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# MOTIVATIONAL INPUTS RECEIVED BY MIGRATED AND NON-MIGRATED STUDENTS DURING CLASSROOM TEACHING IN JNVS

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## Abstract

Objective of the present study is to observe the level of motivational inputs received by migrated and non-migrated students of JNVs during classroom teaching. In this research JNV Bilaspur was selected for data collection. Ten migrated students and ten non-migrated students were selected as sample. The self-developed Classroom Motivational Input Scale for Students was used to measure the level of motivational inputs received by students in classroom teaching. The raw score obtained on Classroom Motivational Input Scale for Students were converted to Z-Score for analysis. The results found that there is variation in the motivational inputs received by students during classroom teaching

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**Keywords:** Motivational inputs, Migrated and Non-Migrated Students, Classroom Teaching, Z-Score

## Introduction

Swami ji defines education as ‘the manifestation of the perfection already in man.’ The aim of education is to manifest in our lives the perfection, which is the very nature of our inner self. This perfection is the realization of the infinite power which resides in everything and every-where existence, consciousness and bliss (satchidananda) (**Retrieved on 1<sup>st</sup> of October 2012 from** <http://www.esamskriti.com/essay-chapters/Education-in-the-Vision-of-Swami-Vivekananda-1.aspx>). Dictionary of Education (ed. Good) defines “Education as the aggregate of all the process by which a person develops ability, attitude and other of behaviors of practical value in

the society in which people are subjected to the influences of a selected and controlled environment (especially that of school) so that they may obtain social competence and optimum individual developments”. (Seshadri, C. (1983). **Teacher and the Education** . New Delhi: NCERT. Page No.84) . This education is provided to the student through Formal learning, Informal learning and non-formal learning. (Source: **A Memorandum on Lifelong Learning, European Commission, Unit E-3**, <http://www.irlgov.ie/educ/new/LifeLongLearninghtm.htm>). The National System of Education envisages a common educational structure. The 10+2+3 structure has now been accepted in all parts of the country. Regarding the further break-up of the first 10 years efforts will be made to move towards an elementary system comprising 5 years of primary education and 3 years of upper primary, followed by 2 years of High School. Efforts will also be made to have the +2 stage accepted as a part of school education throughout the country (National Policy on Education, 1986(Modified in 1992, pp.5). Broadly we can divide formal education in to primary, secondary and higher education. Secondary education is given through government school, Aided school, unaided school, Private school, Public school, Kendriya Vidyalaya, and Jawahar Navodaya Vidyalaya. The National Policy on education, 1986, envisaged the establishment of Navodaya Vidyalayas in each district of the country. The Vidyalayas are fully residential coeducational institutions providing education from classes 6<sup>th</sup> to 8<sup>th</sup>. Initially two experimental schools were established in 1985-86. These Vidyalayas aim at identification and development of talented, bright and gifted children predominantly from rural areas who may otherwise find it difficult to avail of good educational opportunities. The Jawahar Navodaya Vidyalayas are working on following objectives:

➤ To provide good quality education including a strong component of India’s cultural heritage, inculcation of values, awareness of environment, adventure activities and physical education to talented children belonging predominantly to rural areas, without regard to their family socio-economic condition.

➤ To ensure that all students of JNV attain a reasonable level of competence in three language as envisaged in three language formula, and

➤ To serve, in each district, as a focal point for improvement in the quality of school education in general, through sharing of experience and facilities. (K.S., Saran (2004). “Navodaya Vidyalaya”. **Encyclopedia of Indian Education. (Vol. II Page No. 1240).New Delhi : NCERT**)

Navodaya Vidyalayas aim at inculcating values of national integration through migration scheme through which the inter-regional exchange of students between Hindi and Non-Hindi speaking States and vice-versa takes place for one academic year. Efforts are made to promote



better understanding of the unity in diversity and cultural heritage through various activities. The Regional Language is generally the medium of instruction from Class-VI to VIII and from Class- IX onwards, it is English for Science and Mathematics and Hindi for Humanities subjects. Under the three language formula, the students learn regional language, English and regional language of migrated state. **(Retrieved on 1<sup>st</sup> of October 2012 from <http://www.navodaya.nic.in/welcome%20sbs.htm>)**Teacher teaches their student in class through various methods and during their teaching they give verbal and non-verbal motivation to their students. These motivational inputs given by teacher motivate the student and they concentrate on their study. These motivated studies also affect the student's achievement. Migration scheme in JNVs were introduced to foster national integration and to minimize the cultural gap. In this scheme the inter regional exchange of students between Hindi and Non-Hindi speaking States and vice-versa takes place for one academic year. Efforts are made to promote better understanding of the unity in diversity and cultural heritage through various activities **(Retrieved on 1<sup>st</sup> of October 2012 from <http://www.navodaya.nic.in/welcome%20sbs.htm>)**. When student migrate from their Non-Hindi speaking States JNV to Hindi speaking States JNV, they met with new culture, food habits, environment and the most important the language. Language is the most important factor which connects the students directly to the teacher, students and local people of the JNV where they migrated. During academic activities, playground activities and in hostel they communicate with each other in local regional language. The students of non-Hindi background are not comfort freely in the local language. Although the medium of study in class ix is in English but teacher often communicate with their students in regional language. During teaching the teacher motivates their students for study and to get their answers. All teachers are expected to motivate students during teaching in classroom. So migrated and non-migrated students of class during classroom teaching receive equal motivational input or not. There is any effect in receiving motivation due to different language and culture.

a) Is migrated and non-migrated students receiving equal motivational input during classroom teaching?

Researcher like **Freeman, John and Klinger (2012) Heyman, GailD. And Dweck, Carol (2012) Yoshino, Asako (2012) De Freitas (2012) Kim, Kyung (2011) Rodgers and Summers (2008) Lens (2002) and Shim and Ryan (2002)** in his study find that teachers provide motivational inputs at different level but they never demotivate their students and their motivational inputs affects students achievement, sometime students also perform through intrinsic motivation. So objective of the study is:

To study the level of motivational inputs received by migrated and non-migrated students of JNV during classroom teaching.

**Research Hypothesis:**

After formulating the objective of study, researcher needs to formulate the hypothesis for the process of research. Basically scientific research which keeps scientific approach based on the hypothesis. These hypotheses are formulated on the basis of previous research reviews. Here researcher formulated following research hypothesis:

There is difference in the level of motivational inputs received by migrated and non-migrated students of JNV during classroom teaching.

**Method:** For the testing of hypothesis data has been collected through normative survey method which was followed by the researcher. The data analysis and their presentation are based on Z-Score value.

**Sample and sampling:**

Purposive stratified sample has been selected in three levels. In first level JNV Bilaspur has been selected as a purposive sample in first phase which is shown in table no. 1

**Table No. 1**

No. of JNVs in Chhattisgarh	Purposive selected JNVs
16	1

In second phase researcher has classified the group of migrated and non-migrated students of class ix has been selected which is shown in table no. 2

**Table No. 2**

JNV Bilaspur	Migrated student
	Non-migrated student

After dividing in to two group researcher has taken third level random sampling which has 10 migrated and 10 non migrated students which is shown in table no. 3

**Table No. 3**

No. of migrated students	No. of non-migrated students
10	10

**Tool:** Researcher developed Classroom Motivational Input Scale for Students (CMISS) for the collection of data. This tool has been administrated on students for measuring the level of motivational inputs received by migrated and non-migrated students during classroom teaching.

**Analysis Procedure:** The raw score obtained on Classroom Motivational Input Scale for Students were converted to Z-Score for their analysis. Division of migrated and non-migrated students according to level

of motivation inputs received in the Classroom Motivational Input Scale for Students is given in table no. 4

**Table No. 4**

S.N.	Range Of Z- Scores	Level of Motivation	No. of Migrated Students	No. of Non-Migrated Students
1	1.43 $\sigma$ to 0.81 $\sigma$	Extreme	2	2
2	0.81 $\sigma$ to 0.18 $\sigma$	High	4	2
3	0.18 $\sigma$ to -0.44 $\sigma$	Average	2	1
4	-0.44 $\sigma$ to -1.07 $\sigma$	Below Average	1	2
5	-1.07 $\sigma$ to -1.69 $\sigma$	Lowest	1	3
Total	1.43 $\sigma$ to -1.69 $\sigma$		10	10

### Results

The raw scores of students were converted in to Z-Score. Out of ten migrated students 2 students were reported for receiving extreme motivation, 4 migrated students for high motivation, 2 migrated students for average motivation, 1 migrated student for below average motivation and 1 students for receiving lowest motivation among all 10 migrated students. Out of ten non-migrated students 2 non-migrated students were reported for receiving extreme motivation, 2 non-migrated students for high motivation, 1 non-migrated student for average motivation, 2 non- migrated students for below average motivation and 3 non-migrated students for receiving lowest motivation among all 10 non-migrated students.

### Discussion

The hypotheses formulated on objective were analyzed with Z-Score of migrated and non-migrated students obtained in Classroom Motivational Input Scale for Students and it was found that all migrated and non-migrated students were not receiving equal motivational input in the class. Out of ten migrated students 2 students reported for receiving extreme motivation, 4 migrated students for high motivation, 2 migrated students for average motivation, 1 migrated students for below average motivation and 1 students for receiving lowest motivation among all 10 migrated students. Out of ten non-migrated students 2 students reported for receiving extreme motivation, 2 non-migrated students for high motivation, 1 non-migrated students for average motivation, 2 non- migrated students for below average motivation and 3 non-migrated students for receiving lowest motivation among all 10 non-migrated students.

### Conclusion

On the basis of above findings it can be concluded that although it seems that all students receives equal motivational input during classroom teaching but in this research it was found that there was variation in

motivational inputs received by migrated and non-migrated students. During classroom teaching migrated and non-migrated students were reported for receiving extreme motivational input to lowest motivational input.

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# THEORY AND PRACTICAL FUSION IN ENGINEERING EDUCATION

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## Abstract

As a result of the remarkable speed of the recent technology advancement, major innovations should be proposed for the engineering laboratory contents and delivery methods. Since telecommunications are science centered, it is essential that the telecom engineering laboratory takes as its main goal the development of skills requisite to the execution of experiments and the promotion of an understanding of the relationship between theory and practical. This paper will explore the importance of fusing theory and practical in a curriculum for telecom engineering students by highlighting the contents and method of delivery of the Advanced Transmission Systems laboratory given for telecommunication engineering students at the Holy-Spirit University of Kaslik. This laboratory combines antennas design, telephony and optical communications. Although early indications of students response have stimulated great eagerness among the teaching staff, the evaluation of the combination of three communication subjects in a single laboratory, the sessions contents and the delivery method is a continuous process.

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**Keywords:** Antennas design, Engineering education, Practical work, Telecommunications, Theory

## Introduction

Engineering is the profession in which a knowledge of the mathematical and natural sciences gained by study and experiments is applied to use, efficiently, the materials for the benefit of humanity (Wright, 2002). Many researchers have shown that practicing engineers need to be exposed to theory as well as practical providing students with greater learning opportunities (Swart, 2009). Therefore, engineering students must have a knowledge that goes beyond theory that is usually gained in laboratories. This theoretical-practical fusion into a singular body of knowledge enables them to become trained technologists, useful to the

development of their communities (Feisel & Peterson, 2002; Rosa & Feisel, 2005).

In recent years, there has been modest basis on which to formulate a general approach to laboratory teaching. The development of standard laboratory equipment for engineering has done much to ease a systems approach to laboratory lessons. In fact, in order to develop a laboratory-based teaching system which provides the greatest benefit for engineering students, many requirements should be studied and analyzed; does the laboratory teacher help device problems to use in teaching? Does he encourage students curiosity? Are more questions raised than are answered? (Fishenden & Markland, 2005; Gredler, 2005; Ornstein & Hunkins, 2004)

In this paper, we focus on the laboratory contents and method of delivery for telecommunication engineering students at the Holy-Spirit University of Kaslik, mainly in the antennas design, telephony and optical communications which, combined in a single laboratory course, involve software simulation as well as physical manipulation. This represent an important departure from traditional forms of laboratory education. NEC-Win Plus software is used for antennas design due to its large interoperability capability and its simple user interface. Feedback Instruments (Feedback, 2011) are used for antennas and telephony experiments and Benchmark Electronic Systems (Benchmark, 2011) are used for optical communications experiments. These trainers was chosen due to the fact that they are powerful in digital transmission systems and they cover most communication principles and modern practice.

The remainder of this paper is organized as follows. An overview of the laboratory course and its main objectives are briefly presented. Then the laboratory contents and delivery method are detailed. Finally, assessments are discussed and conclusions are drawn.

### **The Laboratory Course:**

The Advanced Transmission Systems laboratory given for telecommunication engineering students at the Holy-Spirit University of Kaslik includes software simulations and hardware manipulations for antennas, telephony systems and optical communications. Each of these three master courses, present in the telecom engineering curriculum, is essential in the communications field. Therefore its practical work is extremely important. Hence, laboratory sessions have to be properly updated in both instructions and equipments. In fact, the lab assignments were developed with different objectives in mind. First, the teacher has to stimulate students interest with challenging problems and experiments (Ronald, 1958). In addition, the laboratory should contribute in verifying theory, providing experience in group work, stimulating creative-thinking

processes and affording a proper perspective of concepts (Swart & Sutherland, 2007; Swart et al., 2005). Moreover, since the need to communicate with customers is something the engineers became aware of in their careers, students must be prepared in this domain through oral and written communications during lab sessions (Baren & Watson, 1993; Criteria for Accrediting, 1991). Furthermore, several studies (Campbell, 2005) have shown that the combination of simulated and physical lab assignments enable students to study significant definitions of terms, become used to engineering terminology and develop consciousness of diverse engineering equipments. Therefore, simulation-based assignments should be well prepared as well as the physical assignments.

### **Laboratory Contents and Methodology:**

#### ***Antennas Design and Physical Implementation***

In the first session of the antennas and propagation laboratory, students are introduced to the simulation software used for antennas design. An overview of the software and its features are provided allowing them to become familiar with the basic requirements for an antennas design project. The first step in such a project, is to insert the parameters of the antenna. Students can describe the wire, the number of segments, sources and loads, ground type, radiation pattern, conductivity etc (Balanis, 2005). After selecting the suitable parameters, they are able to view their designed antenna with the currents on its structure using the software currents feature with the display and different viewing options, the rectangular plot of the Voltage Standing Wave Ratio (VSWR) for the input of the antenna at the voltage source connection as shown in Figure 1, the rectangular plot of the input impedance (real, imaginary, magnitude and phase) and the surface pattern for the three-dimensional representation (Balanis, 2005).

In addition to rectangular plots, different tabular data which helps to analyze the performance of the antenna are accessible:

- Average gain test.
- Currents and location.
- Frequency.
- Antenna environment.
- Far field ground parameters.
- Input files.
- Output files.
- Network data.
- Power budget.
- Radiation patterns.
- Segmentation data.
- Source input parameters.

- Structure impedance loading.
- Structure specification.
- Voltage Standing Wave Ratio (VSWR).

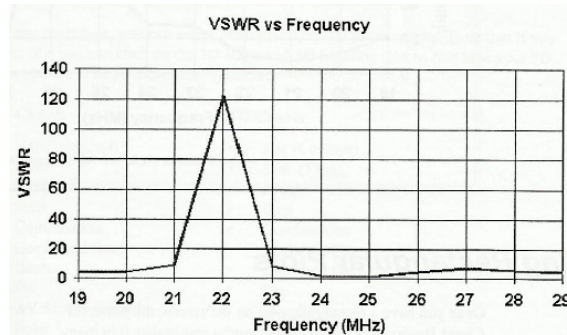


Fig. 1. Voltage Standing Wave Ratio curve with respect to frequency.

Every model should be submitted to the average gain test which performs many checks and may alert students to potential problems. If the model fails, they should verify the geometry and other parameters to ensure that guidelines are met.

In fact, rectangular plots and tabular data present a direct application to the theory earned in lectures. They are essential for results analyzing and pave the way towards a fundamental discussion during the lab session. The importance of this discussion is based on the assumption that knowledge needs a communication between the learner and the teacher (McMillan, 1997) which provides rich opportunities for students interactions, with support from teacher questions and answers.

Many antennas (monopole antenna, log periodic array, yagi antenna etc) are designed and performance evaluated. In order to reach the predefined goals of the laboratory by ensuring the software-physical fusion, students have to implement their designed antennas after achieving the software simulation. Before starting the implementation, they have to read well the overview of the lab hardware equipments. Laboratory equipments are so scheduled that a student can start an assignment and, if unable to complete the work in a single session, leave the work intact and return to it at the next session. Figure 2 presents an example of the transmitting (left) and receiving (right) antennas used in a physical lab session. The antenna towers are connected to the computer via a Universal Serial Bus (USB) connector in order to visualize the received signal strength (Balanis, 2005). The gain is measured and analyzed with respect to the antennas position. Note that time is made available for class discussions of measurement problems, results accuracy and analysis.



During software simulations and physical lab implementations, students work in groups of two. In fact, we believe that having two (or three) students per group is a useful arrangement for telecommunication engineering assignments (Barkley et al., 2005) which maximizes the involvement of students, encourages contact between the group members, and develops reciprocity and cooperation (Thorley & Gregory, 1994; Chickering & Gamson, 1987).

