feeling is a private individual experience which has a potential subjective emotional representation. Feeling is connected to living persons and it is open to new realizations. It consists of ideas, like

Private, individual, experience,

Subjective, emotional, representation.

Feeling is internally private and is realized in an individual experience.

Feelings are subjective emotions, which may get a name when recognized. Then we have the representation of them

in mind or (potentially) in language. The field of feelings is a part of creative life, and we may give names to new emotions born. The field of emotions is already rich and typical examples (sadness, hate, apathy; self-confidence, love, joy) are only the most typical [6].

In concrete therapy it is important that the register of various feelings will be balanced. Then a certain amount of both love but also the justified hate normalizes the situation.

4 DISCUSSION - INTUITION, IMAGINATION AND INSPIRATION IN CARE AND THERAPY

Emotion is connected to the subconscious, and only a few persons have a rational access there. It is also typical that we have access to the subconscious temporally before sleeping, in sleep or just after waking up. The mode of thinking which connects us to our own or others' emotions is intuition. Intuition has its basis in imagination. For example, Swedenborg saw the burn of Stockholm probably by intuition in a vision, which gave a lot of thinking to Kant. To understand achievements of nature or culture by intuition may give us inspirations. They can be worked further in semi-rational writing but also in a more intuitively transmitted imagination in visual art. Also these modes of art have a common link "ut picture poesis" as Horace has stated. What humans have learned during evolution about emotion via intuition is recorded in memory in form of tacit knowledge [21]. In the art of therapy we need creative skills [11] in order to understand the individual problems depending on case. On the other hand, art is a good reflective tool in therapy.

Art is "aesthetic, evidently given representation of emotional experience in a concrete artwork" [14], which idea explains the importance of feeling transmission in true art [17, 22]. Art is also important tool to be applied in therapy, care ethics [23] or in peace politics in general [24].

Nowadays psychological medication has become a more usual treatment form instead of the expensive therapy forms. Also the therapeutic alliance between the patient and the therapist has been partly forgotten. This has happened when the evidence-based practice has conquered the psychological sector (and separated it from traditional psychiatry). New models of care are born all the time but the effect might not be the same when other personnel is working with the invented model. What important is, is the influence of the person that invented the way of therapy that worked for the patients and not the actual habit of care in itself. This should be studied more in the future.

5 CONCLUSIONS

We have shown how modifications of emotion are decisive factors in fine arts but also in the art of healing and therapy. Emotions are recorded mainly in tacit knowledge

and skill of therapist depends both on natural talent and well internalized education.

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SOME ASPECTS OF COMMUNICATION VIA ELECTRONIC MAIL (E-MAIL)

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ABSTRACT

Electronic mail can be considered from several aspects. Nonetheless, electronic mail should be primarily observed as a form of human communication. The way it is being realized is less important. Since electronic mail is the human form of communication, it necessarily connotes specific forms of human behaviour. Each deformation of that behaviour should be observed through the prism of generally accepted social norms. While those norms reflect cultural, ethical and moral frames of some (specific) social community, they should be respected. In such circumstances, electronic mail communication's participants can anticipate different situations. Some of those should be isolated, removed or sanctioned. The paper offers a comprehensive overview and treatments of different attempts of deceit using the email owned by one of the authors, within a time period of four years.

1 INTRODUCTION

Communication doesn't belong solely to the human species. Still, human communication is the most important feature that distinguishes humans from other living species. However, only the human being demonstrates a need for speech respectively verbal communication. Finally, with the discovery of computers and simultaneous development of computer sciences and technical possibilities, communication has become a segment of web and global networking of all levels: private and professionals.

This paper will not explore all areas in which damages can occur due to data misuse, neither will analyse all aspects or possible consequences of those misuses. Paper however tries to frame those tendencies and attempts within the scope of human communication, especially communication practiced via electronic mail. Defining generic framework can provide a possibility for discussing all necessary elements of such communication. Aside from defining structural connections and possible setups of such communication, this paper also considers cultural, ethical and moral frame(s) which enable electronic mail communication. Definition of any of the

above described frames assumes existence of a community which accepts all generally adopted social norms. These norms are, among others, determined by the level of community's development. From this paper's aspect, these norms define basic communication elements, considering it as a meaningful process. Due to the specificity of electronic communication, special regulations must be enforced.

The research approach used in this paper is conservative while it assumes there are modalities and possibilities of inappropriate, in the extreme circumstances, even criminal behaviour which can occur. An assumption that electronic mail deceit is a purposeful, intentional and profound violation of legal, moral, cultural and ethical norms of the society in which electronic mail is used is also conservative. The paper engenders a research in which authors explored legal articulation of the same problem, respectively determination of material and factual circumstances in which a specific form of deceits could happen – e-Crimen.

2 REGULATION OF RELATIONS IN ELECTRONIC COMMUNICATION – IN GENERAL AND SPECIFIC

In simple terms, communication represents interaction between two or more elements, which are, due to a specific reason, oriented one towards the other. In system theory, communication is bipolar relationship between emitter / sender and receiver of the "substance" exchanged during the communication. Usually communication isn't necessarily bounded by direction so it can be altered, e.g. sender and receiver can change roles during the process. "Substance" is, though not necessarily, data or information shaped in form usually called a message. Information theory defines such a process as communication channel.

From this standpont, communication can be observed as generator of changes within a society. In the process it is important to monitor quality of both changes and causes developed due to those changes. In such circumstances, electronic mail can be observed as a product of human needs for communication. Post as

communication tool, including electronic mail, basically represents a private relationship between sender and receiver, while as transmitter – post represents an organisation or modality which provides privacy. Traditionally, as within a state, post was developed institutionally on the highest level of social administration.

Since this relation is under the state's authority, its regulation is set by the corresponding law. Law prescribes conditions and modalities of post traffic organisation, but also determines sanctioning of irregularities and defines modes of indemnification of eventually damaged entity and sanctioning the offender. The specificity of post refers to the modes of transferring messages. Electronic post depends upon its communication infrastructure. Regulation of electronic post is therefore mainly set on the state level and/or under the state agencies' authority, e.g. telecommunication and electronic media agencies. Within those laws the electronic mail concept has been defined. To be more specific, the Croatian Law on Post would represent lex generalis, respectively a general law. Concept of electronic mail has been regulated by the Article 2 Paragraph 11 of Law on Electronic Communication [1]. The authors explored legal regulation and standardization in details within the preliminary part of research published in [2]. To be more concrete, the Council of the Croatian Agency for Post and Electronic Communications has passed the Rulebook on methods and conditions of preventing and moderating abuses and deceits in providing the services of electronic mail [1]. The above mentioned paragraphs of the Agency's Rulebook clearly imply the Republic of Croatia has defined formal frames for criminal practices within the national level, that are also aligned to the regulations adopted by the European Union legal entities.

The referred Rulebook was used in further discussion when defining unwanted electronic mail as "every message that without a specific reason emerges in electronic inbox of the subscriber". In such circumstances electronic mail is significantly distanced from the norms of traditional post traffic and communication. For instance, within traditional mail there are always the material evidences of attempts and possible realisation of violation that can be used in the eventual dispute.

According to the authors, e-Crimen describes every violation that can be legally defined, regulated, solved and sanctioned by corresponding legal acts adopted by the social community in which e-Crimen emerged [2].

3 PRELIMINARY SETTINGS

The first research conducted by the authors during 2011 also analysed electronic mail and inappropriate behaviour of the participants. At the time, authors tried to develop certain hypotheses starting with their own experiences and attitudes. The practical segment of research analysed a research problem from the aspect of post traffic, organisation of telecommunication infrastructure, and legal regulation of post traffic from the standpoint of basic information concepts and relations.

The next two years set the research towards defining material and factual frames which accompanied the attempt of deceit or generally inappropriate behaviour in electronic communication that could have damaged some of the participants. Hence, the problem was observed from the legal standpoint with an attempt to detect and assimilate data mostly connected to the virtual surrounding with the possible realistic consequences. Research has been processed and published during the January 2015.

This paper represents an analysis of the complete data including those gathered within period of the last years or the last eleven months, to be more specific. Opposite to the prior research, this paper tries to determine a psychological profile of individuals, the participants of electronic mail, whose behaviour in communication isn't appropriate from several different aspects. From the beginning of data gathering till their processing for the purpose of this paper, data did vary slightly in their meaning, so the classification of deceits' attempts also slightly changed compared to the one the authors developed in their original paper. For the purpose of this paper 717 attempts of communication via electronic mail, sent by the unknown sender, were selected (among totally 932 attempts). The repeated attempts have been numbered only once. According to data on motives and intentions of sender and confirmation of receipt, the authors checked whether a sender was malevolent or not.

Collected data of interest for this research implied that: The possible personal data of sender are usually wrong. Domain and sub-domain which contain account of the sender were usually of the general character, such as .com or .org. Location cannot be determined without a profound data analysis. Since sender and receiver do not know each other, a motive can only be assumed. Day and time of sending mail – data analysis has implied the majority of attempts have been made in the first part of the week with the peek being on Wednesday. Time period usually included the hours of break between 12:00 and 13:00 a.m. Advices for the possible actions of sender were in compliance with the analysed data [2].

With these regards, the following frame has been set: Electronic mail is a form of communication in which senders aren't always known or they can be falsely introduced. The sender can purposefully or unintentionally send electronic mail and thus harm the receiver by violating legal frames. Causes for inappropriate activities within electronic mail sphere can be classified but there is no generally accepted scientifically based practice. Psychological profile of the sender attempting a violation can be generally defined through the cultural and education frames which contain his/her e-account. Psychological profile of the offender can be defined according to the general guidelines of the cultural level. The chosen criterion of classification is

submitted to the cause of research and at the same time is the research goal [2] .

4 FRAME PROFILE - CULTURAL FRAMEWORK

Inappropriate communication via email is momentarily an everyday phenomenon. Usually this sort of communication refers to theft and deceit. These type of attempts can be categorized and valued by giving them a specific severity. Still, it should be noticed the research sample so far included only that part of population with the access to the Internet and corresponding infrastructure. Due to inappropriate treatment of the participants and objects in electronic mail, it is important to profile them correctly. All irregularities in communication do not necessarily have to be intentional and quite often can emerge as a consequence of the participants' ignorance and lack of information. When these irregularities are intentional, then it is quite certain their initiator knows how to cause them. If the final result is a fraud or deceit, then the initiator becomes a violator who should be sanctioned. It is also important to specify the location where inappropriate activity has been initiated. Especially when that location refers to the working place. The violation in that case becomes multiple. The receiver doesn't necessarily know all the techniques and methods the violator uses, but by intentionally participating in communication he/she is put into a situation where he takes a part of the responsibility. The third part is the possible irresponsibility of the service provider – telecommunication operator. Electronic mail assumes the following terms and relationships: Email is the communication of the conventional post relationship type, but being put in the specific environment; The environment represents a combination of the realistic and virtual environment and the realistic environment is partially included. The participants are voluntarily communicating, as long as they want to; The participants don't necessarily have to know each other; The motive of communication can be unbeknown to all participants; Communication is timely discontinued but it does have a duration time, unknown at the beginning of the process; The possible negative consequences for the participants can be noticeable, but usually are not familiar. The above stated arguments are implying the inappropriate activities in e-Communication having all the characteristics of the e-Crimen, from the benign form of e-Crimen to its fullest scope.