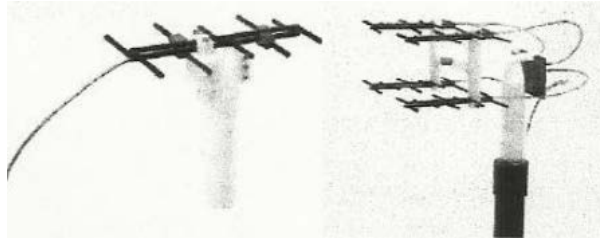


Fig. 2. Physical lab; transmitting antenna (left) and receiving antenna (right).

It was noticed in precedent laboratories that students are not well trained in the demonstration and explanation of their experimental results, and therefore, it is hard to get good reports from them. Consequently, in the presented laboratory course, in addition to the laboratory notes, a well written report based on the information appeared in the lab session is required. One important function of this laboratory is to emphasize the significance of valuable reports, containing detailed work description, by insisting on high quality through the offer of more than superficial appreciation (Kent & Card, 1961).

### ***Telephony Systems***

Digital telephony assignments have their important role in the Advanced Transmission Systems laboratory. First, students are provided an overview which details the hardware and software installation and operation. They start by installing the hardware interface which includes (58 series telephony, 2011):

- Controller with its Voltage Selector.
- Digital Switching Center.
- Telephony Tray.
- Digital Trunk Network.
- USB Adaptor.

Figure 3 presents the block diagram of the telephony training system connections.

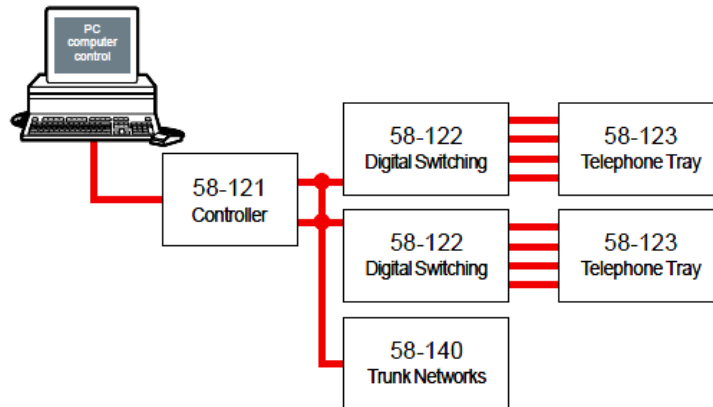


Fig. 3. Block diagram of the telephony training system connections.

Experiments with a single Digital Switching center and four Telephone Trays, as well as more advanced experiments with two Digital Switching centers and eight Telephone Trays are investigated. The Controller unit provides all the special power supplies and circuitry with the USB adaptor used as an interface to the computer. Note that Trunk Networks are needed only for the two Digital Switching centers assignments. Figure 4 presents the whole switching system.

Besides hardware equipments, a discovery software is provided with the telephony system supplying all the measurement requirements for the experiments. This hardware-software combination forms a totally integrated delivery system for teaching a wide range of telephony concepts and applications, from the characteristics of individual components to the use of complex systems, which allows the performance investigation of a wide range of experiments within the subject area (58 series telephony, 2011):

- Local signaling with basic digital switching.
- Time and space switching.
- Digital switch operation.
- Switching using RAM.
- Switch control.
- Connection of tones with Dual Tone Multi Frequency (DTMF) detection.
- Call records.
- Timing.
- Line records and numbering.
- Call accounting.
- Trunk networks with two digital switching centers.



Fig. 4. The whole Digital Switching system.

Each assignment consists of a theory overview, a joint software-hardware experiment and finally a list of questions to ensure that students have well understood the assignment. Students answers are discussed and included in the session report. Figure 5 presents a screenshot from the "Call Record" assignment showing the call states of the telephony system for each telephone line (left) and the call state transition diagram (right) showing how theory and practical are mutual in the lab assignments. In fact, students can observe the call state changes while making different phone calls using the physical equipments, which facilitates the comprehension of the call state transition diagram studied in class lectures. Thus, this modern computer-based telephony trainer easily demonstrates the contemporary digital telephony principles and forms an innovative and motivating delivery system which enables a wide range of tuition to be carried out.

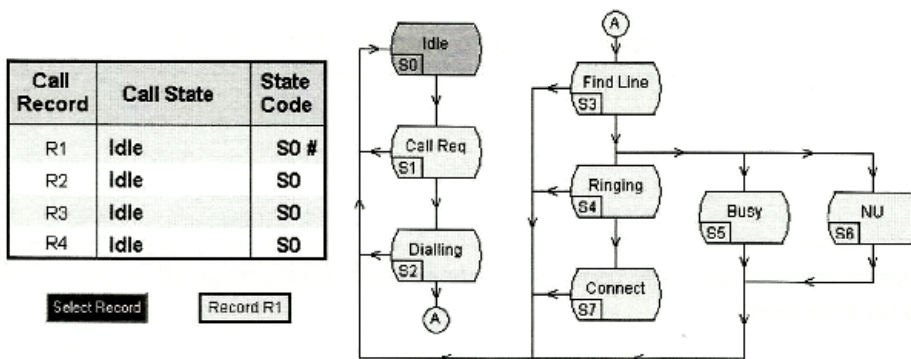


Fig. 5. Example from the "Call Record" assignment.

### ***Optical Communications***

Optical communication systems have revolutionized the way the world communicates today. Therefore, optical communications laboratories have assumed great importance in the scenario of widespread usage of digital transmission technology. Potential entrants into this field have to be well versed and equipped to work with large-scale, real world, fiber optic systems. As in previous laboratory sessions, an overview which details the optical communication system devices used in the experiments is provided to students (Benchmark, 2011).

Plastic fiber cables are factory prepared for use. However, students learn how to prepare their own fiber optic cable in case the provided cable ends have become deformed or damaged. They have to take the given length of the fiber, strip the plastic jacket (cladding) for about 6 mm at each end and cut the transparent plastic material with a sharp new blade such that about 3 mm projects out from the jacket. This physical work encourages students enthusiasm and provides them experience in group planning and processing. After preparing their own fiber optic link, they start to install the optical communication system which consists of the power supply with its interface cable, the fiber optic link, the optical transmitter and the optical receiver. Figure 6 presents the communication system consisting of the optical transmitter, the optical receiver and a fiber optic link connecting them. A function generator is used to feed sinusoidal signals to the input of the transmitter and the received signal is observed using an oscilloscope to ensure that the decoded signal matches with the input signal.

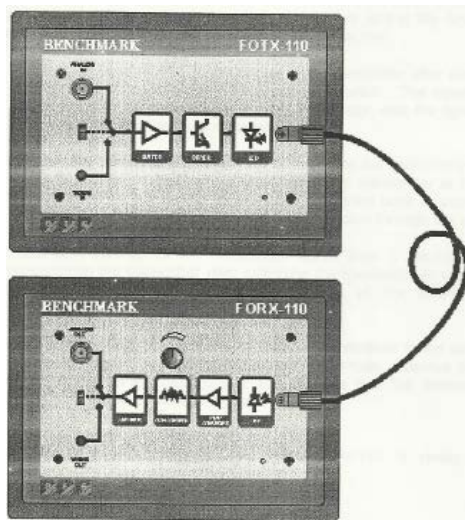


Fig. 6. Link establishment; Optical Transmitter (upper row), Optical Receiver (bottom row) and Fiber Optic Link connecting them.

Using this optical communication system, many experiments are investigated (Benchmark, 2011):

- Fiber optic components; Light Emitting Diode (LED), Photodetector (PD) and plastic fiber.
- Setting up a small distance fiber optic link.
- Loss measurement.
- Bandwidth measurement.

The experimenter kit shown in Figure 7 is used for other basic and advanced concepts experimentations. The essential elements of the fiber optic communication system enclosed in this kit are (Benchmark, 2011):

- Voice/video coder and decoder.
- Multiplexer and demultiplexer.
- Line coder and decoder.
- Optical transmitter and receiver.
- Splices.
- Connectors and couplers.
- Converters.



Fig. 7. BENCHMARK experimenter kit.

The easy interface to external circuitry of the experimenter kit facilitates demonstrations and experimentations in advanced concepts including (Benchmark, 2011):

- Setting up 850 nm and 650 nm fiber optic analog links and observing the relationship between the input signal and the received signal.
- Studying the effect of the gain control on the received signal.
- Measuring the link bandwidth.

- Setting up 850 nm and 650 nm digital links and measuring the maximum bit rates supportable on these links.
- Studying losses and electromagnetic interference in optical fibers.
- Measuring the numerical aperture.

Each of the listed assignments consists of a theory overview, a physical experiment and comprehension questions to ensure that students have well understood the assignment.

### **Assessment and Discussion**

As stated in previous sections, the aim of the Advanced Transmission Systems laboratory is the development of experimental skills and techniques in antennas design, telephony systems and optical communications.

According to our experience in this area, most of the objectives set during the preparation of the laboratory program are met. The assignments appeared to offer engineering students an opportunity to develop good technical judgment as to balance between theory and practice, a feel for the physical magnitude of things, individual thinking and an ability to be a good observer of physical phenomena.

The overview theory, hardware configuration, practical control, instruction and questions, group work and well written reports together with the computer-based instrumentation integrated in a single laboratory, form a complete package dealing with theory and practice which helps students to master fundamental principles and techniques and gain experience in modern digital communication systems.

By looking at how these cognitive skills affect the ease of comprehension among students, we were able to understand more about their weaknesses; they struggle to interpret their measurements and results and to identify the main principles surrounded in the practical work.

The presented laboratory course has had the hearted support of the engineering faculty, and it has been received with encouraging enthusiasm by the students. In fact, an early measure of their opinion revealed that they show a high degree of interest in the theoretical-physical assignments; they felt that the laboratory course was relevant to the theory done in the classroom and enjoyed the practical work, acquiring needed skills relevant to their engineering discipline.

### **Conclusion**

The knowledge-practice theory is based on the assumption that knowledge is an interaction between the learner and the teacher. One of the major issues in designing instructions for this theory involves providing rich opportunities for experimentation with physical instruments, with peer

interaction and support from teacher questions. Therefore, engineering students acquire a knowledge through thought and experience.

Although laboratory courses are an important part of engineering education, they are usually treated as something extra; they have not kept pace with the trend in engineering education.

In this paper, a description of the Advanced Transmission Systems laboratory course lately developed at the Holy-Spirit University of Kaslik and the importance of this lab in the telecommunication engineering curriculum are presented and discussed.

Although the lab preparation presented some difficulties which have been surmounted, the advantages gained have been significant. Our findings revealed that the presented laboratory was able to develop the understanding of the scientific method through which knowledge and practice are combined for the execution of meaningful experimental work. Thankfully, we found that most of the laboratory purposes were met. These purposes can be resumed by developing an ability to use experimental techniques to check theory, stimulate students interest and fix relationships more firmly in mind.

Finally, while we are tending to be certain enough to argue, on the evidence of students as well as staff opinion, that our experiment in laboratory education shows a great success, we are enthusiastic about continuing to improve our engineering laboratories.

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# CHARACTERISTICS OF FAVOURABLE ENVIROMENT FOR DEVELOPMENT OF CREATIVE THOUGHT AT LITHUNIA'S COMPREHENSIVE SCHOOL

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## Abstract

The article reveals main characteristics of favourable environment for development of creative thought in Lithuanian comprehensive school. The findings are based on the empirical research data, carried out in 2011. 101 educators participated in this research. Positive psychological climate and freedom of action at school have been considered as the most important factors for the favourable environment to develop critical thinking of pupils. Overcrowded curriculum, low learning motivation of pupils have been pointed out as the most negative factors, that influence climate at school.

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**Keywords:** Creative thought, education, school environment

## Introduction

In the works of contemporary scientists creativity is analyzed as a complex and manifold phenomenon. Some scientists relate creativity to a person's abilities (Crompton, 1999; Simonton, 1999; Weisberg, 1999; et al.), others analyze it as a creative process with its results (Wallas, 1945; Piirto, 1999; Jakobson, 1934; Russ, 1999; Butkienė, Kepalaitė, 1996; et al.). Some other scientists aim at investigating qualities of a creative personality (Jovaiša, 1993; Walberg, Arian, 1999; Crompton, 1999; et al.). Peculiarities of creative thinking have been analyzed probably the most widely (Runco, 1999; Guilford, 1950; Torrance, 1988; MacKinnon, 1967; et al.). One of the most famous researchers of this phenomenon J. P. Guilford (1950) defines creativity as divergent thinking, which is free, flexible, nonstereotypical, rejecting everything what is obvious and usual, and concentrating on various ways of solutions to a problem. E. Torrance (1988) defines creativity as the

process of thinking characteristic of sensitivity to problems and of information gaps, as well as of subtle sense of disharmony, and etc.

During the late decades creativity has been analyzed in the intricate context of a personality, society, and culture. From the holistic, i.e. the whole, point of view creativity embraces many factors determining creative activity of a person (abilities, skills, personal qualities, motivation, experience in creative activity, and etc.). It is recognized that development of creativity mostly is dependent on the type of surroundings where a person creates and on evaluation of this creation.

Surroundings benevolent for creative thinking are described using different concepts, emphasizing one or the other aspect: psychological climate (Grakauskaitė, 2006), creative environment (West, 1990), creative climate (Ekvall, 1997; Dackert, 2001), creative atmosphere (Gebert, 2002), and etc. In the works of scientists it is indicated that while fostering creativity, irrespectively to the sphere of a person's expression, or the type of work, similar indications are typical to benevolent surroundings. Authors present various combinations of features of surroundings. According to G. Ekvall (1997) and I. Dackert (2001), creative surroundings are characteristic of warm atmosphere, sense of commonness and belonging to a group, mutual trust and tolerance, intellectual curiosity and a feeling of freedom, professional competence and intellectual friendship, an opportunity to share ideas and help to those having ideas. Other scientists distinguish the following components of surroundings benevolent for creativity: interpersonal relations and support of colleagues, relation in a group, productivity of activity, character of work of administration, general culture of an organization. German researchers D. Gebert (2002) and E. Krause (2004) point out that creative surroundings are characteristic of open and full of trust atmosphere, fearlessness of changes, encouragement of personal freedom and nonconformism, incitement to change and to improve in professional sphere, orientation towards significant aims, promotion of curiosity and activity. Such features of surroundings benevolent for creativity as significance of activity aims, open communication, conductivity of information, and professional help (Meissner, 1989) are indicated as well.

Analyzing the works of scientists (Ferrari, Cachia, Punie, 2009; Sternberg, Kaufman, Pretz, 2002; Urban, 2003; Vaicekauskienė, 2009; Grakauskaitė, 2006; Cropley, 1999: et al.), who investigated school climate benevolent for development of creativity, a tendency to discuss general culture of school, relations based on mutual trust and respect, stimulation of freedom of activity and independence, cooperation, existence of examples of creative personalities, and appropriate physical environment reveals. Lithuanian psychologist D. Grakauskaitė (2006) exhaustively describes characteristics of a favourable psychological climate: positive attitude

towards activeness, initiative, creativity, work; tolerance of differences (of a personality, ideas, activity, aims); respect for autonomy of a person; recognition of the right to keep away, to be the leader and have his/her own point of view; freedom to experiment (try, start from the beginning), a possibility to make mistakes and not to be condemned or laughed at; playfulness, humour. The author emphasizes the importance of physical environment for creative thinking as well: abundance of visual details; sights of nature outside the window or compensation of them by indoor plants, pictures; natural decoration materials; prevalence of warm colours or pleasant contrasts.

Even though there are a lot of theoretical discussions about surroundings benevolent for creativity at school, however, empiric research has not been carried out. In Lithuania surroundings benevolent for creativity and creative thinking have been analyzed in the works of some scientists (Grakauskaitė, 2006; Girdzijauskienė, 2009; Vaicekauskienė, 2009).

### **Research methodology**

Though scientists point out similar characteristics of the surroundings benevolent for creativity, however, they attach different levels of importance to those characteristics. For instance, some scientists (Meissner, 1989) indicate having goals as the most significant feature of surroundings. Others (Ferrari, Cachia, Punie, 2009) emphasize culture of an organization, relations based on mutual trust and respect. Significance of features of the surroundings benevolent for creativity is also dependent on other variables. Therefore, while carrying out the research, problem-based questions were raised: what characteristics of the surroundings benevolent for creative thinking are perceived as the most important ones by Lithuanian teachers? What, in their opinion, are the greatest obstacles to creativity? What should undergo changes in order to design the surroundings benevolent for development of creative thinking at school?

**The object of the research** – surroundings benevolent for development of creative thinking.

**The aim of the research** – to reveal the peculiarities of surroundings benevolent for development of creative thinking at a comprehensive school.

**The methods of the research:** review of pedagogic, psychological literature, and educational documents, a questionnaire to teachers.

**Participants of the research.** The questionnaire has been answered by 101 teachers working in schools of 5 different regions of Lithuania (including 2 secondary schools, 1 gymnasium, 2 comprehensive schools). Average age of the respondents – 45 years. Vast majority of the research participants were women. Almost three fourths of the respondents have experience of more than 16 years of pedagogic work. Majority of the

respondents who have answered the questionnaire are primary teachers (42,6%), more than a tenth (13,9%) teach at 5th - 8th forms, a fifth (19,8%) at 9th - 12th forms, and almost a fourth (23,7%) at 5th - 12th forms. Sufficiently even distribution of the subjects according to the type of school, place of residence, work record, and forms they teach in, allows to expect objective results of disclosure of surroundings benevolent for creative thinking at Lithuanian schools.

**Research instrument.** Review of literature references has helped to find the answer to the question what features are characteristic to a creative pupil and to surroundings benevolent for creative thinking. With the aim to reveal the state of surroundings at Lithuanian schools, the subjects have been asked to answer 5 open questions: *How do you recognize if a pupil thinks creatively? What surroundings benevolent for creative thinking should be like? What, in your opinion, hinders development of pupils' creative thinking at school? What actions assisting in disclosure of your creative thinking as well as of your pupils' would you expect from school administration, colleagues, pupils? What would you do so that creative thinking of teachers and pupils could manifest itself at full strength?* Pedagogues have presented 1-3 answer variants to each question. Analysis of scientific literature has helped to distribute teachers' answers into particular categories and to reveal the features characteristic to surroundings benevolent for creativity at Lithuanian schools.

### The results of the research

With the aim to reveal how pedagogues understand creative thinking, the respondents have been asked to point out *how they recognize if a pupil thinks creatively?* Pedagogues have presented 240 descriptions (Table 1). Among them in 8 statements features of creative thinking have not been excluded, presenting just general reference to pupils' activity (f.e., 'recognize from works, statements'). One hundred thirty-two characteristics of creative thinking have been presented.

Table 1

#### Characteristics of a Creatively Thinking Pupil Presented by Pedagogues

Creative thinking 144 observations	Thinking abilities, inborn traits 144 observations	Personal qualities 144 observations
70 – originality; 35 – fluency; 20 – sagacity; 15 – flexibility 4 – precision, completeness	9 – imagination; 5 – abilities; 4 – intellect.	17 – activeness, learning motivation; 13 – thirst for knowledge; 12 – courage ; 12 – ability to solve problems; 10 – breadth of interests; 6 – independence, trust.

More than two thirds of teachers (70) have pointed out originality (non-traditionalism, novelty, unusualness, singularity) as an exceptional feature of creative thinking. According to the respondents, 'a creatively thinking pupil presents distinctive answers to questions, suggests original variants of solutions to problems', 'the answers are interesting and nonstandard, requiring everybody to think differently'. A lot of attention is devoted to fluency of thinking (35). According to teachers, a creative pupil 'simply shines with ideas', 'quickly finds solutions to a problem', 'constantly proposes various interesting activities to other pupils'.

A fifth of pedagogues (20) who took part in the research emphasize the importance of sagacity: 'a creative pupil notices the things that have been unnoticed, is able to perceive extraordinariness in simple things', 'notices details in the whole or is capable of recreating the whole out of a detail'. In the statements of a sixth of teachers (15) flexibility of thinking is indicated. According to pedagogues, a flexibly thinking pupil 'can consider a problem taking into account various aspects', 'often wonders if anything could be performed differently'. However, only some pedagogues (4) have noticed that a creatively thinking pupil should be able to complete his/her work qualitatively and in time. When describing a creatively thinking pupil, the least attention has been allotted to precision of thinking.

Some teachers relate creative thinking to imagination (9), intellectual abilities (4), skills (5). More than two thirds of respondents (70) attribute features of a creative personality to creative thinking. Most often the following features are mentioned: activeness ('A creatively thinking pupil is active, always wants to organize something, take part in an activity', 'he/she is motivated, does not need to be urged to work, is full of initiative and active in a lesson'), thirst for knowledge ('a creatively thinking pupil is characteristic of curiosity, desire for knowledge', 'he/she is constantly interested in something', 'he/she asks a lot of questions and tells a lot what he/she has found out, seen, or heard'), courage ('he/she is not afraid to make mistakes, to ask questions, to have doubts', 'he/she is not afraid to take risks when creating something new, unusual').

Teachers have been asked to specify *what surroundings benevolent for creative thinking should be like*. Pedagogues have presented 162 descriptions (Table 2). Among them the characteristics of a favourable psychological climate at school are dominating. It has been noticed that some teachers understand surroundings benevolent for creative thinking as the whole complex of features of physical environment, emphasize concord of things, colours in a classroom. Meanwhile others indicate relationship of the members of school community based on respect and tolerance, their mutual trust as the main features of creative surroundings. Only 2 respondents have

expressed the opinion that surroundings are not of key importance to a creative personality.

Table 2

**Characteristics of Surroundings Benevolent for Creative Thinking Presented by Teachers**

<b>55 –Favourable psychological climate at school</b>
Psychological environment – tolerance and forbearance to those thinking differently’, ‘this is the environment where a child feels loved, respected, and valued’, ‘good relationship within a school community’
<b>33 – Freedom of activity, encouragement of creativity in activity</b>
‘There should not be any “frames” how creative works have to be performed, regardless if it is Lithuanian language or other subjects’, ‘in educational process it would be good to create as many situations requiring creativity as possible’, ‘nobody has the right to inhibit ideas, on the contrary, help should be provided for their realization’.
<b>29 –Physical environment</b>
‘Activity is performed in warm, full of visual aids classroom. Change of a workplace. Change of surroundings’, ‘environment has to be safe, cosy so that a pupil could feel free’, ‘aesthetic environment in a classroom, abundance of visual aids, nontraditional dislocation of desks’.
<b>18 – Provision with aids, financial resources</b>
‘Easily accessible information (library, computer, the Internet), informational literature and textbooks, teaching resources’, ‘choice of textbooks, abundance of books in the library and in the classroom’.
<b>16 – A possibility to communicate, cooperate</b>
‘Respectful communication and cooperation’, ‘group work in three or four helps a lot’, ‘collective work, a company of like-minded people are really important’.
<b>8 – Other</b>
‘Style of upbringing in a family, competence of a school headmaster’.
<b>2 – Of no importance</b>
‘I believe that environment is not the most essential factor to creative thinking’.

When answering the question *what hinders development of pupils’ creative thinking at school*, participants of the research have presented 188 answers (Table 3). Half of pedagogues who took part in the research name overburdened curricula and orientation towards exams, which do not require creative thinking, as the main obstacles. Almost a third of teachers point out that unfavourable psychological climate at school, manifesting itself as intolerance to those thinking differently, as a lack of understanding and support, hinders creativity of both pupils and teachers. Teachers also emphasize indifference of pupils, a lack of confidence in their powers, laziness, and apathy.

Table 3

**What Hinders Development of Creative Thinking at School?**

<b>49 – Overloaded curricula</b>
‘Attaching too great importance to knowledge and curricula oriented towards knowledge’, ‘programmes are too difficult, pupils have to devote a lot of time to learning, which is not always related to creativity’.
<b>31 – Unfavourable psychological climate at school</b>
‘General atmosphere of school or a classroom is unfavourable, i.e. it does not accept new, original ideas’, ‘pupils’ self-confidence, fear to be laughed at by friends are disturbing’, ‘insufficient tolerance of teachers to differently thinking pupils and colleagues’.
<b>31 – Indifference of pupils, a lack of learning motivation</b>
‘Pupils’ laziness and apathy’, ‘low learning motivation of some pupils’, ‘prejudice towards any novelties’, ‘indifference of pupils, distrust in their own powers’.
<b>20 – Physical environment, equipment of classrooms, a lack of methodological tools</b>
‘There is a lack of means for realization of ideas, not enough of teaching resources’, ‘a lack of teaching resources’,
<b>13 – Nothing</b>
‘Nothing hinders. Everyone is happy when an interesting pupil or an event shows up’.
<b>13 – A lack of knowledge, information how to develop pupils’ creativity</b>
‘Sometimes professional competencies are inadequate for realization of ideas’, ‘there is a lack of knowledge how to stimulate pupils’ creative activeness’, ‘it would be good to know how to develop pupils’ creative thinking most optimally because now this is done intuitively’.
<b>11 – Passiveness of teachers, a lack of initiatives</b>
‘Stiff attitude of some colleagues towards innovations’, ‘conservatism of teachers, unwillingness to change their style of teaching’, ‘narrow-mindedness of some teachers’.
<b>10 – Big number of pupils in class</b>
‘Big number of pupils in class, individual approach to every pupil is hardly possible’, ‘a lot of pupils in class, there is a lack of time for work with gifted pupils’.
<b>10 – Hard workload of teachers, a lack of time</b>
‘A teacher often performs office works, school routine as well as hard workload of teachers have influence too’.

Pedagogues have been asked to consider *what actions that could assist in disclosure of both their and their pupils’ creative thinking would they expect from school administration, colleagues, pupils*. Altogether 546 suggestions have been presented (Table 4). Most statements (209) have been received regarding pupils’ participation in activities requiring creative thinking. Teachers tend to name not specific activities, but characteristics of pupils’ personalities and of their activity, such as motivation, initiative, activeness, courage to act, and etc., which are significant to creative process.

Three fourths of pedagogues firstly expect support and understanding from their colleagues, almost half - cooperation. Pedagogues consider sharing experience, collegial support as significant factors for development of creativity. According to the participants of the research, from their colleagues they would like to receive ‘a more democratic approach, sharing of new ideas and discoveries’, ‘more joint projects and sincere cooperation’.

The least number of proposals (151) has been received discussing how school administration could contribute to the development of teachers' and pupils' creativity. However, the same tendency reveals – a need for support and evaluation. Moreover, from school administration pedagogues would expect material resources for implementation of their creative ideas.

Table 4

#### What do Pedagogues Expect from School Administration, Colleagues, and Pupils?

School administration 151 observations	Colleagues 186 observations	Pupils 209 observations
0 – support and evaluation; 29 – material resources; 17 – specific measures; 5 – communication and cooperation; 20 – other (respect for a teacher, trust in him/her, more freedom of activity, and etc.).	77 – support and understanding; 48 – communication and cooperation; 38 – sharing experience, help; 23 – other (initiative, openness, desire to work, and etc.).	41 – motivation; 26 – initiative; 26 – activeness ; 18 – courage to act; 16 – curiosity, thirst for knowledge; 9 – originality; 9 – goodwill, tolerance; 63 –other (ideas, more critical thinking, a more interesting activity, and etc.).

It has been inquired *what actions and measures pedagogues would suggest so that creative thinking of teachers and pupils could manifest itself at full strength* (Table 5). A fourth of the research participants have voted for editing of curricula, a sixth have considered development of innovations in the sphere of educational methods and educational process to be purposeful, proposed designing teaching/learning environment benevolent for creation, as well as improvement of provision with teaching/learning resources, increased financing for realization of creative ideas.

Table 5

#### Suggestions of Pedagogues Regarding Development of Creative Thinking

<b>25 – Editing of curricula</b>
'I would allow editing educational content of subjects', 'would devote more attention to cultural and artistic education of pupils in the teaching plan'.
<b>16 – Innovation in educational methods and in organization of educational process</b>
'Would devote more time to creative group work', 'would pay more attention to the lesson in nontraditional surroundings', 'would look for nontraditional teaching ways, methods'.
<b>15 – Nontraditional environment favourable to creation</b>
'Schools lack optimism', 'would create tolerant, rich, optimistic atmosphere and environment'.



<b>14 – Provision with teaching resources, increased financing</b>
‘It is important to provide everybody with necessary resources and inventory’, ‘Would ensure financing of the programmes developing creativity at school’.
<b>12 – Teachers’ work extent and salary</b>
‘Would increase teachers’ salaries, create the system of motivation’, ‘Would reduce the extent of teachers’ work’.
<b>38 – Other</b>
‘Would communicate and cooperate more’ (7), ‘Would decrease the number of pupils in class’ (5), ‘ Would extend the range of extra-curricular activities’ (3), and etc.

## Conclusion

A person expresses himself/herself creatively only when living in a certain social media, and expression of creativity mostly depends on the surroundings a person is acting in. Analyzing the traits of the surroundings benevolent for creative thinking at school, the importance of school culture is emphasized, i.e. fostering of tolerant environment, stimulation of involvement into activity, recognition of the value of creativity, openness of communication. Psychological climate of school, class atmosphere, relationships of school community members based on trust and respect, personality of a teacher, functional teaching/learning spaces are really important to the development of creativity and creative thinking as well.

Analyzing the data of the empiric research in which 101 pedagogues from 5 Lithuanian schools took part, it has been ascertained that describing surroundings benevolent for creative thinking, pedagogues point out favourable psychological climate of school, freedom of activity and stimulation of creativity in activity, an appropriate physical environment, provision with teaching/learning resources, communication and cooperation as the most significant characteristics.

The greatest obstacles to creative thinking at school are overburdened curricula, unfavourable psychological climate of school, indifference of pupils, and a lack of motivation. In opinion of pedagogues, they would like to receive support and understanding, well-wishing communication and cooperation from their colleagues and school administration, and initiative and higher learning motivation from their pupils, which are necessary for development of teachers’ and pupils’ creative thinking.

With the aim to foster surroundings benevolent for creative thinking, teachers suggest editing of curricula, encouraging educational innovations, creating of benevolent and open to novelties educational environment at school, provision with new educational resources, decreasing of teachers’ workloads.

The research data obtained reveal not only the peculiarities of the surroundings benevolent for creative thinking at Lithuanian schools, but also expose the spheres that require improvement. Fostering of relations based on

forbearance and respect, as well as organization of school activity grounded on communication and cooperation become particularly urgent.

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# COMPARATIVE STUDY OF EFFECTIVENESS OF COOPERATIVE LEARNING STRATEGY AND TRADITIONAL INSTRUCTIONAL METHOD IN THE PHYSICS CLASSROOM: A CASE OF CHIBOTE GIRLS SECONDARY SCHOOL, KITWE DISTRICT, ZAMBIA

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## **Abstract**

The purpose of the study was to compare the effectiveness of cooperative learning strategy and Traditional instructional method on pupils' academic achievement and their motivation to learn in the physics classroom at Chibote Girls Secondary School in Kitwe District of Zambia. The research was a Pre-test- post-test control group design. The population of the study consisted of 625 Grade Eleven pupils studying at Chibote Girls Secondary School in Kitwe District and the Five (5) teachers teaching physics subject at the school. A sample 60 pupils and two (2) teachers were used for the study. Simple random sampling was used to select the teacher to teach the Traditional instructional method (control) class and convenience sampling was used to select the teacher to teach the cooperative learning (experimental) class. Pre- and post- motivation survey questionnaire of the five point Likert scale of strongly agree to strongly disagree and pre- and post- tests were used for data collection. The motivational survey questionnaire was face and content validated while the tests were drawn from standardized past physics examination questions of the Examination Council of Zambia. The reliability for the pre- and post-motivational questionnaire survey was determined using the Cronbach's Alpha reliability method. The reliability coefficient of 0.334 and 0.901 was obtained for pre-motivational survey and post-motivational survey respectively. Factor analysis was carried out on the pre- motivational questionnaire survey and the communalities of the items on the pre- motivational survey ranged from 0.438 to 0.854 an indication that all the items on it were reliable. The two

motivational questionnaires were therefore, used for the research. The data collected were coded and analysed using the Statistical Packages for Social Sciences (SPSS). The one way Analysis of Variance (ANOVA) and Univariate Analysis of Variance and ANCOVA were employed. The study revealed that the use of Cooperative learning strategy do improve pupils' academic achievement as well as pupils' motivation to learn than the Traditional instructional method. Therefore, it is evident that Cooperative learning strategy is more effective in the teaching and learning of physics than Traditional instructional method.

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**Keywords:** Effectiveness, Cooperative Learning Strategy, Traditional Instructional Method

### **Introduction**

In Zambia, Science subject at senior level is divided into specific subject areas; physics and chemistry. These subjects are commonly taught by two different teachers who are specialists in those areas. Basically, Physics teaching encompasses the method of transmitting knowledge, skills and values on the scientific study of matter and energy to a learner (Muzumara, 2009). It deals with abstract concepts. Reveles, Cordova, and Kelly (2009) indicated that Physics dealt with abstract concepts and students found these concepts difficult to grasp.

It had been observed that, the pupils perform better in chemistry than in physics in some Secondary Schools. This is evidenced in the cumulative scores analyzed for the termly tests for Grade eleven in 2010 who later in 2011 wrote their Grade twelve O level Examinations in two Secondary schools in Kitwe District of Zambia. The overall performance for Secondary school A and B in Grade Twelve O level National Examinations was below 50 percent (44.1% and 47.5% respectively) in Science Subject (ECZ, Examination Analysis, 2011).

The difficulties of many pupils with physics science subject could be traced back to the way they were introduced to this area of science course in primary school and now it had been refueled by the way the subject is taught at secondary level which always depends on the foundation laid by teachers at the lower level of education. In many countries, there is a decline in the number of students wishing to continue with physics (Woolnough, 1994). A number of factors have been identified by previous researchers as contributing to this decline.

Smithers (2010) noted that the study of physics in schools and universities was spiraling into decline as many teenagers believe it was too difficult. Sillitto and MacKinnon (2011) noted that physics had an image of being both 'difficult' and 'boring'. They further observed that the major

reasons for students finding physics uninteresting are that it is seen as difficult and irrelevant. Thus, this calls for strengthening of teaching science subjects by using different methods which will activate motivational levels of pupils and thereby enhance quality performance. Bello (2011) stated that it is crucial for teachers to use the best effective teaching method, which could enhance academic achievement of students. To avert this problem, the mode of dissemination of Physics to the students' need be looked into so as to help the learners. Science (Physics) teachers have a unique opportunity to use cooperative learning strategies he added.

If learners are made to see science as a means of enriching personal life and improving national economy through making the surroundings more interesting and comprehensible, then there must be a change in the way science is taught in schools and this will also require a change in the teachers' perception of the context and method in which they teach. A paradigm shift from traditional instructional methods to learner centered approaches is essential. Cooperative learning has been proposed as one instructional strategy congruous with the paradigm shift. Cooperative learning is an approach to organizing classroom activities into academic and social learning experiences. It enhances motivation to learn in the classroom.