By conducting a multiannual research and collecting data, the authors tried to approach this issue from several different aspects. After considering development of e-Post and insisting on the legal formulation in wider, even global frames [2], this part of research has been focused on the following problem: *Who is the initiator of the misconduct as a physical person and what is the real cause of such behaviour?*

From this standpoint, the above formulated question can represent the main hypothesis of this paper that can be supported through analysing and processing the collected data. In a certain manner, this type of approach has a forensic characteristics: If the inappropriate behaviour in e-Communication is a violation or a crime, then there has to be a motive for such behaviour; If there is a motive, then it surely is a consequence of the environment and the society in which the initiator lives; The circumstances and the environment directly influence the violator through their laws, cultural relationships and behaviours.

The above described features determine a profile of the offender. However, email in a certain manner dehumanizes communication since participants are mutually separated in their realistic environments. Hence it can be assumed one of the answers to the articulated hypothesis is the following:
The initiator of the misconduct in e-Communication is a person who is being in the state of cognitive dissonance, in so far he/she is convinced he is not conducting a violation that can usually be sanctioned, or he/she momentarily has a distorted system of beliefs, values and ideas. Distortion can be a consequence of the approach to the information that in any way collide with the generally accepted values. For the purpose of this paper, authors accept a definition of cognitive dissonance [3],[4]. Personality represents an individual's characteristics that differ him from the others. According to [5], personality stands for "unique and unlimited part of our lives that differs us from the others". Personality is defined by cultural identity and it represents a measure of specificity that also defines identity. Further on, identity represents a feature, according to which, an individual gradually develops towards his environment, people and objects [6]. The second dimension of personality and identity is cultural. Cultural personality or cultural identity is also a feature that differs an individual from the other participants of a group or a culture or vice versa, that identifies him/her as a participant of a certain group [7].

By considering attitudes and opinions of some authors upon cultural characteristics, the authors of this paper made a conclusion there are features generally applicable to all people and human communities. According to these features, an inherent part characterized for each cultural institution can be defined, starting from the individual up to the general frames. Most authors use a set of next seven features: Art&literature, Goverment, Language, Social Organization, Religion and Customs and Traditions. When an individual, identified through this frame, faces a virtual environment, his/her beliefs, ideas and attitudes can be threatened by the possibilities and information he can confront in e-Communication. It can be claimed language acquires new dimensions. Finally, this all can emerge in the environment such as e-Business, e-Economy or e-Money.
Defining a motive depends upon specifying relevant factual and material circumstances in which communication arises. The consequences can also be presumed is such case, at least hypothetically. Still, it is necessary that participants know the motive of sending email, at least to some measure. However, if the communication participants don't know each other, the motive can only be assumed. Data that have been collected and categorized during a period of four years,

imply the final motive always to be the economic benefit of the sender. Since sender is the initiator of the process, a motive is usually his/her. Analysed data imply a motive is usually covered by the mutual benefits, while the final intent is to deceit the receiver. Smaller amount of the analysed cases belong to the area of the matrimonial and sexual offers. Only a minor part can be treated as business criminal.

5 ANALYSIS OF THE COLLECTED DATA

Aside from the attempt to locate sender and gather data on him, analysis of time of writing and sending emails has also been made. It is assumed the majority of messages occur beyond the working hours. If messages occurred in period between 8:00 a.m. – 17:00 p.m., these could have been written on the job, presuming the sender works. Messages occurred on weekends were usually written at home.

Analysis implies majority of emails were sent in the middle of the week respectively on Wednesday while on weekends the activities were reduced for almost one third. Comparison was therefore made by using data for Wednesday and Sunday as days with the most and least activities. Even the original research showed that communication attempts are being grouped around lunch breaks, during the work days and weekends. The assumption is senders then have the most spare time while more detailed analysis of other days, implied a similar distribution for other working days with most activities happening after the break. In the same manner, more intensified activity during a week may imply messages are being sent usually from workplaces. Naturally, under the condition the sender is employed, which means he/she is making yet another violation – the malpractice of working assignments with a possible damage made to the employer. Email is unified by the computer screen standards, with the possibility of attaching different files. If there are limitations in formal perspective, these are connected to telecommunication infrastructure. Data on communication participants should be mentioned aside the protection mode of the unwanted senders. However, attention should be given to the post content, the object used in communication and the most important semiotic characteristics. Every e-message is written in some language so its content is determined by certain syntactic rules. The message content has a specific sense respectively semantic side that can be used to derive certain conclusions in need of a more detailed analysis. Nevertheless, the most important is pragmatic side that e-message should provide. This is the field of speculation and possible violations and disputes. Clearly there is at least triple pragmatic approach while the same problem will be perceived differently by the sender, receiver and telecommunication operator.

Analysing collected data, the authors tried to recognize pragmatic approaches of senders from the pragmatic aspect of the receiver. This was also a criterion for classification and categorization of the data. The criterion was developed by authors, while mode was an attempt of recognizing the primary goal of sender. The overview is given in table and on the following diagram. Most messages were of financial character and offers were connected to intermediation in transferring a large sum of money or notifications of the unexpected gains in lotteries and fortune games. This is followed by random messages with the attempts of gaining the humanitarian acceptance for different actions. The third type of message refers to the health, where the receiver is being convinced on the value of the advertised products.

6 CONCLUSION

Email is a specific form of communication realised through the combination of realistic/physical activities and colloquially named virtual activities. Still this virtual environment can be realised only through the physical activities. Nevertheless, the progress in technical aspects is not supported by the appropriate changes and development of the communication participants. The conducted research and analysis of the collected data imply inappropriate behaviours of e-Communication participants originate from the fact that cultural, ethical and moral frames do not follow described changes. The user is easily put in the condition of cognitive dissonance – purposefully or unintentionally. Still, the primary intent doesn't necessarily have to be negative. One fact is beyond question: if the sender is cognitively dissonant, the receiver doesn't have to be in the same position. However, by accepting the communication, receiver can be in induced dissonance. The appropriate answer to these problems, whether of technical, moral or ethical background, demands primarily more intensive education in the all mentioned areas. However, the education itself isn't enough. As a legal process, e-Communication demands corresponding tools and modalities for sanctioning the misconduct. Usually these are the frames that follow a general development of individuals and communities in whole. The possible specificies of certain community shouldn't be a source of negativities in e-Communication.

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AUTOMATIC COURSE DIFFICULTY EVALUATOR FOR TESYS E-LEARNING PLATFORM

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ABSTRACT

The interaction between students and professors represents an important issue for many online educational systems. This paper presents a system designed to ensure the adaptability of the professors to the students' needs. The system is designed for both students and professors that are using Tesys e-Learning platforms to perform their activities. In this paper, we aim to model the interplay between course difficulty and students' overall knowledge level in the educational process. In our approach, the system analyzes both courses and enrolled students and offers evaluations regarding the course difficulty level. Our system evaluates the overall difficulty level based on the students' tests and exam results from past years. Evaluations are offered to professors when there is a gap between course level and student's knowledge level. The pool of educational assets consists of course chapters, tests, homework, link, and exam; they are hardy used within the evaluation process as raw data.

1 INTRODUCTION

In this digital era more and more students prefer to use online educational environments despite the classical ones. Offering students high quality learning experiences is one of the most important prerequisites in using e-Learning platforms. This prerequisite can be accomplished in several ways but one of the most important is referring the course material. It is equally important to have a well written course and to have its difficulty adjusted to the student's level.

A course material must cover a certain subject from each chapter but the covering percent may differ from a version to another. Based on this assumption we have several course difficulty levels. In order to have a good learning quality, these levels must be consistent with the student's performance. A course difficulty evaluation system can lead us to better learning results as professors will be able to offer students a more personalized learning experience.

We assume here that a course is composed of several educational assets. These learning assets can be divided into two main categories: assets for leaning and assets for evaluation/testing purposes. It is equally important to address both of these categories in order to have a good learning experience. In each main category some assets are dependent on others, and we need to be sure that we follow the right path when we evaluate the learning assets. For example, a course is strictly dependent on the chapters but not all the chapters may have the exact difficulty of the overall course. In this case some low students may not learn a chapter at all and this can conduct to a lack of knowledge at the end of the course. On the other side, we can't have some really hard test questions also some very easy test questions for the tests and an overall average test difficulty of average. If we take homework into consideration there are also here some consistency problems; regarding the course material that needs to be used there can be a too hard/easy homework or we can have a time consuming homework which can also create some problems. On the system design chapter we will cover each of these cases evaluation.

Another issue included in this paper is the tests and exam evaluation. The tests and exam difficulty must be consistent with the course material and the student's knowledge level. Taking into consideration a classical learning pipeline, we have a course which is divided into chapters, each chapter having attached a set of questions which can represent one or more tests, some homework and some references. This list of learning assets is not exhaustive and some of them may be missing or there can be more learning assets according to the learning regulations from a university to another.

Homework needs also to be consistent with the course material, because it can be considered as an assignment based on the whole course, a chapter or a group of chapters. Moreover, in this case we must take into consideration the time that is allocated for the homework delivery and if there are some references that need to be addressed. These two variables can increase or decrease homework's difficulty very much.

Figure 1 presents the infrastructure of learning assets available to students. It is important to point out that if we want to evaluate the learning assets from a specific course, we need to take into consideration each chapter, each test, each homework, each reference (i.e. external links) and even the exam result in order to create a realistic evaluation.
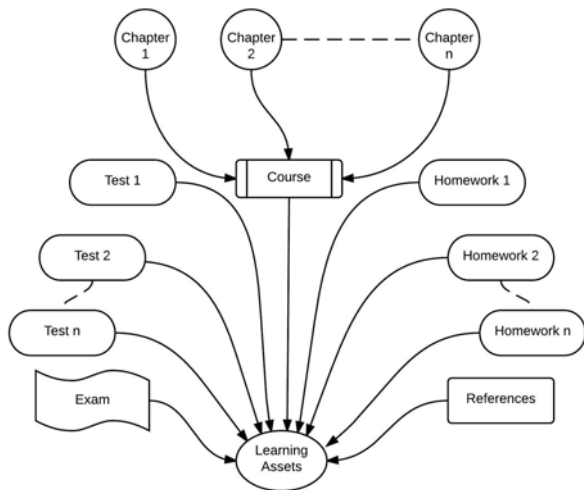
Figure 1: Learning Assets

On the other side, in order to have a match between course difficulty and students performances, it is important to have a student's performance evaluation module. This module allows us to create the adjustment based on the learning assets difficulty evaluation modules.