Researches such as those of Heller, Keith, and Anderson (1992); Johnson and Johnson (1992); Kagan (1990) and Chiu (2008) has shown that students who work in cooperative groups do better in tests, especially with regard to reasoning and critical thinking skills than those that do not and that they tended to perform better. At the national level, the Zambian Government has brought in different interventions to curb the problem of poor performance in science subjects through Strengthening Teaching Performance-UP (STEP-UP) for Zambia and Japanese International Coordinating Agency (JICA).

This initiative was implemented by the Ministry of Education, Science, Vocational Training and Early Education (MOESVTEE) through the School Based- Continuing Professional Development (SB-CPD) through School Programme In-Service for the Term (SPRINT) System. Cooperative learning was one teaching method encouraged under the program, but its effectiveness in improving learners' performance in science classroom has rarely been studied.

Kose, Sahin, Ergu and Gezer (2010) stated that there was ample evidence that cooperative learning strategies are instructionally effective in grades 2 – 9, but relatively few studies examine grades 10 – 12. This fact necessitated the desire for the researchers to compare the effectiveness of cooperative learning strategy with the Traditional Instructional Method on pupils' academic achievement and their motivation to learn in the physics

classroom at Chibote Girls Secondary School in Kitwe District, Copperbelt Province of Zambia.

### **Statement of the Problem**

The performance of pupils in science subjects in Kitwe District has been declining for the past five years. The pass rate for one of the secondary Schools dropped from 81.8% to 44.1% between 2007 and 2011 despite the fact that the school has adequate resources for teaching and learning of Science subjects as well as qualified teachers to teach. These notwithstanding, pupils still expressed negative comments about sciences especially physics as being tough and boring. One issue that could be raised was the effectiveness of the Traditional instructional method of teaching used in physics. Soliven (2003) studied the teaching styles of high school physics teachers, and found out that Physics teachers used different teaching styles and teachers who gave students group work cooperatively get a better result.

Furthermore, Zemke, Elger and Beller (2004) found that students overwhelmingly indicated that the use of effective events in Cooperative learning groups enabled them to more easily master difficult materials. This was a clear indication that the way the subject was taught needed to be looked into. This study therefore compared the effectiveness of Cooperative Learning Strategy and Traditional Instructional Method on academic achievement in the physics classroom as well as students' motivation to learn.

### **Research Questions**

The researchers sought answers to the following questions:

1. Is there any significant difference in the academic achievement of pupils taught using Cooperative Learning strategies(experimental group) and those taught using Traditional instructional method(control group) before and after controlling for pre-test?
2. Is there any significant difference in the motivational levels of the experimental group and the control group in the physics classroom before and after controlling for pre-motivational survey?

### **Research hypotheses**

Based on the research questions, the following hypotheses were tested:

Ho 1: There is no significant difference in academic achievement of pupils taught using Cooperative learning Strategies (experimental group) and pupils taught using the Traditional instructional method (control group) in the physics classroom before and after controlling for pre-test.

Ho 2: There is no significant difference in the motivational levels of the Experimental group and the control group before and after controlling for pre-motivational survey.

### **Research Methodology**

The purpose of the study was to compare the effectiveness of cooperative learning strategy and Traditional instructional method on pupils' academic achievement and their motivation to learn in the physics classroom at Chibote Girls Secondary School in Kitwe District of Zambia. The research was a Pre-test- post-test control group design. The population of the study consisted of 625 Grade Eleven pupils studying at Chibote Girls Secondary School in Kitwe District and the Five (5) teachers teaching physics subject at the school. A sample 60 pupils and two (2) teachers were used for the study. Two classes of Physics were randomly selected for the study. Simple random sampling was used to select the teacher to teach the Traditional instructional method (control) class and convenience sampling was used to select the teacher with experience in cooperative learning strategy to teach the cooperative learning (experimental) class. Pre- and post- motivation survey questionnaire of the five point Likert scale of strongly agree to strongly disagree and pre- and post- tests were used for data collection.

The motivational survey questionnaire was face and content validated while the tests were drawn from standardized past physics examination questions of the Examination Council of Zambia. The items selected for the pre and posttest were based on the learning objectives on topics on Current Electricity and D.C. Circuits. The reliability for the pre- and post-motivational questionnaire survey was determined using the Cronbach's Alpha reliability method. The reliability coefficient of 0.334 and 0.901 was obtained for pre-motivational survey and post-motivational survey respectively. Factor analysis was carried out on the pre- motivational questionnaire survey and the communalities of the items on the pre-motivational survey ranged from 0.438 to 0.854 an indication that all the items on it were reliable. The two motivational questionnaires were therefore, used for the research.

The data collected were coded and analysed using the Statistical Packages for Social Sciences (SPSS). The one way Analysis of Variance (ANOVA) and Univariate Analysis of Variance and ANCOVA were employed. The study revealed that the use of Cooperative learning strategy do improve pupils' academic achievement as well as pupils' motivation to learn than the Traditional instructional method. Therefore, it is evident that Cooperative learning strategy is more effective in the teaching and learning of physics than Traditional instructional method.



## Results and Discussions

The results of the analysis are discussed in succession in line with the research questions and research hypotheses.

**Research Question One:** Is there any significant difference in the academic achievement of pupils taught using Cooperative learning strategies (Experimental group) and those taught using Traditional Instructional method (Control group) before and after controlling for pre-test?

**Table 1: Mean Achievement Scores of Post-test of the Experimental group and control group.**

Groups	Mean	Std. Deviation
Control Group	8.5667	5.19737
Experimental Group	17.0667	7.57006

Table 1 above shows the mean achievement scores of post-test for the Experimental group and Control group. The Experimental group outperformed their control group counterparts with a mean score of 17.0667 compared to a mean score of 8.5667. This is a clear indication that the Experimental Group taught using Cooperative learning strategies performed better than the control group taught using Traditional instructional method in the physics tests.

The mean score of 17.0667 for the Experimental group indicated a Pass Grade whereas the mean score of 8.5667 for the control group indicated a Fail Grade. This study is in line with Kose, Sahin, Ergu & Geze (2010) that Cooperative Learning promote student's learning academic achievement, in the same vein, Fui & Hong (2008) revealed that the Cooperative learning group outperformed the traditional instructional method group.

The study further revealed that in general the performance of the two groups were below average. This is in line with the statement from the Zambia's policy document 'Educating our Future' Ministry of Education (1996) which outlined that on average, less than two-thirds of the candidates obtain a full pass in school certificate each year in science subjects. This explained the distressing picture of poor performance in science subjects which includes physics as a core science subject. The standard deviation for the Experimental group of 7.57006 and that of the control group of 5.19737 were found to be high an indication that the groups were heterogeneous across in the test scores.

Table 2 shows the one way Analysis of Variance between academic achievement of pupils taught using Cooperative Learning Strategies (Experimental group) and those taught using Traditional Instructional method (control Group). The F- value of 25.706 was found to be significant

(.000), an indication that there exists significant difference in the performance of the two groups. This is clear evidence that Cooperative learning strategy was more effective than the Traditional Instructional method.

**Table 2: One way Analysis of Variance between academic Achievement of Experimental group and Control group**

ANOVA					
Post-test					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1083.750	1	1083.750	25.706	.000
Within Groups	2445.233	58	42.159		
Total	3528.983	59			

This study is in line with various research reports stating that Cooperative learning was more effective than Traditional method of instruction (Johnson & Johnson, 1995; Kagan, 1994; Fui & Hong, 2008; Tsay & Brady, 2010; and Hamzah & MdZain, 2010).

Table 3 shows the Analysis of covariance (ANCOVA) on the academic achievement of the Experimental group and the Control group. The F-value changes from 25.706 to 36.823 an indication that the pre-test resulted in slight improvement in the post test achievement but the difference in achievement between the experimental and the control group still significant. The pre-test enhanced the performance of pupils.

**Table 3: Analysis of Covariance (ANCOVA)**

Post-test						
Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1803.622 <sup>a</sup>	2	901.811	29.793	.000	.511
Intercept	1162.229	1	1162.229	38.396	.000	.402
pretest	719.872	1	719.872	23.782	.000	.294
class	1114.616	1	1114.616	36.823	.000	.392
Error	1725.361	57	30.269			
Total	13385.000	60				
Corrected Total	3528.983	59				

a. R Squared = .511 (Adjusted R Squared = .494)

Based on the above findings, the Null hypothesis ( $H_{01}$ ) which stated that there is no significant difference in the academic achievement of the Experimental and control group was rejected at 0.05 level of significance and the alternative hypothesis accepted. Significant differences therefore existed between the pupils taught via cooperative learning strategies and their traditional instructional method counterparts.

This agreed with Slavin (1995) who reported that overall, students in cooperative learning groups scored about one-fourth of the standard deviation higher on achievement test than did students taught conventionally (traditionally) and Johnson, Johnson & Smith (1995) also revealed that the Cooperative learning groups had about two-thirds of a standard deviation higher in test scores than students in competitive or individualistic situations in traditional methods of instruction.

**Research Question Two:** Is there any significant difference in the Motivational level of the Cooperative Learning strategy group (Experimental group) and Traditional instructional method group (control group) before and after controlling for pre-motivation survey?

**Table 4.4: The Mean Scores on Pupils' Motivational Level for Experimental Group and Control Group**

Groups	Mean	Std. Deviation
Control Group	2.3491	.51688
Experimental Group	4.4095	.46399

Table 4 above shows the mean scores of the pupils' motivational level to learn in the physics classroom between the Experimental group and the Control group. The table revealed that the Experimental group scored a mean of 4.4095 indicating that they were highly motivated whereas the control group scored a mean of 2.3491, which indicated that they were fairly motivated. This is a clear indication that Cooperative learning strategies increase the pupils' motivational levels to learn in the physics classroom than the Traditional instructional method.

This finding is in agreement with Peterson & Miller (2009) who compared the experiences of students during cooperative learning and large-group instruction (Traditional method) and found that the most consistent result of this study related to student motivation, all aspects of which were positive during cooperative learning. The low standard deviations for both groups indicated that they were homogenous in their motivational levels.

**Table 5: One Way Analysis Of Variance between Pupils' motivational Levels for Experimental Group and Control Group**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	61.553	1	61.553	255.167	.000
Within Groups	13.509	56	.241		
Total	75.061	57			

Table 5 above shows the one way Analysis of variance (ANOVA) between the two groups in their post- motivational scores. The F-value of 255.167 was found to be significant, an indication that there exist a significant difference in the motivational levels of the two groups to learning physics. This is clear evidence that Cooperative learning strategies is more effective in increasing motivation to learn.

This study is in agreement with some researches in which Cooperative learning had been found to increase attendance, time on task, enjoyment of school and classes, motivation, and independence (Augustine, Gruber & Hanson: 1990; Good, Reys, Grouws & Mulryan, 1990; and Wood, 1987)

Table 6 below shows the Analysis of Covariance of Pre-motivation survey on the Pupils' motivational level to learn in the physics classroom for the Experimental group and the Control group. F- Value reduced from 255.167 to 249.475 but the differences in the motivational level of the two groups were found to be significant.

**Table 4.6: Analysis of Covariance (ANCOVA)**

Post Motivation Survey Average

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	61.573 <sup>a</sup>	2	30.787	125.538	.000	.820
Intercept	32.670	1	32.670	133.217	.000	.708
Pre-motivation	.021	1	.021	.084	.774	.002
Class	61.181	1	61.181	249.475	.000	.819
Error	13.488	55	.245			
Total	737.406	58				
Corrected Total	75.061	57				

a. R Squared = .820 (Adjusted R Squared = .814)

Based on the above findings, the Null hypothesis which stated that there is no significant difference in the motivational levels of the Experimental group and the Control group was rejected at 0.05 level of significance. There is therefore, a significant difference in the pupils'

motivational levels to learn in the physics classroom based on instructional strategies.

This finding is in line with that of Zemke, Elger & Beller (2004) who found that students overwhelmingly indicated that the use of effective events enabled them to more easily master different material in cooperative learning group. He further stated that those students who worked in smaller groups in cooperative learning strategy were better motivated to learn physics; this might be as a result of better accessibility to the teacher during teaching and learning process than in the Traditional method class.

### **Findings**

Following are the findings of the research:

1. The study revealed that the Cooperative learning strategy class (Experimental group) outperformed the Traditional instructional method class (control group) in the physics test and the difference in their academic achievement was found to be significant before and after controlling pre-test. However, the performance for both groups was generally below average.
2. The mean scores on pupils' motivational levels to learn revealed that the Experimental group was highly motivated whereas the Control group was only fairly motivated and their motivational levels to learn was significantly different before and after controlling pre-motivational survey.
3. This study revealed that Cooperative learning strategy is more effective than traditional instructional method.

### **Conclusion**

It is evident that the use of Cooperative learning strategy does increase pupils' academic achievement as well as pupils' motivation to learn than Traditional instructional method. Therefore, Cooperative learning strategy is more effective in the physics classroom than in the Traditional instructional method. It is therefore recommended that cooperative learning method be adopted at all levels of education because of its emphasis on social interaction among the pupils in the classroom and most especially because of its impact on improved academic performance.

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# THE UNIVERSITY ON LINE

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## Abstract

The essay presents the incorporation process in the reconstruction of distance education in Italy. The paper tries to highlight the transition from modern to postmodern society, focusing both on this extraordinary change in the landscape of cultural and communication processes, and outcomes for the education system and educational and pedagogical models that govern this relationship.

The research aims to understand, on the one hand, the potential of these techno-social environments for educational systems, and on the other, raises new questions for a sociological reflection more attentive to new social dynamics produced by these technologies.

We seek to trace the effects triggered by the advent of ICT on persons and learning systems.

We start from the idea that, despite widespread criticism, immobility of education system and the absence of an overview about the use of these new devices in teaching practices, we register a significant tendency towards change.

On the basis of these considerations, the research attempts to:

- highlight any differences in perspectives/models in use among the e-learning systems and teaching practices;
- draw a reflection of risks/opportunities, strengths and weaknesses associated with the use of such instruments/techno-social environment in educational processes.

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**Keywords:** Sociology of Education, e-learning, University, school, education, Internet, technology

## Introduction

With the transition from modern to postmodern society there is an extraordinary change in the landscape of cultural and communicative processes, with clear outcomes for the educational system and pedagogical models. These processes, thanks to the development of modern communication technologies, more and more versatile, inexpensive and easy



to use, have been incorporated by systems of distance learning.

The essay is an extract of a theoretical and empirical reflection (Capogna, 2014) organized around three themes of which we offer a partial synthesis in this essay:

- a) the evolution of Information Communication Technology;
- b) the evolution of pedagogical theories;
- c) the recognition of the experiences of e-learning in educational system.

### **Information versus communication**

With regard to the changes which have affected the communication system in recent decades, we can observe a paradigm transformation from a concept of communication conceived as "information" to another considered as "participation". In fact, communication is the essential medium for any form of relationship; basic for any learning experience, and inextricably linked to the developments introduced by new telecommunication technologies. Then, the communication appears as a multidimensional and polysemic concept. It can be studied from different perspectives with various semantic variations (Boccia Artieri, 2012; Mc Luhan, 1989; Mc Quail, 1983; Ong, 1986; Wolf, 1985).

TODAY, THERE IS A WIDELY SHARED OPINION ABOUT THE EVOLUTION OF ICT AND ENHANCEMENT OF COMMUNICATION AS A SOCIAL SPACE. THESE RELEVANT CHANGES HAVE HAD AN IMPACT ON THE EVOLUTION OF DISTANCE LEARNING, SO THE MOST SIGNIFICANT THEORIES OF LEARNING HAVE BEEN INCORPORATED IN THIS SEPARATION PROCESS THAT CHARACTERIZES THE LEARNING TRANSFERRED IN THE ABSENCE OF TEACHERS. WE MAY RECOGNIZE DIFFERENT THEORETICAL APPROACHES TO LEARNING, AND DIFFERENT SEASONS OF THE EVOLUTION OF DISTANCE LEARNING, DUE TO THE PROGRESS OF ICT. TODAY, WE ARE IN A PHASE OF IN-DEPTH REVIEW BUT ONLY OVERCOMING IDEOLOGICAL AND SECTORAL POSITION WE CAN REACH A CROSS-FERTILIZATION RESULT<sup>1</sup>.

THROUGH A BRIEF RECONSTRUCTION BASED ON SECONDARY DATA<sup>2</sup>, WE TRY TO SKETCH A PICTURE OF VARIOUS EXPERIENCES SPREAD IN ITALY. ON THIS THEME, AMONG THE DELAYS WITH WHICH THE ITALIAN EDUCATIONAL SYSTEM COMPARES, AT DIFFERENT LEVELS, THERE ARE THE

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<sup>1</sup> The essay is part of a wider research study where it is possible to verify the ICT diffusion in the Italian school system and teaching practices based on ICT instruments (Capogna, 2013).

<sup>2</sup> This refers, in particular, to Anee Reports (2004, 2006, 2010), Omnicom (2006).

INFORMATIVE DIMENSION, AT LOCAL LEVEL, AND THE RESULTING LACK OF KNOWLEDGE OR VISION SYSTEM. THIS PRODUCES A LACK OF LINKS BETWEEN CENTER AND PERIPHERY, WITH NEGATIVE OUTCOMES ALSO ON PROCESSES OF DECISION MAKING THAT ACCOMPANY EACH DEBATE ON THE EDUCATION SYSTEM.

### **Learning environments**

Today, we can distinguish three main types of technologies in use in the university, *open source*, *proprietary* and *free*. From a cursory survey of Universities portals, we can observe a significant spread of open source e-learning platforms in Italian universities.

We can also distinguish, in summary, three main approaches in the design of learning environments:

- the first one is blended to support and integrate the traditional education, to expand markets, targets and students;
- the second one, based on electronic communication, involves the construction of the course entirely in distance learning; generally it is oriented to specific groups of students (workers, adults etc.);
- the third one, is based on the model of open course wares and free diffusion. This appears like a communication strategy can have multiple purposes: to make known their areas of intervention, to do self-promotion, to attract students, to expand markets, to enhance possibilities to build networking and bridging with the broader socio-economic context.

In this type we can include *massive open online courses* (MOOCs) around which there is a spread debate about the sense, the value and quality of these learning instruments (Department Business Innovation Skills, 2013). But the creation of platforms, through which to connect an increasing number of learners and teachers, does not solve the problem of knowledge construction. The risk we run is to create an education market where the only goal is the certification more than the formation and its socio-cultural impact on subjects and contexts. The change triggered by ICT within education and training systems is indeed far-reaching. It stands at the intersection point between technology, education and market. Often, e-learning is considered as a way to respond to requests from market which come from a growing and articulated demand for training, posed by the knowledge society. It is also the way to incorporate, within formal education organizations (schools and universities), non-formal education organizations (government and public and private companies), and informal education organizations (media, Internet), new contents and services for learning, so, accompanying economic development and social inclusion policies.

One of the most significant problems affecting the development of old and new media in education systems, and the necessary critical-evaluative reflection that should accompany every learning context in Italy, is given by the absence of a vision system of different levels of education, and lack clear empirical data on the use of these tools in teaching practices.

### **The Italian way to e-learning**

Although the Italian university arrived late to e-learning, since 2003 there has been a steady growth in the supply of educational courses, supported by e-learning systems. Italian universities that provide training courses organized based on e-learning systems increased from 24 to 45 out of a total of 77 (58,4%)<sup>3</sup>. In 2006 six new telematic universities were established bringing the total to 11.

Often we find dedicated centers or facilities, although not all universities devote full visibility to this training method, which is not always readily available on the home page of the University. This shows a certain weakness in the universities policies regarding abilities and strategies to adopt an integrated communication plan that can enhance and present the learning environment chosen.

In just two years, we registered a strong increase in the offer of Degree Courses in Distance learning. There has been a proliferation in the number of students who choose to study in an e-learning environment. They have passed from 9.376 a.y. 2006-2007 to 19.463 in on-line universities, and from 12.918 to 35,199 in non telematic universities. The e-learning offered by telematic universities assume an increasing importance in the wider area of the university offer (CNSUV, 2010). In 2007-2008 the 11 telematic recognized universities had a total of about 14,000 members, rising to 17.000 members in 2008-2009 a.y. However, this is about 1% of all students enrolled in the Italian universities. Only three of these universities registered in 2010 more than 2.000 members. Analysing the composition of the population enrolled in these universities, we find that, generally, these students are over 25 years of age; very often they are people with a past spent in conventional universities, or people who are already working. In total, in the academic year 2007-2008 249 undergraduate courses online were granted. On the basis of the statements on websites, about 89% of Italian universities include in their educational offer proposals for distance learning.

The spread of e-learning courses has increased compared to previous years; in fact, we move from 32% of Italian universities who used this training method in 2004 to 68,8% in 2006.

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<sup>3</sup> Observatory Aitech-Assinform, 2006.

As in previous studies we have observed a significant rate of increase among universities that use distance learning (10 in 2004 and 31 in 2006).

We observe an increased of Italian universities that offer training in e-learning courses, going from 73% of the sample in 2003 to 92% of the sample of 2006. A growing number of universities that have structured whole online degree programs courses, turning to a particular target (working students, disabled, etc.). This is especially true in the field related to education sciences, engineering and social sciences. This data is also confirmed by research ELUE according to which e-learning initiatives conducted by Italian universities are concentrated in the areas of humanities (25%), engineering (23%) and social sciences (18%) (ELUE 2006). Despite an appearance of immobility and a lot of criticism, not always well-founded, this short examination shows the significant turmoil that exists in the Italian universities, on which, now, we will try to reflect focusing on the type of experiments and opportunities, projections and risks that we can view. In reference to the diversity of perspectives and models in use, we can observe different realities. We can recognize a spreading of hybrid models which use distance learning systems in various ways. Very often, they tend to use technology as a vehicle for transmission of learning content characterized by lack of multimedia connotation. This should not be considered completely negative, because it also responds to the need to promote access and inclusion of subjects with technological, cognitive emotional and use digital divide (Dijk, 2006, 2011). The first model aims to organize the on-line learning environment geared to replicate symbolic spaces that represent the places of knowledge, to accompany the insertion of the new entry activating resources gained in experiential education. The second one winds around the role of actors involved in the training program. In this case, the emphasis is on the relationship between parties involved and different areas of interaction. The first model enables the routines of knowledge, while the second stimulates most creative and subjective dimensions. The proliferation of courses, tests and telematic universities, suggests to consider the transition from the traditional model of universities, that incorporate the process of building and transmission of knowledge within rigidly determined borders and paths, in what is called multiversit@s, which gives rise to a multiplication and differentiation of opportunities for students and teachers. But the multiplication of universities, courses and opportunities may not result in the risk of de-skilling of knowledge, nor of its certifications, especially in a country where (and as long as) the regulatory framework recognizes the legal validity of titles of study.

### **Risks and opportunities of on line learning platform**

To operate a reflection based on the logic of a Swot Analysis, we

offer a summary of risks and opportunities, strengths and weaknesses, observed in educational processes with the use of these instruments and techno-social environments.

Among the **strengths** we can include: the liveliness of experimentations we register at bottom-up level; the diversity of models and theoretical approaches which correspond to a variety of implementative solutions; the advanced state of experimentation that allows us to operate critical reflections and evaluation actions; the speed of information and communication and the opportunity to capitalize the knowledge; the greater attention to the quality standards of process and products; the skepticism between a certain part of the teaching staff.

With regard to **weaknesses** we can mention: the chronic shortage of economic, human, professional, structural and technological resources; the shortage of clear e-learning policies; the absence of a copy right policy; the lack of educational and methodological skills for the development of ICT in teaching; spontaneity of initiatives unable to run critical mass and promote learning organization.

Regarding the **opportunities** we can indicate: the progressive lowering of costs in relation to the diffusion of ICT and technological infrastructures; the presence of diversified technology partners; the increasing ease in the use of technology; the variety of ways of teaching made possible by the old and new media panel; the openness to the global market; the variety of opportunities.

Finally, for a reflection on **risks** we have to mention: the absence of vision and policies of development at the decision making level; the lack of public investment in this segment; the inadequate technological infrastructure support in our country (Caio, 2009); a certain lack of research on these issues; a significant delay in terms of international comparisons in the field of e-learning; a considerable national delay in the ICT sector in the development of products, management software and contents marked by culture, creativity and Italian design.

## Conclusion

It is now time to ask what role education systems can and should play in view of the fact that they can no longer be separated from a critical confrontation with the new social reality. However, it remains a strong conviction that no effort may be sufficient if we do not mature, at policy level, a vision of system on what could be the contribution of this sector in the overall framework of national development. But, at the same time we need to advance a management awareness of the importance of e-learning development in every organizational contexts. This is the first step to capitalize isolated experiences and produce a real change in a logic of

learning organization and quality assurance. However, as we have also tried to show in the research work, of which this essay is only an excerpt, any uncritical acceptance must be repudiated. The form in which it is spreading the use of old and new media in education can not be passively accepted. Agreeing with Clegg, Hudson and Steel (2003), here it is argued the need to counter both the technological determinism as the uncritical acceptance of a neo-liberal vision of technological globalization. Technologies are never neutral but are always a concrete product and outcome of the historical and social relations and, as such, the embodiment of power relations and technique capabilities emerging that derived from it. ICT, being manufactured, is the result of complex social processes, which are never free from the risk of gender differences and accumulation strategies of their manufacturers and suppliers. Even looking at the way in which e-learning has developed in the university we can not avoid the fact that this has occurred, for the most part, under a managerialist fashion, sometimes more oriented to a 'save' or 'invest' objective rather than teaching

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# COMPATIBILITY OF TEACHING STYLES WITH LEARNING STYLES: A CASE STUDY

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## Abstract

In order to enhance teaching quality and improve its effectiveness, attention must be paid to the compatibility of the instructors' teaching styles versus the students' learning styles, which play a vital role in how much knowledge the students can gain from the material presented in class. This paper presents the results of a study carried out on the mechanical engineering students and their instructors at the United Arab Emirates University. Results showed that the students learning styles are balanced: active-reflective, intuitive-sensor, visual-verbal and they prefer global over the sequential learning style. Moreover, the instructor's teaching styles were a mix of expert, formal-authority, personal-model and delegator. This spectrum of teaching addresses most of the students learning methods, which reflects positively on the learning process. This paper provides recommendations that instructors can implement in order to furthermore enhance the teaching process.

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**Keywords:** Teaching styles, Learning styles, Compatibility

## Introduction

Students vary in the way they receive and process information; this is due to the fact that they have different learning styles. Knowledge of students' learning styles can assist educators in planning their classes to ensure reaching each major style with planned activities. "...like all other teaching tools, knowledge of learning styles can work only if other qualities of good teaching are also prevalent" Mamchur, 1996.

Learning styles are defined as "a certain specified pattern of behavior and/or performance, according to which the individual takes in new information and develops new skills, and the process by which the individual retains new information or new skills" Sarasin, 1999. Learning styles are



characterized as how people acquire and understand new knowledge and skills. Thus a student's learning style is closely related to the way in which he actually processes and retains the information about that new skill or knowledge he is given. Students will generally have trouble processing information in one way and trying to learn or be assessed on that information in a method that is unsuitable for them. "When a teaching style doesn't meet the needs of a particular learning style, not much learning takes place" Gregorc, 1984.

Instructors develop a teaching style based on their beliefs about what constitutes good teaching, personal preferences, their abilities, and the norms of their particular discipline. Some believe classes should be teacher-centered, where the teacher is the expert and authority in presenting information, Anthony, 1996. Others take a learner-centered approach, viewing their role as more of a facilitator of student learning. Although individuals have a dominant, preferred teaching style, they will often mix in some elements of other styles.

There are extreme differences in how people process information and learn. Constructivist, student-centered teaching focuses on teaching for understanding rather than covering the curriculum. Student-centered teachers create learning environments (in the classroom or online) which encourage learners to examine their current beliefs, enable them to explore and be exposed to new ways of thinking, and include experiences which require them to re-formulate their understanding. Instructors and designers of learning experiences should have an awareness of the diversity of learning styles which allows them to include features that appeal to different kinds of learners and helps students get the most out of their learning experience. This approach needs not to be taken to the extreme, but often small modifications to a basic design can dramatically expand its utility for different learning styles. Instruction which focuses on development of the "whole brain", including intuition, sensing, imagination as well as analysis, reason and sequential problem solving will reach a greater portion of students with various learning styles.

Carolyn Mamchur, 1996 says, "Understanding individual learning preferences and differences is an increasingly popular and useful tool, serving teachers in four ways. First, teachers have a method to teach that is diverse and adaptive enough to meet the various learning style needs of students who are not necessarily oriented toward schooling. Second, teachers can indicate to students that they care about the individuality and integrity of each learner. Third, because learning style is related to teaching style, teachers can better understand their own teaching styles strengths and weaknesses. And fourth, teachers can gain insight into how they work together in this particular world we call school."

Students will gain more knowledge, retain more information, and perform far better when teaching styles match learning styles, Lage, 2000. However, it is recognized that it is difficult to match with every learning style and therefore, a portfolio of teaching styles is recommended, Moallem, 2001.

This paper presents the results of a study on the compatibility of the teaching and learning styles for the mechanical engineering students and their instructors at the United Arab Emirates University.

### **Teaching Styles**

Teaching style is the mechanism of how we convey the knowledge and information to students. Style also reflects what Reinsmith, 1992 and 1994 describes as the instructor's presence and the nature and quality of the encounter with students. As a result, the efficacy with which we display our styles as teachers has two effects on students. It may facilitate or hinder their ability to acquire content and skills and it influences the learning styles our students adopt.

Teachers' personal qualities direct the selection of the way they deliver the substance of the matter. There is a symbiotic relationship among personal qualities, the instructional processes teachers employ to convey the content of discipline, and the styles students display as learners, Grasha, A.F. (1994).

Teaching styles are viewed as a particular pattern of needs, beliefs, and behaviors that faculty display in classrooms. The Grasha-Riechmann teaching style model was used in this study. The five teaching styles as defined by Anthony, 1994 are shown in the next subsection.

### **Dimensions of Teaching Styles**

**Expert:** The instructor possesses knowledge that the students need. He strives to maintain status as an expert among students by displaying detailed knowledge and by challenging students to enhance their competence. He is concerned with transmitting information and insuring that students are well prepared.

**Formal Authority:** An instructor-centered approach where the instructor feels responsible for providing and controlling the flow of content which the student is to receive and assimilate. The formal authority figure does not concern himself with creating a relationship with the student nor is it important if the students build relationships with each other.

**Demonstrator or Personal Model:** An instructor-centered approach where the instructor demonstrates and models what is expected (skills and processes) and then acts as a coach or guide to assist the students in applying

the knowledge. This style encourages student participation and utilizes various learning styles.

**Facilitator:** A student centered approach where the instructor facilitates and focuses on activities. Responsibility is placed on the students to take initiative to achieve results for the various tasks. Students who are independent, active, collaborative learners thrive in this environment. Instructors typically design group activities which necessitate active learning, student-to-student collaboration and problem solving.

**Delegator:** A student-centered approach whereby the instructor delegates and places much control and responsibility for learning on individuals or groups of students. This type of instructor will often require students to design and implement a complex learning project and will act solely in a consultative role. Students are often asked to work independently or in groups and must be able to effectively work in groups.

### **Solomon-Felder Model for Learning Styles**

Student preferences in the reception and processing of information formulate the preferred learning style for a student. The compatibility between the instructor delivery style and the student learning style partially contributes to the percentage of the learning a student attains in a class. A mismatch between the instructor teaching style and the student style may lead to a failure in the learning process, Felder, 2005 and Coffield, 2004. There are a number of models, assessment tools and methodologies designed to test the learning styles Felder, 1988. In Engineering and Science Education two instruments have been widely recognized: Kolb's Learning Style Inventory (LSI) Kolb 1983 and Solomon-Felder Index of Learning Styles (ILS). The styles assessment tool is an opinion survey. In this study, the ILS assessment tool was used. It consists of 44 multiple-choice questions. The instrument is conveniently available on the internet, Solomon, 2008. The ILS model classifies students according to where they fit on a number of scales pertaining to the ways they receive and process information. The ILS model classifies learners along four dimensions; namely, (1) Active-Reflective, based on Kolb model for processing information, (2) Sensor-Intuitive, based on Jung's theory of psychological types, (3) Visual-Verbal, and (4) Sequential-Global. The last two dimensions are based on dimensions of other models, Grasha, 1994. The number of the possible different learning styles according to the ILS model is (24=16).

### **Dimensions of Learning Styles**

In this study, the ILS assessment tool was utilized, Solomon 2008. This tool is based on responding to 44 multiple-choice questions designed to

classify a respondent's learning style along four dimensions active-reflective, sensing-intuitive, visual-verbal and sequential-global dimensions.

#### Active-Reflective

This dimension deals with the processing of the perceived information. An active experimentation learner prefers to experiment with, discuss, test and explain the perceived information. Active learners prefer group work. Active learners tend to be experimentalists. Reflective observation learners prefer to examine and manipulate the information introspectively. Reflective learners prefer independent work. Reflective learners tend to be theoreticians. The active learning style is closely related with the C and D thinking styles, while the reflective learning style is closely related with the A thinking style.

#### Sensor-Intuitive

This dimension deals with the perception and organization of information. Sensing involves observing, gathering data through senses, intuition involves indirect perception through speculation, imagination and guessing. Sensor learners prefer facts, data and experimentation, solving problems using standard methods, memorizing facts. Intuitior learners prefer principles and theories, challenging new concepts, innovation and dislike repetition. The sensor learning style is closely related with the B thinking style, while the intuitive learning style is closely related with the D thinking style.

#### Visual-Verbal

This dimension deals with the input of information. Visual learners prefer information presented in pictures, diagrams, movies, demonstrations and charts. Verbal learners prefer information said to them. They prefer verbal discussion and presentation more than that presented by other input modalities.

#### Sequential-Global

This dimension deals with the understanding of the information. Sequential learners prefer an ordered progression in presenting the material while global learners like to see the whole scheme of the presentation in order to comprehend the information.

Sequential learning styles are closely related to the B thinking style while the global learning style is closely related to the D thinking style.

## Results and Discussion

The data for this research has been collected from 40 ME students from the UAEU. The Solomon-Felder model was utilized in order to assess the students' learning styles. A total of 12 instructors participated in the teaching style survey.

The dominant learning styles for the whole sample was analyzed statistically, the error in the statistics analysis assumes 5% error. Figure 1 shows the distribution of the four dimensions of learning styles for all students who participated in the study. For each dimension, the distribution is shown from strong (9-11) to moderate (5-7) to weak (1-3) scale. Figures 2 a-d show the dominant learning styles for the whole student population at the mechanical engineering department at the UAEU. The negative notion is used to present the whole domain on the same figure as was used in Soloman , 2008. The negative scale is indicated for the first modality in each domain. For example in Figure 2-a, the negative is indicating a predominant active domain. Figures 2 a-d show that the majority of students are balanced active-reflective, intuitive-sensor, visual-verbal and sequential-global learners. There is however a small skew toward reflective, intuitive, global and verbal learning styles over active, sensor, visual and sequential learning styles, respectively.