2 RELATED WORKS

In the domain of Intelligent Data Analysis applied in education environments, there is a continuous interest since event 1995[1]. Course evaluation is the subject of several papers, some of them referring the web-based courses [2] and some of them use the electronic surveys [3].

Some other papers refer the students' evaluation [4]. In [5], a study is presented that proposes a conceptual e-learning assessment model, hexagonal e-learning assessment model (HELAM) suggesting a multi-dimensional approach for LMS evaluation via six dimensions: system quality, service quality, content quality, learner perspective, instructor attitudes, and supportive issues. The survey instrument based on HELAM has been developed and applied to 84 learners.

In our paper we also address some of the most important factors that drive a successful e-Learning platform. In [5] a survey was conducted in order to investigate critical factors that affect learners' satisfaction in online educational environments. The results revealed that instructor attitude toward e-Learning, learner computer anxiety, course flexibility, course quality, perceived usefulness, perceived ease of use and diversity in assessments are critical factors that affects learners' perceived satisfaction. Some other related research areas that bring their contribution to the online educational environments are cognitonics science [13] and prediction of the student's performance [14].

3 SYSTEM DESIGN

The learning environment used for our implementation is Tesys [6] e-Learning platform which is used at several faculties from our university. The e-Learning platform allows users to have a course structure that contains several learning assets like homework, course material (divided into chapters), references (links), tests and exams that can be taken by the students.

For Data Mining tasks we chose Weka [7] (Waikato Environment for Knowledge Analysis), a repository for several data mining and machine learning algorithms which includes: J48[8] which is the C4.5[9] implementation, DecisionStump[10], RandomForest[11], NaiveBayes[12].

The system presented in this paper is composed of several modules: course difficulty evaluator, assignments difficulty evaluator, tests difficulty evaluator and an overall evaluator.
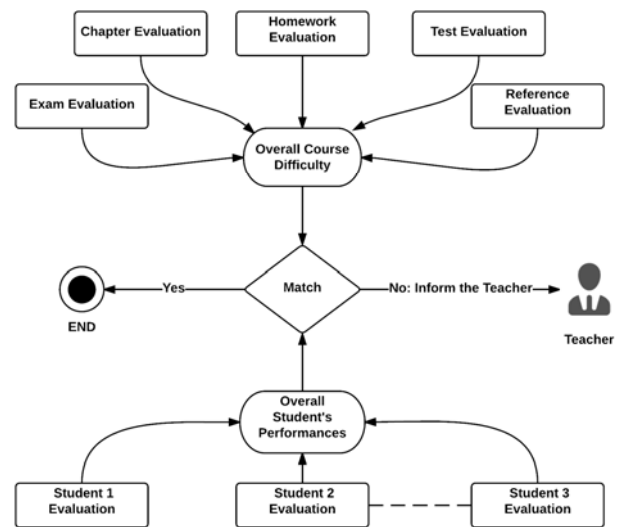

Figure 2: System Architecture

Figure 2 describes the overall system architecture. In order to have a good match between students' performances and the course difficulty level, after each step of the evaluation system, we will inform the teacher in charge with the course. Figure 3 presents a short sequence diagram of the evaluation procedure. We see here the main steps that need to be considered when we have to evaluate a course.

We start from the course material which is a repository of chapters and we evaluate it as one. After this step we have an overview of the course material and we can decide if the difficulty level is ok. Then we can evaluate each chapter and we can see if each chapter's difficulty level matches the course ones. This is an important task because if we consider at least 12 chapters (for our learning programmes we have 14 weeks) some of them can have a different level of difficulty but may not influence that much the overall difficulty. Then, after we have a good course material we can go further at the homework evaluation. This is a different type of evaluation because of its purpose – student's knowledge evaluation. This feature allows us to have a different evaluation approach because we can validate the estimation after every deadline. After
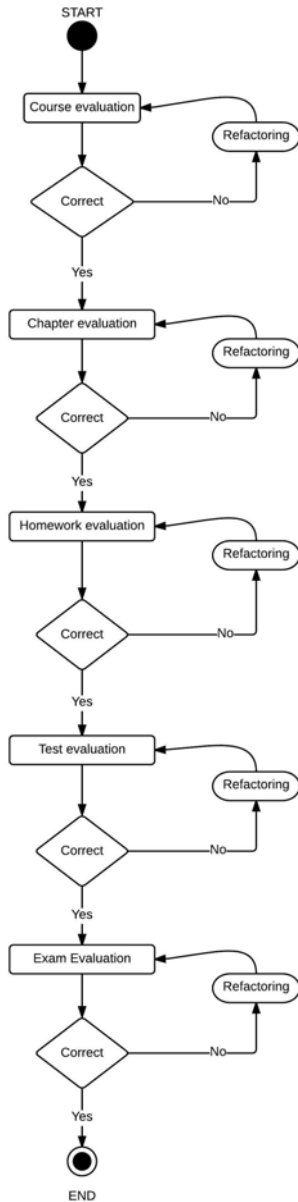
Figure 3: Sequence diagram

homework evaluation we can evaluate the tests and finally the exam's difficulty.

Another module of the evaluation system is the one that aims to evaluate students in order to have a match between students and course difficulty. The students' evaluation module logs the data from the platform and then estimates the students' overall knowledge or specific knowledge. For our purpose we need to analyse a mean against all the students.

4 EXPERIMENTAL RESULTS

For the learning assets evaluation procedure we propose a custom solution. We can evaluate the whole set of them based on the tests and exam result but there can be changes from year to year. To be more explicit, in year X we may

have some good students that will perform quite good at the tests and exams but in the next year (X+1) we can have students that find the courses very hard. Based on this assumption, the teachers will simplify the learning assets for the year X+2; but again, in the year X+2 we may have some students better or as good as the students in the first year (X.). This may yield to a very bad situation because the students and the learning assets are in an opposite situation. In order to have a standard evaluation metric, we propose one based on terms extraction.

For our approach we introduce a method that processes the content of each document and determines the concepts that were explained in previous courses and the ones that are presented for the first time. Assuming that each new concept requires the same amount of effort to be assimilated by the student, we can establish a baseline difficulty of the material by computing the number of new concepts included. We must also consider the fact that each new concept has to be understood in relation to the other concepts included in the material, adding more complexity to the overall difficulty level. Of course, the difficulty of each new concept is a factor to be considered, but that cannot be easily determined automatically, so it will be omitted. Considering this rationale, we can define D, as the asset difficulty with the following formula:

$$D = NC \times C \qquad , \qquad (1)$$

where D is the asset difficulty, NC is the number of the new concepts, and C is the number of the concepts from the learning asset.

As it was mentioned above, the difficulty level of the course increases proportionally with the number of new concepts and the amount of relations between those and the existing ones. E. g., a course that contains 5 known concepts and 2 new notions will have a difficulty level of 10, greater than another one containing the same amount of new concepts, but fewer familiar concepts associated. Similarly, we can differentiate between the difficulty levels of two assets containing the same number of concepts that the student already understands, but a different amount of new notions.

For further explanations we define $N(x)$ as the set of concepts unique to chapter x :

$$N(x) = C(x) - C(x-1) - C(x-2) - \dots - C(1) \qquad (2)$$

where $C(x)$ is the set of concepts referred in the analyzed chapter, $C(x-1)$ represents the collection of concepts presented in the previous chapter, and so on. The minus signs do not indicate in this situation arithmetic operations, but subsequent subtractions between sets. Variable NC used in formula (2) represents the cardinality of set $N(x)$:

$$NC = | N | \qquad (3)$$

Each individual set of concepts is obtained automatically by using a natural language processor, applying the TF-IDF technique and selecting the concepts with the highest weights. The presented method may be applied for every learning asset. Every homework or question that references

a large amount of concepts or few but recently learned concepts can be labelled as hard. For tests and exams the number of concepts covered by the evaluation techniques can mark the level of difficulty.

The overall learning assets difficulty can be computed based on the each learning asset difficulty. Based on this assumption we can formulate the last formula addressed in this paper:

$$OD = \frac{\sum_{i}^{n} L_i}{n} \qquad (4)$$

where OD is overall difficulty and L_i is the difficulty computed for i-th learning asset.

The student's performance evaluation is beyond of the scope of this paper as it has been addressed in many other papers.

For testing purposes we select a course and we select the third chapter of the course. We extract the concepts from the chapter and then we compare them with the concepts already extracted from the previous chapter. At this step we are able to compute D from (1):

$$DC = NC \times C \Rightarrow D = 3 \times 11 \Rightarrow D = 33$$

In order to compute "NC", we need to compute the following equation:

$$NC = C(x) - C(x-1) - C(x-2) - \ldots - C(x-n) \Rightarrow$$

$$NC = 12 - 4 - 5 \Rightarrow NC = 3$$

Repeating this step for every chapter of the course, we can compute the overall difficulty of the course. Then we can compare it with the other learning asset that belongs to the selected discipline.

$$OD = \frac{\sum_{i}^{n} L_i}{n} \Rightarrow$$

$$\Rightarrow OD = \frac{(24 + 30 + 33 + 28 + 35 + 37 + 23 + 31 + 32 + 30 + 35)}{11} \Rightarrow$$

$$\Rightarrow OD = 30,(72)$$

5 CONCLUSION AND FUTURE WORKS

In this paper we presented a procedure for evaluating the course material. This represents an important task that all online educational learning environments should take into consideration. The difficulty estimation based on the concept extraction is a generic technique that can be employed on any document that serves as course material.

As future work, we plan to find new criteria that can be used for a better evaluation regarding the learning assets. More research and studies may be conducted in order to explore more specific criteria and reveal interesting results. The weight assignment for the learning assets represents another important task that needs to be explored because some learning assets are more important than others for students' knowledge developing process.

Extending the pool of educational assets included in the evaluation process represents another future work that we plan to implement for Tesys e-Learning platform.

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ON CONSERVATION SCIENCE'S TOPICAL ISSUE TO HELP ART BEING UNDERSTOOD IN A HUMANISTIC WAY

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ABSTRACT

The paper considers the interconnections of conservation and education. The accent is on the possibilities of increasing the role of art (in particular, of its conservation and restoration) in supporting and developing cognitive-emotional sphere of the students (as concerns upbringing of feelings and deepening empathic perceptions), in bridging a gap between feeling and thinking.

1 INTRODUCTION

Eric Kandel describes our relationship to art as follows:
'*Our response to art stems from an irrepressible urge to recreate in our own brains the creative process – cognitive, emotional, and empathic – through which the artist produced the work.... **Art is an inherently pleasurable and instructive attempt by the artist and the beholder to communicate and share with each other the creative process that characterizes every human brain**'* [1, p. 393].
Those involved in art are primarily concerned with communication, not objectivity, as in the sciences. Werner K. Heisenberg once said: '*The kind of reality which we are able to talk about is never reality itself*'. Similarly, the reality that we can see and describe is never reality itself. Yet we have the opportunity to learn from other experiences by the arts. By art works in a metaphorical way we have the ability to experience visual, literary, and oral stories aesthetically and to integrate their content into our individual lives. A particular point of fascination here is that we actually learn more about ourselves through works of art, a fact that is of great importance to education.