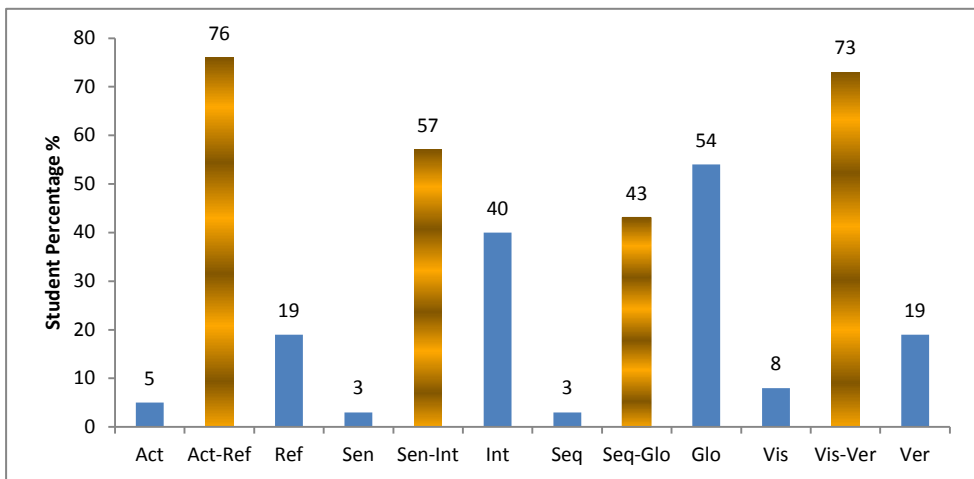


Figure 1. Mechanical engineering students learning styles at UAEU

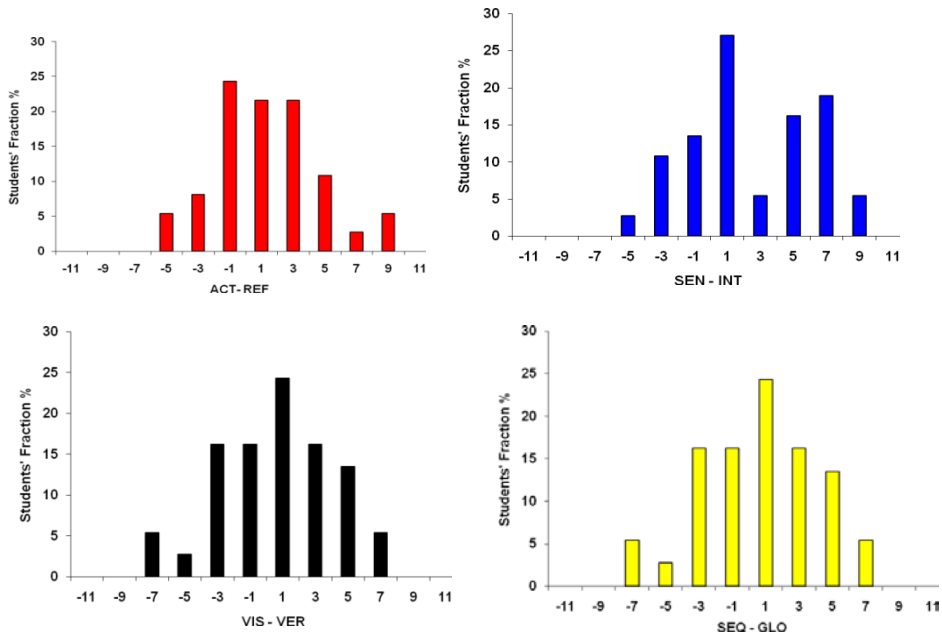


Figure 2. Mechanical engineering students learning styles distribution at UAEU a) active-reflective, b) intuitive-sensor, c) visual-verbal and d) sequential-global

The teaching style survey results, shown in table 1, revealed that the ME faculty's primary teaching styles are expert, formal authority, personal model and delegator, whereas the secondary teaching style is the facilitator. Such a combination of teaching styles provides the students with information, knowledge, and skills that the instructors possess. The focus is on clear expectations and acceptable ways of doing things. The emphasis is on direct observation and by following a role model. Furthermore, it helps the students to perceive themselves as independent learners. However, the downfall for such a combination is that if the knowledge and the information the instructors possess are overused, it will be intimidating to less experienced students. It may not always show the underlying thought processes that produce answers. If the formal authority teaching style is strongly applied, it can lead to rigid, standardized, and less flexible ways of managing students and their concerns. The delegator teaching style may misread student's readiness for independent work. Some students may become anxious when given autonomy.

Teaching Style	<i>Low</i>	<i>Moderate</i>	<i>High</i>	Average Score	Remarks
Expert	1.0-3.2	3.3-4.8	4.9-7.0	5.7	High
Formal Authority	1.0-4.0	4.1-5.4	5.5-7.0	5.5	High
Personal model	1.0-4.3	4.4-5.7	5.8-7.0	5.4	Moderate
Facilitator	1.0-3.7	3.8-5.3	5.4-7.0	5.3	Moderate
Delegator	1.0-2.6	2.7-4.2	4.3-7.0	4.7	High

Table 1 Teaching Styles of the ME Faculty

## Conclusion

Since the ME students learning style fall within the reflective-active range it is recommended that the ME instructors provide more discussions, problem-solving activities; students retain information better when doing something with it. At the same time, provide time to think about the material, not just read & memorize; write summaries, devise questions and possible applications of the content.

40% of the students prefer the intuitive learning style over sensing, while 57% are in the midrange of intuitive and sensing, therefore, it is recommended that the ME instructors should focus more on interpretations and theories which connect facts; provide time to read questions thoroughly and recheck results.

Most students preferred global learning style to the sequential. For such students, it is recommended to provide overviews of material before getting into specifics; show how topics are related to other relevant course material or knowledge students may have from previous experiences.

73% of the students prefer both verbal and visual leaning styles. It is recommended to incorporate meaningful pictures, diagrams, charts, timelines, video, demonstrations whenever possible; concept maps are good for listing key points and demonstrating relationships and can be color-coded and to summarize or outline content verbally so that students can transcribe in their own words; working through ideas in groups can also be effective.

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# **ENTERING AND STAYING IN THE SCHOOL OF HUMANITIES OF THE UNIVERSITY OF MAR DEL PLATA. ACADEMIC HOMOGENIZATION OR HIDDEN EXCLUSION?**

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## **Abstract**

This work forms part of a larger project that proposes the reformulation of content structures and pedagogic practices at the School of Humanities of the University of Mar del Plata. The project has a twofold objective: To improve the retention rate of 1<sup>st</sup> year students by implementing actions related to the disciplinary and institutional areas and by developing mechanisms that would help the undergraduates in the process of “becoming college students”; and to strengthen the links between secondary and higher education in order to improve the students’ possibilities of accessing and remaining in university. This presentation reports the work done so far in relation to the first objective.

The different courses of studies offered by the School of Humanities show a high rate of dropouts among 1<sup>st</sup> year students. In a survey carried out among students and teachers the main reason for these dropouts was reported to be the lack of academic training with which students enter university.

This paper will address the reasons that generate a kind of silent violence that is manifested in the difficulties students have in getting adapted to the university context, both socially and academically, and which derives in exclusion and self-exclusion when the students find too many obstacles to

pursue their studies and, therefore, drop out. From a social perspective, these students belong to low-income groups; they come from marginal secondary schools and have parents who lack a university education. Our aim is to exchange viewpoints and experiences with colleagues from different universities on the different issues that relate to this sort of hidden exclusion.

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**Keywords:** Entering – Staying – Inclusion - Academic exclusion – Silent violence

Becoming a college student means getting integrated to a place where learning takes place. College students have to read a lot, think, discuss, question, make mistakes and acknowledge them, write and talk. Besides, they need to develop an ability to deal with the complexity of educational structures, make informed decisions and manage their educational careers. All this generates a strong burden on Argentine youngsters who enter university with scarce abilities to cope with the demands of higher studies, probably because of the way education is conceived and, consequently, delivered in our high school system. This paper addresses these issues on the basis of a project carried out at the School of Humanities of the National University of Mar del Plata.

This work forms part of a larger project that proposes the reformulation of content structures and pedagogic practices at the School of Humanities, and develops from one of the tasks being carried at the moment in the framework of the Programme for the Support of the Human Sciences, derived from an agreement between the Ministry of Education and the University of Mar del Plata. The overall project has a twofold objective: to improve the retention rate of 1<sup>st</sup> year students by implementing actions related to the disciplinary and institutional areas and by developing mechanisms that would help the undergraduates in the process of “becoming college students”; and to strengthen the links between secondary and higher education in order to improve the students’ possibilities of accessing to and staying in university. In this paper, the focus will be on a preliminary evaluation of the situation of 1<sup>st</sup> year students of the different courses of study offered at the School of Humanities.

According to María Cristina Rinaudo many specialists agree that university graduates should be able to:

- Understand complex concepts
- Use knowledge (ideas, theories, etc.) creatively
- Evaluate critically what they read
- Write and talk clearly

- Take responsibility for on-going learning<sup>4</sup>

What should students entering university be able to do? How deep is the gap between what students bring from secondary school and what they need to know and manage by the end of their university studies? How does social and family background affect the possibilities of success or failure? Why do so many students fail to succeed in their attempts to become university students? Why do so many students drop out in 1<sup>st</sup> year? To what extent are universities responsible for these dropouts?

In the last years, there has been a strong debate in Argentine educational circles on the reasons that cause a high number of dropouts in the first year of university and the possibilities that universities have of dealing with this and finding a solution. According to Paula Carlino, *“learning at university is not a guaranteed achievement. It depends on the interaction between the students, the teachers and the institution. It depends on what the learner does, but also on the conditions we offer as teachers. In this light, the responsibility of students’ success is shared by the teachers and the institutions, and the students themselves.”* (Authors’ translation).<sup>5</sup>

In 2005, María del Carmen Parrino claimed that the number of dropouts at university level reached % 60, and also that, according to various studies, the main reasons were related to personal issues (% 47). Financial reasons reached % 20, within which % 39 were related to the need of the students to start working, % 27 to a decrease in the family income, and % 20 to the effects produced by the cost of the studies on the family budget. Also, academic reasons were mentioned (% 20), while % 12 corresponds to problems related to vocation.<sup>6</sup>

It is also worth mentioning that in 2001 the National Census showed that % 3, 14 of the country population graduated from an Argentine university, a percentage that is similar to that of the number of illiterate people in the country.

At present, Argentina is not the only country where the rate of dropouts at university level has increased in the last years. In Spain, it ranges between % 30 and % 50 and these numbers are similar in other European countries, namely France and Austria, and in the United States. In other

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<sup>4</sup> Rinaudo, M.C. (2010) *Para aprender en la universidad*. Córdoba, Ediciones UBP y Encuentro Grupo Editor. Pág. 21 y 22.

<sup>5</sup> Carlino, P. (2009) *Escribir, leer y aprender en la universidad: Una introducción a la alfabetización académica*. Buenos Aires, Fondo de Cultura Económica. Pág. 10

<sup>6</sup> Padrino, MC (2005) *V Coloquio Internacional sobre Gestión Universitaria en América del Sur. Poder, Gobierno y Estrategias en las Universidades de América del Sur. Aristas de de la Problemática de la Deserción Universitaria*. Mar del Plata, Argentina del 8 al 10 de diciembre.

European countries, however, the rates are much lower, such as in Finland and Switzerland, according to a report published by Margarita Latieza, professor of the University of Granada.<sup>7</sup>

The numbers for Argentina illustrate that there is a problem of interrelationship among the different levels of the educational system, since high school students do not seem to be acquiring the competencies needed for higher education, and also that there should be a reformulation of educational and institutional policies that will guarantee the entrance and also the stay of students at university.

This situation is also observed at the University of Mar del Plata and this Project intends to delve into the problems from different perspectives. So far we have gathered some baseline data which will support future actions. On the one hand, we carried out a survey among 1<sup>st</sup>. year students and teachers to try to understand their perceptions of these issues. On the other, we analysed the programmes of 1<sup>st</sup>. year courses, in an attempt to see how the students' and teachers' concerns identified in the survey are addressed in the designs and plans of the courses.

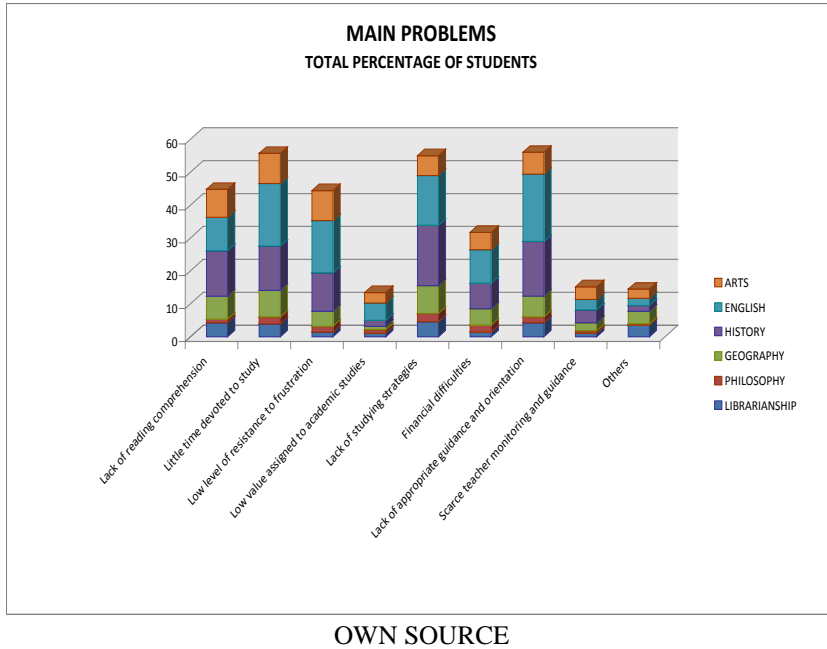
In the following sections of this paper, the results of the survey and the analyses of the courses programmes are reported. Finally, some conclusions and insights got from the analysis are discussed.

### **The survey**

In order to find out which are the main reasons that 1<sup>st</sup> year students and teachers at the School of Humanities identify as being the causes of difficulties during the first year of studies, we carried out a survey which offered the following results.

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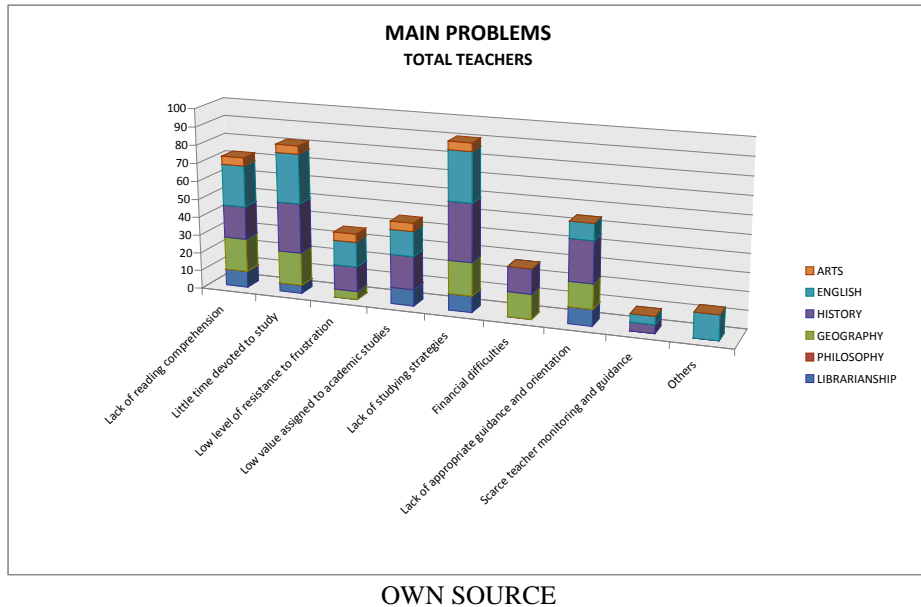
<sup>7</sup> Para ampliar, ver Latieza, M (2010) *La deserción universitaria*, España, Siglo XXI, Pág. 10



**Each column represents the total number of students that answered the survey.**

Among the 248 students who answered the survey, % 55.9 believes that the problem is that they lack appropriate guidance to deal with the new demands and the academic environment; while % 55.7 claims that they do not devote enough time to study. % 55 thinks that they lack the right studying strategies and % 44.7 that the problem is reading comprehension. % 44.4 claims that the main difficulty is their low level of resistance to frustration.

Twenty two teachers from the different courses of study participated in the survey. The first question of the survey, which is the one that provides information about the causes of problems in 1<sup>st</sup> year, was the same as the one in the students’ survey. The teachers’ answers are presented in the following diagram.



The results show the following order of priorities for the teachers:

- Lack of studying strategies: % 91.9
- Little time devoted to study: % 81.8
- Lack of reading comprehension: % 72.7
- Lack of appropriate guidance to deal with the new university demands and the academic environment: % 54.5
- Lack of value assigned to academic studies: % 45.4

Based on the insights got from the results of the survey, we decided to see what is being done in 1<sup>st</sup> year courses in relation to the students' problems, because we understood that, if the teachers had identified the same problems, they were probably doing something in their courses to help the students overcome some of their difficulties. Some of the teachers who answered the survey expressed their willingness to participate in some kind of programme or project to deal with these matters. We decided to have a look the 1<sup>st</sup> year programmes to find some information related to the issues at stake.