This paper considers the interconnections of conservation and education. The accent is on the possibilities of increasing the role of art (in particular, aided by conservation and restoration) in supporting and developing cognitive-emotional sphere of the students (as concerns upbringing of feelings and deepening empathic perceptions), in bridging a gap between feeling and thinking.

2 RELATEDNESS OF CONSERVATION AND EDUCATION

My profession conservation has always been one of caring for artefacts in many ways. Yet, it could be supplemented by doing this more consciously than up till now. By being non-verbal it's care might influence the education and nurturing of human behaviour in a subtle visual way. Educational researchers pointed out that social behaviour has been disrupted by the abuse of new technologies, in a process that now starts as early as childhood [2 - 5]. Each epoch is committed to a different set of conditions; the more those conditions are bound to evolutionary mechanisms such as technology, the more removed they become from natural states. Nevertheless, art always renders human feelings visible, which are in turn understandable in any epoch. Conservation has always been applied to help such understanding by mediating between art and the contemporary recipient.

This might be demonstrated by the subject suffering in Christian religious art. Although suffering of Christ and/or saints is readily grasped by anyone, means of expression remain specific throughout art's history even in the same local circumstance. Nevertheless, regarding artwork on such theme, the chains of association lead each viewer to remember humiliating experiences in his or her own life, regardless of the period and cultural environment in which he or she lives. The empathy felt by identifying with the image opens up pathways to understanding and compassion. These mechanisms were discovered by behavioural science, and there is neuronal evidence of their activity in the human brain. I am of the firm opinion that in a world which has

become emotionally dumbstruck through visual sensory overload, a particularly important task for conservation is to enable and assist such emotional experiences in the viewer.

There are scores of new technical tools that provide us with historical data. But when it comes to providing historical *feeling*, there are virtually none. That emotional experience or empathy is a general concern for humankind today can be attested in a quotation from artist Andy Goldsworthy. Regarding the durability of his works, he states in an interview [6]:

'*The most tangible, permanent thing that I will leave is the story of something that was made in that (referring to a local) place and that people saw it being made - knew that the materials came from the site.... And then the work made in front of everyone's eyes, and the anxieties, the fears, and worries along the path of the piece. That's the result of the piece.... And the photographs and the talking now are all part of that story. I think that's a legitimate form of sculpture. Even when the object's gone'.*

Goldsworthy here makes deliberate reference to the emotional states that accompany the production of an artwork.The field of conservation-restoration is currently undergoing considerable technical changes triggered by the 'digital revolution' which is affecting all walks of life. A particular case in point here is the phenomenon of 'iconic works' corresponding to the topical hero worship of so-called role-models. In conservation this led to a division between the person who researches data and the practitioner whose work is hands-on. We have all experienced the advantages and disadvantages of digital support, but two things bother me about its application in conservation and in life in general:

1. the lack of 'tactile contact' with the object that is crucial for our line of work.
2. the ongoing technical difficulty of converting data into knowledge – an unresolved problem in systems research that only increases with the growing amount of data.

In view of current problems faced in education, much of the research currently being conducted in a variety of subjects is increasingly turning to the role of feelings in learning. Besides behavioural science, empathy research appears to have an important role to play in the context of conservation. Empathy is generally understood to mean 'the ability to understand and share the feelings of another' (*Oxford*). It evolved in the oldest parts of the brain. Empathy and 'visual thinking' both originated before language and were important for human survival. '*Empathic perceptions have an immediate and direct impact and are not influenced by social expectations. This makes them true to reality',* writes psychoanalyst Arno Gruen [7]. Looking at

art teaches us empathy and so, by extension, conservation has the potential to teach us how to fine-tune that empathy.

It is no stretch of the imagination to say that earlier artist-restorers demonstrated much, indeed from today's objectivity-searching perspective, even too much feeling for the works of their predecessors and therefore unconsciously enriched them with associations specific to their day. The emotional spectrum behind their motivations in doing so may have been similar to the one described by Goldsworthy but reflected quite different historical and social circumstances. One cannot expect today's science-based conservator or restorer to show an awareness of such emotional states. Or if one does, they at least cannot be given the same emphasis in teaching as the body of technical information known to constitute fact today.

As a result therefore, far too little is known of the influence of emotions and emotional responses on the conservation and restoration of works of art. However, neuro-scientific findings provide evidence that the following things are just as important as facts: sensitivity for the object's material, emotional empathy for the circumstances which accompany the creation of the artwork and for its later social history.

Only if awareness exists of the emotional factors that go into art production and conservation, are the treatments possible that aim for a holistic perception in today's viewer. And by 'holistic' I mean an informed balance between fact and feeling. As Arno Gruen states, unfortunately '*the separation of feeling and thinking [is] a process that has long become characteristic of our social consciousness'* [7]. As far as conservation science is concerned, it seems to me that our profession does not sufficiently recognize the fact that technique and material instil and convey feelings in the viewer. As a result, the possibilities that this fact holds regarding art education and art appreciation are currently insufficiently exploited, if at all.

3 THE POSSIBILITIES OF MATERIAL AND AESTHETIC PHENOMENA: THE RESULTS OF AN EXPERIMENT

There are special emotional properties inherent for instance in wood that support certain metaphorical characteristics which are well recognized by conservation practitioners. As an example, let's consider the observations accumulated during an experiment that took place in May of 2015. This experiment was a part of a private initiative for integrating refugees into German rural environment where residential homes are located.

The introduction to this experiment reads as follows: '*Integration does not only concern those who came. Those*

who house have to deal with this state too. Different cultures have different pasts and different ways to meet. Therefore it is difficult to understand each other. In an environment shaped by civilization it is not as easy to find common ground as it is in nature and art.

Writer Henning Mankell lets a fugitive girl say: "You did not hear me, you only heard your own voice. You did not see me, you only saw a person that your words created" [8]. *Let us compare what we can see in some images in order to learn from each other'.*

Then the refugees were acquainted with a series of photographs provided by a power point (PP) presentation. The photographs showed the sad consequences of a storm that devastated a park.

Already while showing the PP, some discussion arose from images. One example was the question: what means color for the participants personally. Answers varied: colors meant for instance for one life, for the other freedom, the third light, for another one energy. Differences of cultural meanings of some colors were mentioned. This gave lively proof to the fact that cultural habits can divide and cause conflict. One consequence was accepted: characteristics of cultures have to be mutually understood and respected for living together in harmony.

There were - alas - only male refugees present, mostly between 18 and 30 years old. The reason is that women generally are not fit for the strains of flight. Most of the young men could not discuss in German, and although a translator was present, all preferred to talk by images after the presentation had ended. The tools I had provided for this aim were papers of various size, pencils, pastels and modern writing tools. It was very interesting, that no one chose modern objects like felt pen or marker. Most wanted were pastels followed by colored pencil. Most of the visual narrators took rather large papers, which they filled without any anxiety and/or awe.

Lines were drawn slowly and accurately with sure hand. During drawing, intense concentration was interrupted from time to time by looking at the neighbour's doing and having fun. Few of the German people took part of this practical expression, yet some worked very nicely together.

It was interesting, that whereas the refugees were all able to recognize their own fate in the metaphor storm and tree, some German participants evidently did not understand the metaphoric visual language. This came out in personal talk after the presentation. For instance, one insurance person associated an uprooted trunk in the materialistic way of his own world: lacking is original functionsuch wood was regarded as being of no use and on top of it all causing serious trouble to get rid of. This reaction clearly showed that in our neoliberal Christian society there is no feeling for

not even comprehension of care for the seemingly useless fellow being. Evidently, such human beings are regarded as material de trop in short as object from an economical point of view and on top of this lamented to cause efforts and costs. Although some minutes before we had discussed the arbitrariness of fate by showing that a storm can hit anybody regardless his/her home and culture, fate's arbitrariness being unjust did not reach the consciousness of this representative of insurance business, a profession dealing with their clients fears!

Of course, for a conservator such attitude is a total error. We know that nature and cultural goods have to be protected as their function never ends, regardless whether it is the original one or not. They are of utmost importance for any cultural consciousness incorporating humanism. Nevertheless we have to take into account very seriously what the described- alas widespread- attitude in neoliberal economies might mean for the future of the world's heritage and our living perspectives.

The most moving drawing for me was a pencil drawing of a young Syrian describing his longing for home. As Churchill, who was a painter too, once said: It takes a lot of courage to draw a true narrative. Astonishing too was the care with which the refugees worked, how delicate their drawings were and that the wishes they contained were so elementary, all related to basic human needs: A peaceful natural environment was mainly expressed by water and flowers, a female companion was another understandable wish. Form- and color-structuring respectively, calligraphic beauty combined with verbal essence was equally impressive.

To see these young men's natural feeling for and attachment to beauty was as convincing as consoling for a conservator living in a more and more technically dominated environment conquered by engineered illusions of aggressive competition. In my view, their visualized wishes were directly opposed to the optic disturbances and visually brutal and childish advertising of existential uncalled for products that surround everyday life, disturb mentality and ruin environment more and more.

Many aggressive and deceptive illusions are openly visible in many so to speak peaceful environments like shopping. This discrepancy between images of topical war-like advertisement and the art of persons really having suffered from war is strikingly evident. Outcome of this comparison is an intense feeling that today's superficial, kitschy, visually cruel, cultural environment needs the influence of the basic human feelings the refugee's drawings expressed - just as much as refugees need our material help. One might rightly wonder who might help whom to a higher degree from a humanely point of view. If it could be made

understood that immigrants as well as welcoming locals can both teach and learn from each other at the same time, a win-win situation could develop.

4 CONCLUSION

Our basic conflicts today as always derive from (aiming at and wanting to keep) richness causing poorness. In such processes what we now call human rights always were neglected. Conflict is the unavoidable outcome. Source of the topical image of such conflict is the sad heritage of colonization supported by the advantages advanced technology always could provide. The emigration from many nations, we encounter today, originated from this background. The reasons politics offer for conflicts are often an escape to admit that a general problem exists. Arguing is usually supporting short-term decision making.

Therefore it is no wonder that the ruling reality for both refugees and their welcoming people today is: Everything has to function for a market. Misery is treated as salable product mainly by brutal images. Highly emotional protests that reach us by war-artist's works are a new collecting aim in Dubai and London. It will need much education which could be given by refugees not interested in revenge to teach us well-off a better view on life than the one-sided tunnel vision of unjustifiable markets. Only with this understanding a general conservation of acts of humanity is possible. To conserve humane aspects made transparent by art for the author is the most important and topical challenge of conservation profession.

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THE ROLE OF INFORMATION AND COMMUNICATION TECHNOLOGIES IN THE TEACHING AND LEARNING OF HISTORY

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ABSTRACT

This paper is based on the findings that arose from history lessons that took place within the context of a research study carried out on a diverse student population at various Secondary Schools (Junior and Senior High Schools). The objective of this research was to examine the effectiveness of history teaching methods employing Information and Communication Technology (ICT) in comparison to other traditional methods that were applied during the learning process.