### Analysis of course programmes

In an attempt to understand the several issues that appear to be related to the difficulties that students face during 1<sup>st</sup> year at university, we decided to analyse the syllabuses of the core 1<sup>st</sup> year courses of the following courses of study: History, Geography, Librarianship, and English. The aim was to get some information about the courses with the higher number of students in 1<sup>st</sup>

year and to have enough data to create better tools to improve the pedagogic actions to be taken to help students stay at university and succeed in 1<sup>st</sup> year.

The number of students that enrolled for each course and the number of students that finished the courses are presented in the following chart:

<u>Courses of Study at the UNMDP</u>	<u>1<sup>st</sup> year core courses</u>	<u>Students enrolled in the course</u>	<u>Students who finished the course</u>
HISTORY	Introduction to Historical Practice	197	88 %44,67
GEOGRAPHY	Introduction to Geography	102	44 %43,13
LIBRARIANSHIP	Introduction to Information Sciences	77	32 %41,55
ENGLISH	Written Discourse I	52	33 %63,46

OWN SOURCE

These numbers show that there are a lot of students who register for the 1<sup>st</sup> year courses who cannot get to the end of them, either because they fail the exams or because they decide to drop out for other reasons.

In the analysis of the syllabuses, we tried to see if the problems identified in the survey, both by students and teachers, were in some way being considered in the objectives, contents or activities planned for the different courses. The analysis was based on:

- **The objectives that relate to the problems highlighted in the survey**, since it is possible to help students overcome their difficulties and succeed in 1<sup>st</sup> year if their concerns and weaknesses are appropriately addressed.

- **The objectives and activities that contribute to critical thinking.** Critical thinking is a crucial competence students need to develop at university level, and it is important to plan actions to assist them gradually. Sometimes university teachers take critical thinking abilities for granted and, therefore, do not include them as part of the objectives for their courses.

- **The integration of content and competencies.** Discipline-specific competencies should be integrated to the teaching of content to guarantee effective learning.

- **The relationship between objectives and evaluation.** Many times evaluations assess competencies which are not taught during a course, but which are assumed to be part of what the students should already know, and, therefore, are neither stated as part of the course objectives, nor taught during the course. This is a serious drawback for students who, after making a great effort to comply with the courses' requirements, are unable to achieve the expected standards.

The analysis done showed that many of the problems identified in the survey are only partially considered in the courses offered in 1<sup>st</sup> year. All the programmes include at least one objective related to critical thinking abilities, as well as one or two related to reading comprehension abilities, although it does not become clear how these objectives are expected to be achieved. There are no objectives that clearly refer to studying or learning strategies, but in all the cases the description of learning activities shows an integration of discipline-specific competencies to the teaching of content. As regards evaluation, only one of the programmes specifies criteria for assessing students, while the others only mention instruments and dates.

Through the analysis of the programmes it is not possible to see if the teachers acknowledge the specific problems that 1<sup>st</sup> year students face at present. If we consider the information gathered together with the number of students who successfully pass the courses, we see a need for specific actions that address the issues discussed.

### **Lines of Action**

Young people experience a sort of silent violence as they face failure at university, when they cannot understand what they read or cannot participate in a lesson. Very often, university teachers blame the high school system for the students' poor academic abilities. This combination of students who are academically illiterate and cannot cope with the demands of university life, and teachers who disclaim responsibility for what was not done before and for what is not done at university, derives in exclusion from the educational system.

The notion of *silent violence* has been taken from Luis Correa Aydo, who uses it to *describe processes which have a strong impact on young people's subjectivity, but which are not perceived by the common observer. The term refers not only to a kind of internalized violence, but also to the reflection of it in the acts and productions of young people who are not, or do not seem to be, violent.* Aydo claims that *we are usually concerned with a kind of violence that is "noisy", that can be heard and seen, and that is so concrete that leaves a trail on bodies and objects, but in the case of silent violence he is extending the meaning of the notion to a symbolic level.*<sup>8</sup>

The work done in the framework of this project has led us to reflect upon how silent violence and, therefore, exclusion, affect the lives of our students at the School of Humanities of the University of Mar del Plata. In an attempt to start working towards a solution to one of the most salient

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<sup>8</sup> Correa Aydo, L. (S/F) *Violencia silenciosa en el proceso adolescente*. Biblioteca On line. Asociación Psicoanálisis del Uruguay. Pag. 2 [http://www.apuguay.org/portada\\_biblioteca](http://www.apuguay.org/portada_biblioteca)



problems identified by students and teachers, namely students' lack of academic preparation for coping with the complexities of university studies, we propose to offer an academic literacy course to 1<sup>st</sup> year students. The aim is to improve the students' possibilities of finishing 1st year successfully and pursuing their objective of getting a university degree and becoming competent professionals.

To become academically literate, a person has to familiarize himself with the levels of communication that exist within all the areas of his academic environment. In higher education, academic literacy refers to the notions and strategies needed to participate in a specific discipline's discursive culture, as well as the activities of production and analysis of texts required to study at university. (Carlino, Paula, 2009)

Together with a course on academic literacy, new strategies and actions should be implemented in the different courses, especially in 1<sup>st</sup> year, which would assist students and gradually involve them in the analysis and production of disciplinary texts. Also, a workshop for teachers at university, where the results of this work and other experiences are shared, may help them acknowledge the silent violence that students face in their attempts to become university students.

### **Conclusions and final reflections**

Numerous investigations report on the large number of dropouts in 1<sup>st</sup> year in Argentine universities. The student who reads but cannot understand, the one who feels himself excluded from the university environment because he cannot understand its dynamics, the one who feels that the teachers do not care about him, the one who faces financial troubles and cannot devote enough time to study because he needs to work, that is the student who suffers the consequences of silent violence.

If we consider the perceptions that our students have in relation to failure in their studies, i.e. lack of appropriate guidance to deal with the university demands and the academic environment, little time devoted to study, scarce studying strategies, lack of reading comprehension abilities, and lack of value assigned to academic studies, we can understand that there exists a component of the university environment that excludes them.

We observe a situation of marginalization of the more vulnerable groups of our society that seems to be inherent to university life. Let us have a look at each of the issues identified in our survey:

- As regards the lack of appropriate guidance to deal with the new university demands and the academic environment, there are no mechanisms, such as tutorials, that may assist students in the process of becoming university students, and the characteristics derived from the socio-economic conditions generate feelings of frustration. Paper work, registration in

different offices or on-line, medical check-ups, etc. may result a true challenge for the 1<sup>st</sup> year student. For those students from families with little experience of university education, it can be difficult to adapt to the new institutional context, and feelings of frustration and powerlessness on the part of the students may derive in self-exclusion. "Education has been subject to a process of marketization in which knowledgeable consumers with spending power are advantaged while others can be marginalized." (Furlong 2009).

- The amount of time devoted to study may be associated to the characteristics of the present state high school system. The standards of public education in Argentina have decreased dramatically in the last years, and the consequences can be clearly observed when students finish high school and enter university. It is during the last years of secondary education when students are supposed to learn how to handle study time appropriately, and to develop the studying and learning strategies necessary to understand different types of texts. Unfortunately, once students enter university, they are on their own to solve their lack of appropriate preparation for what they have to face.

- As regards the lack of value assigned to academic studies, it can be argued that, since many times teachers hold low expectations about the possibilities of success of students who belong to lower class families, those students develop an image of themselves that responds to their teachers' expectations. Like in a vicious circle, when teachers have no faith in their students' chances of success, students do not see themselves as capable of pursuing higher studies, and, consequently, assign little value to what university offers to them. On top of this, there seems to be a general lack of tolerance in certain university circles where, according to Silvia Rivera and Alejandro Margetic<sup>9</sup> some teachers see themselves as a sort of scientific aristocracy, a circle of experts that requires of these young new students an excessive epistemological precision that confuses them and "forces" them into self-exclusion. Students feel that they are unable to achieve the type of erudition and formalism characteristic of hegemonic knowledge, and, therefore, may not regard education as a worthwhile endeavour.

We are clearly referring to hidden exclusion when the standards for evaluation are too high for students whose social and academic background does not allow them to cope with the demands of higher education. This hidden exclusion is in fact the result of the inability of university teachers and institutions to adapt to the situation and do what is needed to help students achieve the objectives of higher education. In the name of

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<sup>9</sup> Rivera, S. y Margetic, A (2005) *La intolerancia epistemológica como forma de exclusión del saber*. Buenos Aires, Universidad de Lanús

homogenization and high standards, universities ignore their responsibility and abandon those students with poor educational skills who are unable to participate in the academic activities taken for granted in university circles. Exclusion is legitimized by those who claim that it is necessary to give everyone the same, and do not take into account that each student is unique and has the potential of achieving the goals of higher education working from his or her own capacities.

It is not surprising that in certain disciplines, such as social work, the processes of marginalization and exclusion have become a central issue and that in some Canadian universities core courses are offered on Diversity and Social Justice<sup>10</sup>, in an attempt to generate empathy for the social differences that cause exclusion and inequity. Some of these processes have historical roots inherent to some cultures, while others are the result of globalization and the increasing search for dignified work that has generated the major migratory process ever seen on earth.

Many authors have worked on this phenomenon of marginalization of young people from educational systems as a process that has developed in our societies for different reasons. Andy Furlong claims that marginalization presents different characteristics in each country, but that immigrant groups are the ones that usually find more difficulties. In our city, foreign immigration is not strong, with the exception of Bolivian immigrants who are not represented yet at university. However, social exclusion can be observed in everyday life as a by-product of the neoliberal economic policies that in the last twenty years have transformed our society. On the other hand, in spite of the claims of different governments in recent years of having increased the number of years of compulsory schooling, arguing for equity and social support, this has in no way put an end to the problem of school dropouts in the country.

Our university is a representative part of the social structure of our country, and it is important to understand that generating the means to promote inclusion can make a crucial difference. Probably, if college students were considered as adults who learn and can contribute to the development of knowledge, it would be possible to work on their unique social realities and share a dialogue on the marginalization and exclusion processes from the students' own perspective. By working on critical and reflective thinking strategies, and by encouraging a culture of dialogue among students and teachers to explore multiple perspectives and solutions, without aiming at the identification of one single truth, it would be possible

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<sup>10</sup> Bhuyan Rupaleem (2010) *Social Exclusion, Marginalización & Resistance*, University of Toronto. On line noviembre 2010 <http://technologiesofresistance.wordpress.com/>

to have student-friendly universities that generate knowledge useful to solve local problems and to improve the standards of living of the whole society.

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# **FRACTAL VARIATIONS OF RESEARCH AND TEACHING IN TOP RANKING UNIVERSITIES IN ASIA AND THE WORLD**

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## **Abstract**

This paper shows the variations of teaching and research in the performance of the top ranking universities in Asia and the World. The researchers found out that research involves knowledge production and teaching involves knowledge transmission, and that these are discrete activities in the university. Fractal features and analysis were used in this study in additional texture parameters. Observations are seen that in Higher Education Institutions (HEIs), a great emphasis is placed upon the conduct of research and thus other areas, including Teaching, may be given a lesser priority. Results revealed that research is highly correlated with teaching. Most of the faculty members focus more on research as one of the criteria in the top ranking universities.

## **1.0 Introduction**

Teaching performance and production of research in higher education institution is one of its top priorities. Several international debates about the relationship between research and teaching emerged because of it's of several research findings that are inconsistent. Program evaluations may use different criteria, indicators and parameters depending on the purposes of evaluation (Boholano, Cardillo & Olvido, 2013). In the Philippines, the Commission on Higher Education (CHED) and Professional Regulation Commission (PRC) are the monitoring and evaluating higher education agencies and list their ranking per licensure examination results. This has produced much debate about its accuracy and usefulness. The expanding diversity in rating methodologies and accompanying criticisms of each indicate the lack of consensus in the field.

According to Senaratne and Amaratunga (n.d.), University research and teaching has been viewed by academics in different ways (Robertson &

Bond, 2001). Healey (2000) and Brew (2003) state that the way that academics interpret the terms research, scholarship and teaching can influence on the R&T relationship.

There are some studies that opine that the claimed synergy between research and teaching difficult to support in the institutional levels. In his monumental longitudinal study of higher education in the United States, Astin (1994) as cited in Prince, Felder & Brent (2007) found a significant negative correlation between a university's research orientation and a number of educational outcomes. This study concluded that "attending a college whose faculty is heavily research-oriented increases student dissatisfaction and impacts negatively on most measures of cognitive and affective development and attending a college that is strongly oriented toward student development shows the opposite pattern of effects."

This article describes and analyzes the relationship of teaching and research as one of the criteria in ranking higher education institutions. As cited by Senaratne and Amaratunga (n.d.) in Lindsay et al (2002), academics believe that research and teaching is one of 'symbiosis'; 'mutuality'; and, 'synergy', especially when lecturer's research activity increased in quantity and quality. The findings of this paper reveal that the relationship between teaching and research in the top universities in Asia and the World differ when subjected to Fractal Analysis.

## **2.0 Short Literature Review**

The condition of the academic profession today is examined with a focus on the teaching and research functions in the academy. Thus, for most faculty positions in academia, teaching is a significant requirement of the job. Much of the international debate about the relationship between research and teaching is characterized by its differences. Individuals vary widely in their views about the nature of the linkage. As cited by Healy 2005,"some believe university research often detracts from the quality of teaching" (Pocklington and Tupper 2002) while others argue that "courses taught by those at the cutting edge of research will necessarily be of higher quality than those taught by those merely using the research results of others – whatever the apparent quality of their style of delivery" (Lee 2004: 9).

However Hattie and Marsh (1996) found no significant relationship between research productivity and teaching effectiveness; on the other hand, "there is clear evidence from a range of studies in different types of institutions of students valuing learning in a research-based environment" (Jenkins 2004: 29). In general, student ratings tend to be statistically reliable, valid, and relatively free from bias and need for control. Nevertheless, they are only one source of data about teaching and must be used with multiple sources of data to make judgments about all the components of teaching.

One scenario that can be considered is looking into the context of comparing Ontario universities to American universities as done by Anderssen (2012). He reports that the teaching load among faculty in California is 46-per-cent higher – and students are more likely to be taught by full-time faculty. This resulted to the state’s expenditure of 21-per-cent less on faculty time for research – with that time concentrated among faculty at the research intensive institutions – yet has still managed to produce 25 Nobel prizes since 1995, as well two public universities in the top 15 of the prestigious Time Higher Education World University Rankings, released this month. Canadian universities, on the other hand, fell in the rankings – with none placing in the top 20 – a result that led to several of the country’s university presidents calling for a more focused approach to research.

In constructing links between research and teaching the discipline is an important mediator (Healey and Jenkins, 2003). This is because the conduct of research and the teaching approaches tend to differ between disciplines. This often leads disciplines to act as distinct ‘academic tribes’ (Becher and Trowler 2001) or ‘communities of practice’ (Wenger 1998). at the level of broad disciplinary groups, there are differences apparent in the way in which research and teaching tends to be conducted. These, in turn, influence the opportunities available for staff and students to link research and teaching (LTSN 2004).

Given the importance of disciplines in the self-identity of academics and the learning styles of students, it might be expected that the nature of the research-teaching links varies between disciplines.

Teaching, as well as research, is also becoming more heterogeneous. Different approaches to teaching are reflected in different ways of linking with research. Teacher-focused approaches emphasized transmission of research knowledge to a student audience, whereas student-focused approaches emphasized students constructing their own knowledge through active participation in class.

Prince, Felder and Brent (2007) sees that “first-class teaching and first-class research are each effectively full-time jobs, so that time spent on one activity is generally time taken away from the other”. This could lead to asking whether the knowledge generation function of universities get in the way of instruction. As presented by Anderssen (2012), “can institutions with a deeply ingrained “publish-or-perish” culture give teaching its due, or is it time, as some observers have suggested, to create new institutions that make teaching undergraduates their focus?” The present scenario in education arena stressed more on research rather that teaching.

### 3.0 Methodology

The attribute variation in a fractal object can be described through fractal dimension, which is a measure of the roughness, or fragmentation, of the object. More jagged-looking objects have larger fractal dimensions (Boholano, Cardillo & Olvido, 2013). It is said that the higher the fractal dimension is, the more squiggly the object that is inside the square.

In this study, the researchers utilized data from the 2013 Times Higher Education Quality Survey (THEQS) in terms of research and teaching in both Asia and the World.

### 4.0 Results and Discussion

	Asia	World
Research (x)	1.16	0.696
Teaching (y)	1.07	0.273
Research, Teaching	1.34	1.78
Fractal Correlation	0.532	1.01

Looking at the table above, we see that in Asia, the variation in Research scores is only partially correlated to Teaching. This means that the top-ranking universities in Asia see teaching and research in different levels but there is insufficient proof to conclude that this is because of the two factors in consideration. This is supported by the findings of Boholano, Cardillo & Olvido (2013) that Asian universities that got into the top 100 ranking are consistent in being scored in great variation in terms of Teaching and Research.

On the other hand, the data on the table above portrays a different scenario in the World Rankings. There is a significant correlation between the ruggedness of Research scores to the ruggedness of Teaching scores. This highlights the finding of Boholano, Cardillo & Olvido (2013) that high-performing schools in the World level puts varied levels of importance to Teaching and yet is more consistent in the premium they put on Research. Furthermore, this paper supports the idea that the variety in the importance they place upon Teaching is caused by the significance they put upon Research.