1 INTRODUCTION

This paper is based on the findings that arose from history lessons that took place within the context of a research study carried out on a diverse student population at various Secondary Schools (Junior and Senior High Schools), within the county of Thessaloniki (Greece), during the school years 2009 – 2011. The objective of this research was to examine the effectiveness of history teaching methods employing Information and Communication Technology (ICT) in comparison to other traditional methods that were applied during the learning process [1]. The findings and conclusions that will be presented arise from history lessons that took place in classes of students in a variety of schools, in the Computer Science Laboratories, where the children worked in teams using computer terminals or in classrooms. In general, the lessons were designed so that they could furthermore be conducive to the following objectives: the cultivation of new literacy, technological and digital literacy or *techno-literacy*, the social extent of which is very broad – a fact that cannot be overlooked by schools. The content of this *new literacy* could be focused on: the cultivation of information search strategies, the ability to pinpoint a specific piece of information – an important part of which includes the ability to assess its validity, the technique of scanning a text using distinct Internet grammar (hypertext), the techniques relating to organizing information that has been found and using it when carrying out specific projects – for instance, incorporating this information into written and oral discourse. The lessons, findings, and general research that are presented in this proposal were part of a wider research project that was implemented and which aimed to investigate the educational use of ICT when teaching History as well as provide relevant phrasing of educational recommendations.

2. DIGITAL MATERIAL AND THE THEORETICAL FRAMEWORK OF ITS USE

2.1. The Teaching of History. The Teaching of History is defined as the students' cultivation of skills and abilities, which a historian has, such as historical understanding, adaptation, analysis, synthesizing [2]. Contemporary teaching highlights, as the primary objective of History, historical understanding which is based on knowledge of the content of history, the methods of approaching historical fact and the understanding of concepts (evidence, cause, explanation, empathy, etc.) that seem to play a crucial role in history understanding [3]. Therefore, in teaching History, a crucial role is played by:
1) comprehensive History (New History, Microhistory, Oral History, etc.);
2) the experiential relationship with the past through meaningful communication, collaboration, common reflection and pursuit, interaction, cognitive conflict within existing knowledge and knowledge which is being acquired;
3) a critical approach to sources and historiographical works; 4) historical interpretation which is based on logic and facts.

2.2. The contribution of Information and Communication Technologies (ICT) to teaching History. The basic precept of constructivism is that learning is achieved via the mediation of tools and work [4]. ICT as a tool for teaching History can substantially alter the way that students access, gather, analyse, reconstruct, present and convey information. There are at least 5 main reasons that advocate the integration of ICT in the learning process and they relate to the support and reinforcement of: (a) learning; (b) teaching; (c) the socialization of the child; (d) the social inclusion of children with learning difficulties; (e) the creativity and effectiveness of the educators [5]. In particular, ICT can substantially contribute to the teaching of History because:
1) It can provide access to primary and secondary sources;
2) It can cultivate a kind of experience in students, with simulations, videotapes, sound recordings etc., which make the understanding of historical terms, concepts and facts feasible;

3) It favours the creation of an exploratory and collaborative learning environment;
4) It offers rich visual material to the teacher, which complements the material in the school textbooks [6].

3. DIDACTIC APPROACH AND METHODOLOGY
We utilize in the organisation of teaching:
1) **Critical social theory.** The reflexive dialectical perspective of critical social theory tends to see practice from the perspective of the insider group, whose members' interconnected activities constitute and reconstitute their own social practices, in the *first person* (plural) [7]. Following this method, the researcher collaborated with the teachers and students who participated in the research, with discourse and critical reflection [8]. In this particular research, therefore, we implemented **techniques of educational action research**, i.e. the participation of teachers was equal in the decision-making process, in the selection, design and development of the entire action [9].
2) **Computer Supported Collaborative Learning (CSCL).** This theory is concerned with the improvement of teaching and learning with the assistance of ICT (the promotion of collaborative interaction between the members of a group and the facilitation of the sharing and the dissemination of knowledge). The objective was the study of the teaching process and learning outcomes which emerged from the teachings and how that changed because of student involvement in the topic, the project method, the interdisciplinary approach, group/collaborative effort and the help of ICT. Another objective was the study of the abilities, skills, attitudes and behaviours that were cultivated and developed by the students and teachers within a learning environment with the above-mentioned features. Through this, we reached the findings that we present.

For the **collection and analysis of data**, techniques of **content analysis** were used, among others. The basic aim of analysing content is the method of categorization. Categorization is created through observing objects, things, situations which have a certain number of common characteristics by qualitative criteria and constitute "categories" [10].

Therefore, following this procedure, we observed and analysed:
i) The data from lesson transcripts, i.e. the participation of students in exploratory activities for the collection of their material, in problem-solving processes, in participatory and collaborative activities, in activities for the creation of their assignments, the things they declare that they themselves felt and experienced, as well as the informal discussions with the teachers and teacher-spectators that were observing the lessons.
ii) The worksheets which entailed different activities therefore different choices in processing the material for each group, and categories of questions for the exploration of historical material through ICT.
iii) The oral and/or written assignments that the students presented in the open plenary session of the class and

namely the ways of expressing and presenting their results. We counted how often a category of data was reiterated. By counting the frequency of each category (its reiteration, i.e. by different people), aggregated results arose. From the process of repeated readings and synthesized categories, we ended up in data categories which were grouped according to their interconnections and properties, in this way shaping a basic theoretical frame of thematic axes which formed the basis of the final findings.

4. FINDINGS
The most significant findings from the analysis of the data which was collected in the course of these lessons, can be summarized as follows:
i) During the lessons students investigated, either in groups or individually, the relevant educational material and analysed historical topics with the help of the worksheets with different activities, hence different options for processing the material for each group. Investigation as a means of utilizing historical sources was also chosen. The students worked with primary and secondary sources, based on the fact that the value of historical sources for the teaching of History is significant [11]. In addition, the internet was utilized, which is a potential reservoir of digital content.
ii) At the same time, the students were brought to understand concepts such as place and time by using maps as tools for studying history for the elicitation of historical conclusions. Levstik and Barton [12] define historical empathy as being a "process of understanding people in the past by contextualizing their actions". In the historical context, the concept of empathy is a deep understanding of the circumstances and concepts surrounding the event. Therefore, there would need to be an idea of the time and place in which the event occurred. With the understanding of place and time and the use of maps, students realized the essential relationship of History and Geography and that the map itself provides basic information as to *time* and geographical *place* in which narrated historical events take place with which we are able to study and interpret some of the historical events [13].
iii) The students showed interest, enjoyment, dealt with their topic, discussed, thought, considered, created original work which they substantiated and presented in the open plenary session of the class. The students used educational software, websites and search engines (with key words) for the investigation of historical topics, electronic dictionaries in order to look up the definitions of various concepts, electronic tools for recording notes such as "Notepad," conceptual maps for the graphic correlation of concepts, "Electronic Text Corpora" to find texts relevant to the research topic. They practiced organizing and categorizing data in databases. With data from the internet, they analyzed artwork, i.e. they interpreted it based on the characteristics of the art it represented (e.g. Renaissance or Romanticism). For the interpretation of artwork, they used corresponding concepts (in the case of Renaissance art

"mythology, Christianity, beauty, man, etc."). They selected the appropriate visual material to support the oral part of their presentation, or their written statement creating an original script and/or multimodal text. In all the lessons, the students' pleasure and satisfaction in the learning process was evident.

iv) The students' "journey" is significant up to the start of the essential part of the lesson (versus teaching time). It was observed, specifically, that the teaching method which was applied made a difference in the learning climate from the 5th to 8th minute. Silence and order start to prevail in the class. The students are interested and participate. In the 9th minute, a commotion which lasts a few minutes is noted. The students are unfamiliar with group collaborative, inquiry-based learning and thus require a period to adapt. However, their active involvement in the learning process is observed. Hesitation is minimized and they try to make use of their vocabulary in order to willingly participate, expressing their points of view and opinions, through the observation of maps, archaeological findings, artwork and texts that were processed. In the 10th to 12th minute, the atmosphere changes and there is silence, order, the students' interest is stimulated in order to actively participate and work together. We observe a change in the students' attitude to a collaborative, exploratory one. In the 15th minute the processing of sources begins. The students are accustomed to the exam-based method. They are fully responsive to asking why and giving mechanical, memorized answers to questions. In this way, they appear to be momentarily puzzled in relation to the learning process of investigating and solving problems. However, with the help of ICT, which provided the possibility of inquiry-based, individual and/or collaborative learning, the students actively participate in the process. From the 20th minute the atmosphere changes completely. The students experience the joy of discovery, participate creatively and observe that the verification of information via personal research leads to different pathways of choosing tack and gives various possibilities for the interpretation of historical data. In a microanalysis of one school, we observe that in the 20th and 22nd minute, isolated incidents of misbehaviour arise. However, they are manageable. Even the students resent and complain about the fuss that their classmates make.

v) A role-play was put into practice, which was enjoyable and creative for the students. In one reality simulation (an exercise on ways to do historical research), the students: Took on the role of an archaeologist who is carrying out an excavation or a historian who is poring over historical sources, in order to reach historical conclusions; took on the role of an art or literary critic, in order to study the artistic or literary themes in combination with the corresponding historical period; took on the role of a writer or journalist ect. In this way, they activated their imagination and empathy [14]. In addition, they took on roles within the group, in order to coordinate and carry out assignments. All this was aimed at furthering the research.

vi) There was a significant difference in the behaviour and participation of students and the understanding of concepts between the two teaching methods, the usual teacher-centered one and the one that we recommend. During the teaching process, teaching methods suitable for children with learning difficulties were applied and reinforced an important part of their education, their self-confidence. Most of the schools where the lessons took place have the following characteristics:
a) A large percentage of immigrant children;
b) A large percentage of Romany children;
c) A large percentage of students (Greek, Romany and immigrant children) from the lower economic and social strata.

All of the above-mentioned students have learning problems, family problems, are lower-level learners. Their problems learning *are similar to* those of children with learning difficulties.

Consequently, the lessons were specifically aimed at supporting these students, as well as students with learning difficulties. So topics were dealt with by asking questions, skills were cultivated for collaborative learning and the value of group collaboration and teaching among peers (peer teaching) emerged. They were assigned tasks with pictures, without many details. The information was presented in written format, with maps, tables, pictures, to increase their ability to understand and memorize the information. The students could use alternative ways, e.g. they could do their writing on the computer, which has been proven to help children with learning difficulties. They used assistive technology (e.g. spellcheck and the computer's dictionary), recorded their notes; the method of recording notes teaches them to reorganise information into a more understandable and useful format. Note-taking is a cognitive skill of active learning. Group readings were organised, the main points of the topic were highlighted as a comprehension exercise. The tasks had to be realised within a set time period, by delegating parts of the work to group members. Particular attention and emphasis was placed on boosting the self-esteem of students, mainly by presenting their work in the open plenary session of the class, either orally or in writing.

viii) After collecting, observing, categorizing and studying the material, the groups were asked to discuss and to draw conclusions from their findings, by consulting their notes and making arguments through oral, and/or written, multimodal expression. The students used MS Office to compose a historical calendar of events or to fill in a mindmap and to then compose a short text for publication in their school newspaper for the presentation of Maritime archaeology, to take notes commenting on oral historical events, to categorize in databases archaeological findings according to specific criteria, to create multimodal texts and so to present the answers to the exploratory historical questions with the data and information that they collected etc. With presentation software, they organised historical information and related them with others (text-map, map-data table, text-picture etc). They grasped, in this

way, the array of historical sources and their combined study, in order to extract historical conclusions.

ix) **There was a substantial change in the role of teachers.** The teaching practice of the teachers was one that highlighted the added value of ICT and support for the students, to reconstruct historical facts and construct their own historical interpretations. The teachers had the role of coordinator/mentor, designer of activities. Initially they organized the lesson, set goals, prepared research projects, planned WebQuests, the scope of activities, the worksheets with different activities, therefore different processing options of the material for each group, with email addresses and the remaining material. Then, they implemented collaborative learning in groups, which worked flawlessly. They organised the class into two-member, three-member or four-member groups, and presented the material in electronic format. The questions that were posed by the teachers were aimed at "forcing" the students to deal with, discuss, think, analyse, the goal was to further the research. Learning was transformed from a behavioural to a cognitive process, from a static situation to a dynamic one.

5. SUMMARY AND CONCLUSIONS

The data that we collected show that the students had much greater personal involvement in the processing of the topic that we proposed, than what they would have had in traditional teaching. The objectives that were accomplished were:

a) to carry out group-collaborative exploration of information given by the school textbook, through Information and Communication Technologies (ICT), to make it more understandable and accessible to children;

b) to make the students aware: (i) that maps are tools for studying History, from which we can draw historical conclusions; (ii) the essential relationship between History and Geography and (iii) that the map itself is intended to provide, in addition to *time*, basic information about geographical *place* in which the narrated historical events take place.

(c) In the lessons, experiential learning was applied (learning by doing):

An atmosphere of interaction was created, by using objects and tools, tangible (e.g. educational software, the internet, digital tools, worksheets) and symbolic (language, communication, interaction, cooperation between teachers and students, and students amongst themselves). Depending on the educational environment, investigation and learning are enabled through action and are interactive [15]. The students practised types of historical research with role-playing games. Through the observation and study of various materials, students drew conclusions, which they used to make arguments, responding to different research questions, either orally or in writing, in collaboration with others in group projects.

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STRATEGY OF PLANING AND MANAGING ORGANIZATIONAL CHANGE IN SCHOOL: SCHOOL REFORM IN CROATIA

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ABSTRACT

The last two decades of 20th century and the first decade of 21st century witnessed a remarkable quickening and expansion of efforts to reform Croatian schools. It is almost certain in schools well into the 21st century. The term *school reform* often means very different things to different people because they use various theories in trying to understand and explain issues such as education, schools as organizations, and human behavior. The *school reform* generally connotes planned efforts by those external to the school to cause changes, or restructuring, to occur within the school (Empirical-rational strategies; Power-coercive strategies; Organizational self-renewal strategies).

1 INTRODUCTION: IS SCHOOL REFORM ENOUGH?

What does it mean to transform the school? What does it mean for Croatian government or Labor market? The process of reinventing begins within the leader who creates, within him-or herself, a new vision of what the school should become in the near future and beyond. It could start by reconsidering a core set of values and beliefs that redefine the culture of the school. We are talking about the ways in which the professional practice cloistered in their individual classrooms to teaching practice that is a collegial, collaborative professional enterprise [1].

All that we know about schools as organizations and the behavior of people in them is brought into play when we confront the need to plan and manage change, or reform, in them. In fact, the fundamental issue is planning and managing change in a school, in which the leader finds powerful leverage points for triggering planned and managed organizational change [2]. Critics of Croatian schooling have a propensity to depict schools as static bureaucracies, stodgy, lumbering about, and unable to adapt to emerging demands for high performance.

In Croatia, education system today begins in preschool institutions, which include those run by local authorities and private nursery schools (legal persons, religious communities, and others), and institutions which provide preschool programmes and shorter programmes such as libraries, various associations and elementary schools. Nurseries are responsible for full-day or shorter programmes of education, health care, nutrition and social care, which cover children from the age of six months to when they start school. In 2014, 40% of pre-school aged children attended them, while over 99% attend in the year before they start school. Children who are six and a half or over must attend compulsory elementary education, which lasts 8 years. There is an adult education system for those over the age of 15 who fail to complete elementary education. Upon completing their elementary education, children may continue optional secondary education which is divided according to curricula into gymnasiums, vocational schools (technical, industrial and craft based) or art schools (music, dance, art). Gymnasiums provide a comprehensive syllabus which lasts 4 years and includes a final examination, the state matura. Programmes in vocational and art schools last from one to five years, and usually end with the production of a final assignment, but it is also possible to sit the state matura if pupils have completed four years of secondary education. Since 2010, state matura results have been the basis for entry to higher education institutions. Along with secondary education, there are also programmes which prepare people to work in their chosen vocations and adult education programmes. Elementary and secondary education in state schools is free.

Higher education is conducted in higher education institutions through university and professional studies. Higher education institutions are divided into polytechnics, colleges of applied science, faculties and art academies. All courses were aligned by 2005 with the requirements of the Bologna Process as a part of the creation of a European system of higher education [5].

University studies equip students for work in science and higher education, in the business world, public sector and society. University studies are organised and implemented at universities which comprise several faculties, and may be at the level of undergraduate, graduate or postgraduate studies. After completing a three or four-year undergraduate course, students are awarded the title of Bachelor (univ.bacc.) and after a further one or two years of graduate studies, the title of Master (mag.). Postgraduate studies last three years and end with the defence of a doctoral dissertation, after which the academic title of Doctor of Science (dr. sc.) or Doctor of Arts (dr. art.) is awarded.

Professional studies provide students with the knowledge and skills they will require to work in professional occupations. Professional studies, which last two to three years, are conducted in colleges of applied science or polytechnics and may also be conducted in universities. Upon completion, graduates are awarded the title of Professional Bachelor (bacc.) with reference to a specialisation. Polytechnics and colleges of applied science may organise specialist graduate professional studies lasting one or two years for students who have completed professional study courses or undergraduate university courses, and these studies lead to the academic title of Professional Specialist (struč. spec.) with reference to a specialisation. Universities may organise postgraduate specialist studies which last one or two years, which lead to the academic title University Specialist (univ. spec.) with reference to a specialization [6].

The university has a long tradition in Croatia. The first university was established in Zadar in 1396, a century before the Dominican order promoted the level of courses to studia generalia with all university rights and privilèges in 1495. The beginnings of Zagreb University date back to 1669, when King Leopold promoted the Zagreb Jesuit Academy to the level of a university. The Decree of the Empress Maria Theresa of 1776 ordered the establishment of the Royal Academy of Science, which at first had three faculties: Theology, Law and Philosophy. The modern University of Zagreb was founded in 1874 and its component faculties were Theology, Law, and Philosophy. Today, it is the largest university in the country and comprises 29 faculties, 3 academies and university centres. There are also universities in Dubrovnik, Pula, Rijeka, Osijek, Split and Zadar, and a Catholic University in Zagreb.

Today, 90 public and 42 private higher education institutions are operating in Croatia. The largest number of students, 67.5%,are enrolled in university courses in faculties.

Croatian curricula framework is following its adoption by the Croatian parliament on February 8, 2013, the CROQF Act came into force on March 2, 2013.

Croatia is still a country in transition, fortunately with a long tradition in European education, but unfortunately with great problems in the sustainability of the education system to labor market needs.

2 TREE STRATEGIES OF PLANNED CHANGE

Tree major strategic orientations are useful in planning and managing organizational change:

1. Empirical-rational strategies.
2. Power-coercive strategies.
3. Normative-reducative strategies.

Traditional, process of unplanned dissemination of new ideas to schools have given way to strategies of planned, managed dissemination intended to spread new ideas and practices swiftly. Much research and study have been devoted to these strategies, which focus primarily on more closely linking the findings of research to the practices of education. This approach sees the scientific production of new knowledge and its use in daily activities as the key to planned change in education. It is referred to broadly as knowledge production and utilization (KPU).

Various models for implementing KPU concept of change appear under different appellations, depending on the number of steps that are seen as important. An R and D model, for example, suggests that someone ought to be conducting research and that someone else ought to be developing some useful products from that research. As in KPU models, research is meant here to be the innovation or discovery of new knowledge, regardless of its applicability to immediate problems. In R and D work, the quality and validity of the research are of paramount importance. The development phase of R and D includes factors such as solving design problems, considering feasibility in real-world conditions and cost. Development essentially means translating research into products that are practical for use; these can range from school buildings to pupil seating, from textbooks to comprehensive packaged curricula. In free enterprise societies, this stage has largely been the province of profit seeking firms that have the necessary financial resources and entrepreneurial skills [3]. The diffusion phase of R, D, and D is seen as the third and distinctive phase; it is, essentially, the marketing activities of R, D, and D. The aim is to make the new products readily available in an attractive, easy-to-use form at a reasonable cost to the adopter.

Of course, the ultimate goal is to get the new into use. Therefore, some treat *adoption* as a separate aspect of the process and may even call it research, development, dissemination and adoption (R.D.D.A.) to emphasize this point.

We are used the term innovation in referring to planned specific change that is intended to help organization a) achieve existing goals more effectively or b) achieve new goals. The concept of specificity is crucial: "innovations in educations ordinarily have a defined, particular, specified character" [7]. Usually one speaks of an innovation as something that can be specified in terms of concept, a set of operating procedures, and a relevant technology to which we attach a name, for example, magnet schools, alternative education, reading program.

Power-Coercive Strategies of Change and empirical-rational strategies of change share two assumptions: that good ideas are best developed outside the organization and that the organization is the target of external forces for change. Power-Coercive Strategies are based on the, or potential use, of sanctions to compel the organization to change. All acts

of our Ministry of Science, Education and Sports is a compendium of power-coercive strategies complete with required timetables for action, requirements for reporting compliance, and various sanctions and rewards intended to coerce the schools to comply with the demands for prescribed improvement in performance on standardized tests. Many authors started (see [2]) by pointing out that the conventional model for studying educational change is to manipulate certain instructional interventions and look for changes in student or pupil outcomes. This suggested the need to focus on the entire culture of the school, operational curriculum, written and unwritten rules, verbal and nonverbal communication, physical properties, pedagogical regularities, principal's, leadership behavior and so on [4].

Normative-reeducative strategies are based on the school organizations improving their problem solving capabilities. This requires shifting the normative values of the school's culture (interaction influence system, from those usually associated with hierarchical (bureaucratic, mechanistic, classical) organization to more creative, problem solving norms. classical) organization to more creative, problem solving norms.

Techniques and processes for bringing about organizational self- renewal focus on developing and increasing the skills of the staff members of individual schools in studying and diagnosing their own organizational problems systematically and in working out solutions is widely applied to these techniques for increasing the self-renewal capacity of schools.
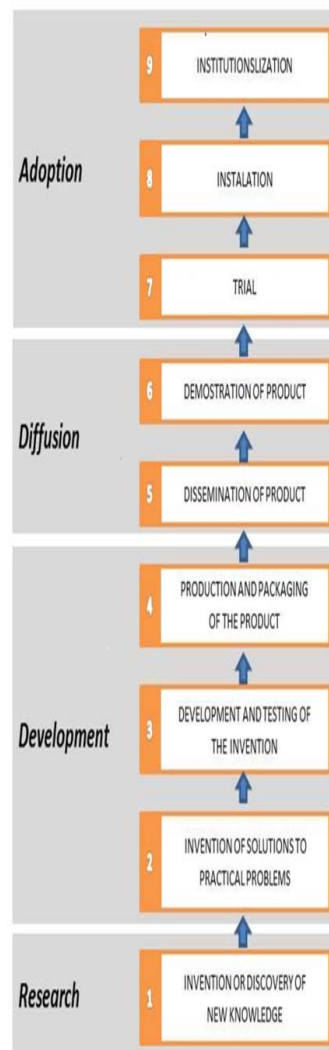

Figure 1: concept of the research, development, diffusion, and adoption (R.D.D.A.): model of change
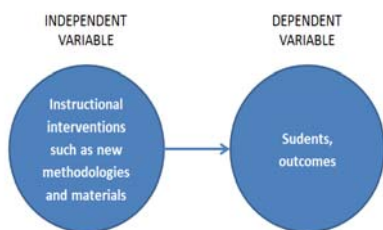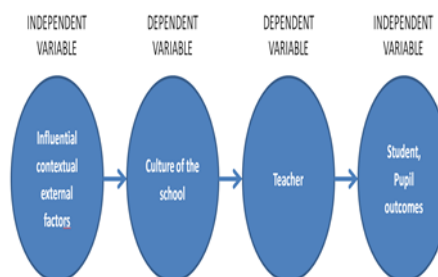

Figure 2: conventional model

Figure 3: a paradigm for improving and studying educational practice with changes in the entire culture of a school

3 CONCLUSION

Schools are organizationally different from many other kinds of organizations, such as those in business, the military, and the nonprofit field. They possess special properties (not all necessarily unique) that may well affect the ways in which they should deal with issues of stability and change. For example, they are largely populated by a student body completed to attend. Six other special properties must be considered in planning change.

The critical importance of helping schools to develop their own capacity for self-renewal was not widely understood outside the field of organizational behavior until the failure of extensive applications of both empirical-rational and power-coercive strategies to achieve desired levels of success had produced widespread frustration and concern. By improving the organizational health of schools, it is possible to make schools more proactive than defensive and induce them to reach out responsively to adopt new ideas and implement the changing goals of society.

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DIGITAL MARKETING FOR ARTS AND CULTURE ENTERPRISES

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ABSTRACT

As marketers, we know when looking at the 4 Ps of marketing (product, place, price and promotion) that by far product is the most impactful on box office revenue. In an attempt to adapt to the worsening economic environment, some theaters began to program "safer" seasons and increased ticket prices to drive more revenue. Many adopted models looked far more similar to Broadway than the regional theater just a few years prior. We don't say this to be judgmental, only to illustrate that desperate times required desperate measures for some.

Marketing and communications for arts and culture organizations were once less complicated than today. Just ten to fifteen years ago, most arts and culture organizations focused marketing strategies and tactics on traditional print and radio advertising campaigns for single ticket sales, brochure mailings, and telemarketing for subscription and membership campaigns. This was supplemented by standard public relations outreach in the form of press releases for each program, production, exhibit or even.

1 INTRODUCTION

Is digital a part of your marketing mix? Today, it should be. For arts and culture organizations, digital marketing represents the opportunity to analyze marketing campaigns and understand what is working, and what is not, in real-time. The one-size-fits-all approach is dead. Long live tailor-made solutions!

If an organization does not yet have a digital marketing plan, it is not alone. Using digital marketing without a specific plan is common across all industry sectors. Yet without a plan, insufficient resources will hamper efforts from the onset. Many arts and culture organizations have not yet established digital marketing plans that prioritize opportunities, detail costs and account for the use of both external and internal resources [1]. For some, digital marketing was tacked onto traditional marketing or public relations programs without full consideration of the use or abuse of resources, or most importantly, without measureable results in mind. Adequate planning to develop a consistent and increasingly sophisticated program was also neglected. How that is in Croatia?

It had been "just enough" in the past to add a Facebook page here or a digital ad there without fully examining the potential for each opportunity. Many organizations also applied digital marketing across the board without analyzing cost-of-sale and potential returns, ignoring new channels and tactics that are foundational to effective campaigns [2]. When approaching digital marketing or fine-tuning an existing plan, organizations should consider these three elements as part of a larger strategy.

2 RETARGETING

Website analytics offer a wealth of information to arts and culture organizations. Have you wondered how many people come into contact with a website and are not "converted" into a stakeholder: a volunteer, a donor, a ticket buyer? The answer is probably close to 90 percent. It is rare that visitors to websites find what they need and progress to the next step of connecting with a volunteer coordinator, making a donation or buying a ticket in one visit [3]. Retargeting is an approach that keeps your organization's brand top-of-mind by frequent advertising. It can bring visitors back to finish what they started in the first place. For

example, when a visitor abandons a shopping cart for a music festival, he or she will see recurring ads for that organization on Facebook or YouTube. Today, organizations can use their website's behavioral data to serve ads to people who have visited their websites to achieve a range of objectives—retargeting them to purchase a ticket, make a donation or redeem benefits. However, it is not the equivalent of digitalized buys. Retargeting serves personalized ads to only those people who have visited a site in search of precise information—from within other sites, apps and programs. Truly, retargeting is the newest form of direct marketing

Retargeting also offers metrics to assist an organization in directing its digital marketing plan. If an organization does not have internal expertise in this area, there are a number of local and national companies that can help prioritize effective campaigns within a range of budget.

3 SOCIAL MEDIA

It is universally acknowledged that social media is a powerful tool for arts and culture organizations. Few sectors of the nonprofit industry lend themselves more easily or more intuitively to the social sphere. With platforms such as Instagram, Facebook, Twitter, Pinterest, YouTube and Vine, organizations can generate significant exposure for their causes and brands [9]. Consider the following when fine-tuning a social media program: Avoid the common hazard of trying to be everywhere, engaged and active on all social media platforms and broadcasting identical content through all channels. Evaluate the resources invested in current platforms and determine which are more effective based on priority objectives. Research new options and select the social media platforms that strongly engage the typical stakeholder. Learn where prospects and current stakeholders are already spending time and meet them there.

> ➢ Do not forget about human resources. Some organizations misjudge the time required to manage social media. Assigning new social media channels to an already busy marketing or public relations manager, without a thoughtful dialogue, will inevitably result in weak outcomes. While social media is 24/7, employees are not. Consider that every social media initiative requires a team with the right training and expertise to position it for success. And, if an organization does not have a social media policy in place that applies to all employees, set a goal to establish one at the beginning. Social media also enables

organizations to listen to what stakeholders are saying, while monitoring what issues are trending within stakeholder communities. By listening, organizations can remain current with concerns that are important to those they serve, well beyond geographic boundary.

4 CONTENT MARKETING

Content marketing is the creation of content ranging from blogs and articles, to videos and news releases, which has value for audiences. This free content is a tool to convert prospects into stakeholders and engages them with an organization's mission. For arts and culture organizations, content marketing can be a springboard to connect with stakeholders in multiple ways, inform key demographics, foster dialogue and build relationships. Well-written content that has value can spread virally across social networks as it is shared, generating powerful word-of-mouth [4]. Before examining an organization's content marketing program, consider the following: Do staff have the time, training and expertise required to create excellent content? Is the organizational mindset prepared for fast turnaround times and open to sharing ideas? If the answer is no to either of these questions, this is an opportunity to review processes and policies that create roadblocks to advancing a content marketing program [5].

> Self-promotion, for example, is a particular offshoot of content creation that is worth mentioning here. People do not want advertising; they want valuable and interesting" insider information" that illustrates relevancy [6]. People want to engage with organizations and causes they care about; they appreciate the opportunity to build a relationship.

5 OPTIMIZING DIGITAL MARKETING

EXAMPLE CROATIA

While using electronic media to promote programs or market performance is nothing new, the tools and scope of digital marketing are constantly in flux. Smart organizations focused on optimizing earned revenues know that digital marketing offers options for targeting, retargeting, testing and tailoring messages [7]. However, it is a challenge for arts and culture organizations to determine where, how and when to invest limited resources in this channel —and how to maximize staff time for even greater returns [8]. Establish priorities, create a plan, make a calendar, measure results and adjust campaigns, as needed. The "Kerempuh" Theater uses all available distribution

channels, in order to communicate with the audience, writers, directors, actors, critics and others. Already 62% of public buys on line tickets [7].

6 CONCLUSION

Arts and culture organizations have the opportunity and the challenge to connect with audiences and stakeholders through a growing number of channels. More than just engaging with key audiences, organizations can, and must constantly, tap into the wealth of data now available to adjust their plans in-progress. With firm goals in-hand, an organization can more easily navigate the adoption of digital marketing that synchronizes with its mission, vision and values and achieves results [8,9].

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COLORS, CONTRASTS AND TYPOGRAPHY
IN THE DESIGN OF eCOURSES

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ABSTRACT

eCourse's designers are facing great challenges related to readability and acceptable design. They need to account for graphic elements like colors, contents and screen backgrounds, contrasts, typography, number of rows and columns and also for type and place for every single element within the web page. This work discusses also elements of the web pages that would enhance readability for users that suffer from certain visual disorders like dichromacy, i.e. its types like deuteranopia (daltonism), protanopia and tritanopia.

1 INTRODUCTION

Due to the obvious advantages of distance learning, such as learning at any time (24/7), learning from any place (with the Internet access) and ultimately cheaper learning, Learning Management System - LMS is becoming increasingly popular, and it is often used for educational purposes, training, training/education of employees of various professions. However, in terms of graphic design not all LMSs are equally effective as teaching tools.

This article will discuss the principles of graphics that make the design of the website's readable and effective for learning. These elements comprise of the color of the teaching content and the color of the background, number of columns and rows, as well as the manner in which the graphically designed elements are embedded within a website. The aim of graphic design is to create an organized and predictable visual structure in which content will be logically divided and presented. The color and contrast in typography (the art and craft of creating text by using different font styles and sizes and different horizontal and vertical spacing between letters [1]) play a key role. When comparing the graphic design of books and websites, it should be emphasized that Web pages differ from books and other documents in one crucial aspect: hypertext links allow users to experience a single web page separate from its context. For this reason, web pages need to be more independent than pages in a book [2]. Additionally, a significant percentage of the mainly male population (about 8% of male and less than 0.5% of the female population [3]),

have some sort of color vision deficiency. This article will briefly summarize the issues and proposals in a design that will reduce these obstacles.

2 eCOURSES DESIGN

In website and eCourse design it is necessary to first select the technology that will be used. Common tools are HTML, PHP, JavaScript, some of the CMS (content management system, for example, the most widely used WordPress, Joomla or Drupal), and for design itself, the most commonly used is CSS (Cascading Style Sheets) as it enables the separation of document content from document presentation, including elements such as the layout, colors and fonts [4].

2.1 Main elements of the site and basic design

Currently, the classic web design, although it is not entirely the same, contains several main units: a header, a content area and footer.

The header contains the logo (identity), navigation to return to the home page, search area - the search field of web pages, navigation links, and navigation cards.

The content area consists of two to three large columns. Navigation links are located on the left side, main content is in the middle while the right side is optional and it depends on the content of the website and the needs of the website. Footer contains the contact information and the copyright.

2.2 Visual design

Web pages must not be overloaded, as they might confuse the visitors. Designers need to take into account the spacing, grouping, similarity and overall visual logic of the patterns. The main purpose of graphic design is to create a visual hierarchy of contrast in order to determine at first glance what is important and what is not, to define the functional areas of the site and to group site elements that are connected in a manner to make the structure of the content visible. At the same time, there must be consistency on the entire web site and on all web pages.

2.3 Common mistakes in web design

a) **Illegibility of the text due to low contrast**, which is reflected in the placement of graphic elements under the text or due to the lack of contrast between the content and the background.

b) **Incompatibility of the design between the pages** - pages must have the same design.

c) **Excessive use of graphics and animation** – visitors of the website expect information and not entertainment through Splash, intro or opening animation. They serve only as distraction.

d) **Excessive use of different fonts and colors of text.** It is necessary to choose 1-2 fonts and up to 2 colors for the text.

e) **Non-marking of visited links** - everyone knows how visited links look. Failure to meet the expected standards, discourages visitors.

f) **Large blocks of text** – Need to divide them into paragraphs which will comprise three to four sentences. Between passages it is necessary to leave an empty line.

g) **Only one polished browser** - when designing a website it is necessary to continuously watch how the website will look in different browsers: Internet Explorer, Mozilla Firefox, Google Chrome, Opera and others because not all browsers display content in the same way [5].

2.4 Typography and emphasis

The key element in the web design is typography. The elements of typography are legibility, alignment and white space, line length, leading, type color, typefaces, type size and emphasis.

The ways to emphases individual textual contents of the website are: *italic type,* **bold type,** <u>underline type</u>, color type and ALL CAPS.

3 ROLE OF COLORS IN eCOURSES

Color is an equally important feature in the web design as it is in the eCourse design. Basic (primary) colors in the additive, luminous model are red, green and blue. By mixing these primary colors, we can get **all other colors.**

Although the contrast is at its maximum in black and white combinations of colors of content and colors of background, such sites would probably be boring and would not attract many visitors.

Gutierrez stated that it is necessary to think about your target audience when choosing your color scheme. Keep age, nationality, culture and perhaps, gender and mind. Youngsters, for example, appreciate more vivid and brighter colors, while elder people find sober and reserved colors more attractive [6].

3.1 Contrast and color

One of the important aspects of the selection of colors is a strong contrast between the background color and what is in the foreground. The contrast makes reading easer. In fact the contrast between the text and the background is exactly what users will see.

In the research on the effectiveness of learning, in relation to the color of the content and color of the background, on 30 different combinations of browser-safe colors, Žufić and Kalpić [7] experimentally determined that the black color of

the content on the light yellow background and yellow content on blue-green background are more effective than the referral combination of the printed content in black color on a white background.

In 1987, Murch (see [8]) measured the readability and obtained results indicated that black text on a green background was the best and it was followed by blue text on white background. In 1997, Hill and Scharff (see [8]) confirmed that the best readability was achieved by the combination of black text on green background. Hall and Hannah (see [8]) reported in 2004 the effects of background and font combinations on readability of educational websites black text on white background.

3.2 Principles of contrast in web design

Web developer Jones [9] lists several principles of contrast in the web design. He mentions contrast in following contexts:

a) **Contrast in Color** - colors of the header, content area and footer have to be different. Colors can also be used in establishing the hierarchy of the structure of the text.

b) **Contrast in Size** – when structure of the text and its emphasis cannot be established by colors, use a different size of the text.

c) **Contrast in Alignment** - good alignment plays a big part in creating a quality web design. Things just look better when they line up. This type of contrast should be used sparingly and checked to make sure it shows correctly in different browsers.

3.3 Recommendations for the selection of colors in eCourse design

Various authors and designers make similar recommendations for color schemes in eCourses design. Below are some of the most important:

a) Use dark colors for text Black text on a white background or black text on green background or Blue text on white background or alternatively White text on a black background.

b) Neutral colors (grays or pastels) for backgrounds Avoid blue-orange, red-green, blue-yellow color combinations for text and background. Avoid overuse of primary colors. Ensure that the gray background maximizes contrast. Recommended ratio of the luminance contrast between text and background should be at least 3:1.

c) Visual cueing - Use contrasting colors (relative to background), highlighting, arrow pointers, larger fonts, icons to draw attention to key information. Keep consistent color coding (one color per concept) and to a minimum [8].

3.4 Color vision deficiency

The literature mentions that around 8% of the population (mainly male) has some sort of color vision deficiency [16]. The most common types of color vision deficiencies are:

a) Monochromacy - people lack the ability to distinguish colors and can only see light and dark shades of gray – it is an extremely rare disorder;

b) Dichromacy - a disorder in which a person can distinguish only between two of the three primary colors – it affects up to 2.4% of the general population, mainly male; and

c) Anomalous trichromacy - a disorder in which people see all the primary colors but have a problem distinguishing shades of certain primary colors – it affects up to 6.3% of the population, mainly male.

Dichromacy is a color vision deficiency in which a person can distinguish only between two colors, i.e. all the stimuli of colors can be equated with appropriate mixture of only two primary stimuli. The subtypes of dichromacy are:

a) Protanopia - type Dalton – inability to see the color red;

b) Deuteranopia - type Nagel – inability to see the color green, and with

c) Tritanopie – inability to see colors blue and yellow, while seeing red and green. [10]

Figure 1: How a person with protanopia sees the picture

Figure 2: How a person with deuteranopia sees the picture

Figure 3: How a person with tritanopia sees the picture

Figure 4: How a person with normal vision sees the picture

In cases where visitors of web pages have a color vision deficiency, increasing contrast of the colors, i.e. adding gray color (in image editing programs such as Adobe PhotoShop or Gimp), for example, in cases of protanopia, putting gray instead of red color, will significantly improve the readability of the content. Figures 5, 6 and 7 present how persons with color vision deficiencies can see the text after the addition of gray color.

Figure 5: How a person with protanopia sees the picture with increased contrast

Figure 6: How a person with deuteranopia sees the picture with increased contrast

Figure 7: How a person with tritanopia sees the picture with increased contrast

3.5 How should the eCourse look

As the eCourse designer does not know in advance who will visit the web pages, the best way to do it is to design all five combinations: one for people with normal vision, one for people with monochromacy and three for people with dichromacy. For visitors suffering from anomalous trichromacy, the same design will be used as for people with normal vision. Therefore, the entire design should be based on three main colors with the mutually good contrasting.

Using CSS in web design makes this task pretty simple. Visitors with color vision deficiency can select the option to change colors. By selecting the combination that best fits their needs, colors of the entire eCourse can be changed. Therefore, it is best to set the highest contrast difference between content and background. There is also a risk of having a web designer suffering from the color vision deficiency. Internet provides tools for checking contrasts between used colors for contents and backgrounds. An example of such a program is AccessColor and The Color Laboratory. AccessColor checks, on the recommendation of the W3C [11], two parameters: Color brightness and Color difference.

Color brightness is determined by the formula

$$((Red\ value\ X\ 299) + (Green\ value\ X\ 587) + (Blue\ value\ X\ 114)) / 1000$$

Color difference is determined by the formula

$$(maximum\ (Red\ value\ 1, Red\ value\ 2) - minimum\ (Red\ value\ 1, Red\ value\ 2)) + (maximum\ (Green\ value\ 1, Green\ value\ 2) - minimum\ (Green\ value\ 1, Green\ value\ 2)) + (maximum\ (Blue\ value\ 1, Blue\ value\ 2) - minimum\ (Blue\ value\ 1, Blue\ value\ 2))$$

The range for color brightness difference is 125. The range for color difference is 500.

Note: The values for red, green and blue colors are values used by the RGB color model [11].

The Color Laboratory actually allows you to check out how colors look in conjunction with each other so you can easily create color schemes that work well for anyone - sufferer or not - on any operating system [15].

In some cases it may not be possible to use the mentioned recommendations. In that case, it is best to choose brown background. Brown background goes well with any lighter or darker color. The eCourse should contain images and animations. Questions to be answered before inserting pictures are:

a) Does the image / animation add value to the text?

b) Is the picture / animation relevant? and

c) Does the image / animation instigate interest in eCourse users?

Images SHOULD NOT be converted to black and white and it is NOT necessary to avoid them. In most cases images do not need to be changed, but it is important that the colors are not the only method of providing information. A good example for explanation of the aforementioned are maps or road maps where colors are the primary indicator for different types of roads. In addition to the marking of roads by various colors, it is also useful to enter additional text or otherwise allow users a better understanding of the content [12].

More on how to design a website and an eCourse for people with disabilities can be found at the source [13].

4 EXAMPLES OF GOOD eCOURSES

One of the examples of good courses is internationally recognized website *www.coursera.org/*

Good examples of websites in Croatian language are the websites of the National Portal for Distance Learning 'Nikola Tesla' (simple design, white background, darker text, purple titles) at tesla.carnet.hr and "Portal znanja" with math instructions titled 'Where maths is fun" (a multitude of video clips) available at www.tonimilun.com

5 CONCLUSION

Colors of the content and contrasts in the Web sites we design have a large, primarily aesthetic and sometimes even an essential role. The colors are what is first noticed and they affect how web sites and eCourses are perceived. It is recommended to choose three main colors that will recur throughout the site and that will be mutually contrasting.

For people suffering from color vision deficiencies, it is necessary to adapt design to their needs. CSS is the best 'program' for that. In determining the adequate value of Color brightness and color difference when designing a website it is desirable to use some of the programs such as AccessColor.

The World Wide Web Consortium (W3C) is an international community of web users whose mission is to establish common standards for the structure and operation of the World Wide Web (http://www.w3.org/) Strategy and further recommendations of the W3C for the Web design for people with disabilities can be found at the source [14].

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