Observations are seen that in Higher Education Institutions (HEIs), a great emphasis is placed upon the conduct of research and thus other areas, including Teaching, may be given a lesser priority. This idea is supported by the findings in this paper where there is indeed a correlation between the ruggedness of both data sets. This may mean that because resources of the HEIs are largely apportioned to Research, lesser resources are given to Teaching. This evidence adds to the conversation wherein performance of universities should be largely evaluated upon their Research outputs even if



this means Teaching, which is a function of any educational institution is not given equal importance.

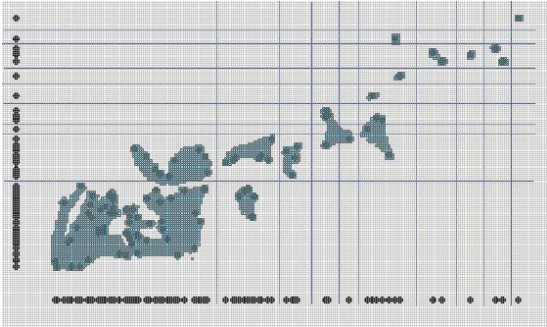


Figure 1. Fractogram of Top Performing Universities in Asia in terms of Research and Teaching

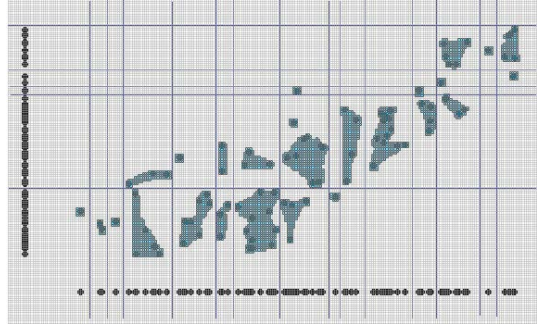


Figure 2. Fractogram of Top Performing Universities in the World in terms of T & R

## 5.0 Conclusion

There is a high positive relationship between performance in teaching and research in the top ranking universities in the World. On the hand, a small positive relationship between performance in teaching and research in the top ranking universities in Asia.

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# PROBLEM BASED LEARNING (PBL) IN TEACHER EDUCATION: A REVIEW OF THE EFFECT OF PBL ON PRE-SERVICE TEACHERS' KNOWLEDGE AND SKILLS

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## Abstract

Inspired by positive results of Problem Based Learning (PBL) implementation within an array of disciplines, PBL was also implemented in teacher education fields since 1980's. Since then, the literature of PBL implementation and its effect in teacher education is growing. However, there is no review work reported to conclude on how PBL effect specific learning outcome in teacher education fields. Hence the aim of the paper is to review the research evidences concerning the effect of PBL implementation on pre-service teachers' knowledge and skills. Resources (journal articles and proceedings) were obtained from bibliographic databases and key research journals. The resources were chosen based on specific inclusion criteria, followed by a common review framework to ensure commonality and comprehensiveness during the review. The review works concluded that a PBL experience within teacher education provides opportunities for pre-service teachers to simultaneously acquire knowledge and develop skills deemed important for the future teachers.

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**Keywords:** Problem based learning; pre-service teacher; teacher education; knowledge; skills

## Introduction

Call for the excellence in teaching and learning in higher education and university graduates with skills and competences is inevitable due to the results of globalization. Pedagogical practices in higher education is urge to reflect and corroborate for a more than knowledge-laden graduates. Lecture-based pedagogy, which dominantly represents the classroom practices in higher education is no longer sufficient to prepare such traits of graduates.

There is a need for the adoption of a more student-centred learning to address these calls. In recent years, Problem Based Learning (PBL), a learning approach that aligned with the social constructivist framework has become one of the promising innovations in higher education teaching and learning settings. PBL stand on premises for advocating learner-centred learning approach where students are problem-solvers, think in critical and creative way, active involvement in generating knowledge, the lecturer/tutor assumes a coaching or facilitating role, serving as a cognitive coach by monitoring, probing, challenging and scaffolding students in solving multi-faceted problems and the problem is focused on the learning processes from which content is derived (Tan, 2003; Edens, 2000; Savin-Baden, 2000 and Major and Palmer, 2001).

Since its inception about 40 years ago in a medical educational program at McMasters University (Barrows, 1996), PBL has evolved in many institutions worldwide and extensively applied in myriad fields such as architecture, law and social work (Bould and Feletti, 1991) and professional education such as nursing, design, engineering, optometry, architecture, law and business (Chappel and Hager, 1995). The flexibility and diversity of PBL make it possible to be incorporated in different ways, in variety of subjects and disciplines and in various contexts (Savin-Baden, 2001). Given the perceived advantages of PBL in other fields, there would appear to be a good case for the introduction of this teaching and learning approach within teacher education. In fact, PBL approach has become the centre stage in teacher education since 1980s (Merseth, 1996).

### **PBL and Teacher Education**

In teacher education fields, PBL has been implemented in both graduate and undergraduate level and in variety of courses like Foundations of Education, Inclusion Classrooms, Elementary School Curriculum, Introductory Educational Psychology, Educational Research and Methods (Levin, 2001), and Science Education (Watters, 2007, Goodnough, 2003 and Peterson and Treagust, 2001). The drivers for PBL implementation in teacher education field are varied from one case and another, but mostly devoted to better prepare the teacher graduates to be more relevant in their teaching professions. Generally, teacher's role in schools are now changing from merely imparting the knowledge to the one that inculcate creativity, intellectuality, problem solving ability and critical thinking skills among students. Beginning teachers need to be equip themselves with necessary skills, attitudes and disposition to correspond with the ever-changing and complexity of the school classrooms such as diversity of students' background, inclusive classrooms and ongoing development of technologies (Dean, 1998 and Goodnough, 2006).

In response to this call, PBL is seen as a platform to enhance pre-service teachers' acquisition of knowledge and skills, and to prepare them for varied roles of a teacher through authentic scenarios, group collaborations and self-directed learning. Finkle and Torp (1995) described PBL as a curriculum development and instructional system that simultaneously develop both problem solving strategies and disciplinary knowledge and skills by placing the pre-service teachers in the active role of problem solvers confronted with an "ill-structured" problems that reflect real world problem and have more than one feasible solutions. PBL encompasses problems that influence both theory and practice. De Simone (2008) contended how a problem scenario that represent real-life problems could lead to enhance pre-service teachers ability to define the problems, generate solutions, and application of practical and literature-based resources in search for problem's solution. Likewise, McPhee (2002) put forth how teacher education fields is compliant with PBL approach. The author suggests the teacher education itself should be seen in the frame of constructivism and devoted, but not limited to, child-centred perspective. For instance, a problem scenario of "an excel, highly motivated secondary school students with the sudden drop off of achievement, and change in behaviour" will serve the opportunity for pre-service teachers to explore interrelated issues like motivation, learning theories, learning behaviour, and national standard and policy. Therefore, from a specific problem scenario in a PBL approach, pre-service teachers will have the opportunity to experience interdisciplinary learning, which represent the central principles of PBL. Peterson and Treagust (2001) posit that the knowledge (content knowledge, curriculum and learners) integration and call to have lifelong learners in teacher education serves teacher education as appropriate for a PBL implementation.

In general term, Levin (2001) provides an argument for the relevant of PBL application in teacher education course. The important to redesign an undergraduate teacher education course is to make learning more relevant and engaging, to help pre-service teachers perceived their profession as a true profession worthy of their intelligent and passion. In similar arguments, Dean (1999) seen PBL as an important vehicle to expose the pre-service teachers to the situation that they are likely to face as professional educators whilst simultaneously practicing a teaching and learning approach that encapsulates the central tenet of constructivist and social constructivist learning theory.

### **Review Works of PBL Implementations and its Effects**

Most of the review works to date are devoted for medical education (e.g. Albanese and Mitchell, 1993; Vernon and Blake, 1993; Norman and

Schmidt, 2000; and Colliver, 2000) measuring the effectiveness of PBL approach over traditional or didactic methods. In general, these works concluded that PBL students perform better on clinical knowledge acquisition and skills, while their peers in conventional curriculum perform better on basic science knowledge acquisitions. Dochy's et al., (2003) meta-analysis and systematic review by van den Bossche (2000) on the effects of PBL concentrating on knowledge and skills across variety of fields further verified the above findings. Dochy et al., (2003) analyse 43 empirical studies on PBL in higher education articles and finding suggests a robust positive effects on students' skills albeit there is a tendency to negative effects when looking on the effect of PBL on the knowledge. van den Bossche's (2000) systematic review also yielded the same result pattern where PBL has positive effects on students' skills but negative effect on their knowledge. However, a literature review conducted by Colliver (2000) suggest a contradict results. The author found there was no substantial evidence that PBL improve neither knowledge nor clinical performance of students.

To my knowledge on existing literature, albeit the literature of PBL in teacher education is growing, there are no review reports on the implementation of PBL in teacher education. Reflecting on the cumulative empirical evidence on how PBL effect pre-service teachers' knowledge and skills holds the potential to refine its employment, and contemplating any rooms of improvement, which will subsequently leading to an improved constructivist learning experience for pre-service teachers. In addition, this review works will contribute to the knowledge gap of the scarcity of PBL implementation in teacher education programme (Kwan, 2008 and Chappel and Hager, 1995). Hence this paper reports the findings from a review work of research evidence of PBL implementation in teacher education focusing on the knowledge and skills acquisitions of pre-service teachers.

## **Method**

In literature review works, previous empirical research articles serve as the sources. To search for the relevant empirical research articles for review purposes, searching techniques are aim to be rigorous and thorough, so that the review will represent most of the articles, if it is not all. Preliminary review works started by retrieving the articles through several bibliographic databases for education and social science research like Educational Resources Information Center (ERIC), British Educational Index, Web of Science (for Science Citation Index, Social Science Citation and Art and Humanities Citation Index), PsycINFO, searches in key research journals (e.g. European Journal of Teacher Education and Asia Pacific Journal of Teacher Education) and searches in System for Information on Grey Literature in Europe (SIGLE) for grey literatures. Subject headings and

keywords based on ‘problem based learning’ were combined with ‘teacher education’ and ‘pre-service teachers’ that produced number of titles. The periodic indices and content table of issues were search manually by reading the abstracts, aiming to identify studies that address the effect of PBL on pre-service teachers’ knowledge and skills. Table I specified the selection criteria determined at the outset of the study to select suitable articles for inclusion in the reviews. Upon completing the selection criteria, several relevant articles were recognized as suitable and relevant to the objective under study.

Table I: Four criteria to determine papers for reviews.

Criteria	Description
Type of studies:	Original and empirical studies with primary data
ii. Focus:	employment of PBL intervention in teacher education context
Scope of variable:	Mainly report on the participation of knowledge and skills of pre-service teachers after engaging learning through PBL
PBL characteristics:	Identification of types of intervention or learning environment which fulfill the PBL characteristics from the original work of Barrows (1996): <ol style="list-style-type: none"> <li>a. Student-centred learning</li> <li>Students work in a small group with the guidance of a tutor</li> <li>c. Tutor as facilitator or guide</li> <li>d. Begin with authentic and ill-structured problems as the driving force for enquiry</li> <li>Problem as a tool to achieve required knowledge and skills necessary to solve the problems</li> <li>f. Information acquired through self-directed learning</li> </ol>

This yielded relevant articles under the studies. Next, the snowball method was employed, i.e. reading selected articles which led to the identification of further relevant sources. Rickinson (2001) posits this methods as a means to achieve comprehensiveness in a literature search, in which the search process is continuous until no new citations emerge. Following the selection criteria, each individual article underwent reviewing processes. Table II describes the review framework established to ensure commonality and comprehensiveness of review the works among the selected articles.

Table II: The review framework for selected articles

Component	Description
i. Research aims	A summary of the aims of the research study as reported by the researcher in their paper
Theoretical/conceptual approach	Summary of the key theoretical/conceptual assumptions that underpin the work reported (but only in so far as these are explicated and acknowledged by the authors)
iii. Methodology	The broader epistemological and theoretical framework that surround and underpin the method

		of the study (only in so far as these are explicated and knowledge
iv.	Validity measures	A value aim at measuring validity or reliability (howsoever conceived) that are reported by the author
v.	Methods	Summarized detailed of the reported procedures of data collection and data analysis
vi.	Main findings	Summary of the study's main findings as reported by the author
vii.	Key conclusions	Summary of the main conclusions drawn from the study's findings by the author.

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(derived after Rickinson (2003), pg.271)

## Results

### *Skills*

It is widely enunciate that PBL fosters skill development and skill acquisition among the learners. As in teacher education field, the call for the pre-service teachers to develop and equip with critical and analytical abilities to deal with the complexities and diversities of their classroom is inevitable. Consonant to this calls, PBL is seen as a vehicle for skills inculcation since its emphasize active learning experiences that pre-service teachers should be engage during their teaching preparation course. The first research evidence of skills acquisitions were from Edwards and Hammer (2004) in their research on pre-service teachers and change towards PBL. The authors concluded that the PBL approach is particularly suited for teacher education as it offers them the opportunity to acquire skills and theoretical content relevant to their future careers within the reflective safety of the university environment. Furthermore, pre-service teachers also associated the benefit of participating in a PBL scenario that deals with the realistic nature of the experience and saw the opportunity to develop skills considered to be necessary to them as future teachers.

De Simone (2008) measured pre-service teacher's problem solving skills between experimental class (PBL approach) and control group (traditional approach). The author found out that experimental group exhibit better skills in constructing the central problem, elaborate the problem, connection between solution and problem and used of multiple resources. Similarly, Senocak et al.,( 2007) employed a quasi-experimental research design to compared the achievement of pre-service science teachers on PBL curriculum and conventional methods in learning about gases. Apart from measuring the achievements, four different scales were developed to gauge experimental groups' evaluation of PBL. PBL has successfully developed pre-service teachers' necessary skills, such as critical thinking, literature searching, self-directed learning and problem solving. These findings are supported by Taplin and Chan's (2001) research outcome. The authors

observed the development of skills and understanding of pre-service teachers as problem solvers. The use of journal entries and evaluation forms to probe pre-service teachers' self-reflection as problem solvers and possible change in their thinking about teaching yielded mixed results. Although the pre-service teachers do not favour to tackle the pedagogical problems and reluctant to make their own decision to solve the problems presented, they showed ability to develop appropriate problem solving strategies skills and understanding in short time.

Murray-Harvey and Slee (2000) applied PBL in attempts to help pre-service teachers make connection and applying their online learning to life. To measure the impact of PBL, the authors used their feedback and peer reflection as the resources. Evaluation of pre-service teachers' responses showed their agreement that PBL process help developed their critical skills, reflective skills and skills needed by teaching professions. McPhee (2002) used pre-service teachers' learning feedback and questionnaires to investigate their experience in issues-based learning in the classes. The pre-service teachers described the benefits of PBL as the way to improve their communication skills, team working and information gathering and selecting and analytical skills. Murray-Harvey et al., (2004) evaluate pre-service teachers' assessment of their learning in PBL environment across four area of skills development: group processes; problem solving; knowledge building; and, interpersonal skills through a self-rating of tutorial performance questionnaire. To determine any growth of these competences between two case studies, the authors run a statistical test and found out that on all competences, pre-service teachers had a significant increment in their performances and skills across two case studies.

### ***Knowledge***

In documenting the research evidence of the knowledge acquisition of pre-service teachers after participating in PBL, there are two categories of knowledge reported: 1. Pedagogical Content Knowledge (PCK), and 2. Conceptual content knowledge. PCK is a notion first used by Shulman and define as "the most powerful analogies, illustrations, examples, explanations and demonstrations- in a word the ways of representing and formulating the subject, that make it comprehensible for others" (Shulman, 1986). Despite criticism that PBL emphasize in higher order thinking and problem solving skills at the expense of low level knowledge acquisitions, there are some research evidences to suggest PBL is also promote knowledge acquisitions.

Inspired by the limitation of science knowledge among teachers, Peterson and Treagust (1998) developed a PBL learning framework that address pre-service teachers' knowledge base for teaching (science content knowledge, curriculum knowledge and knowledge of the learner) and



pedagogical reasoning ability (comprehension, transformation, instruction, evaluation, reflection and new comprehension). Using case studies as way to elicit the effect of PBL, pre-service teachers have been reported to develop their knowledge base and pedagogical reasoning that correspond to their current belief in primary teaching and student learning. So and Kim (2009) integrate PBL in information and communication technology (ICT) to better prepare future teachers of having pedagogically sound technology integration, or in particular technological pedagogical content knowledge (TPCK). From the surveys and the lesson design artefacts, pre-service teachers has had understandings of pedagogical knowledge about PBL, despite reporting of having difficulty to crafting authentic and ill-structured problems and designing tasks with a balance between teacher guidance and student independence. In her effort preparing pre-service science teachers

The concept of conceptual knowledge is defined as the amount and organization of subject matter knowledge held in the mind (Shulman, 1986). Askill-William et al., (2005) investigated pre-service teachers' written reflection to elicit the changes in their mental model of teaching and learning following the experience of a PBL activity. From the categories derive from pre-service teachers' manuscript, it is evidence that PBL process, especially related to the case study expand their knowledge about factors influence child development. Kwan (2008) gauge learning experiences of pre-service teachers towards 3 modes of PBL delivery, namely Mode 1: The classical PBL, Mode 2: The Alternate PBL and Mode 3: The Modified Model. The findings suggested that both Mode 1 and Mode 3 were deemed feasible by pre-service teachers in constructing their knowledge because its require substantial mental processes that lead to meaningful discussion (Mode 1), and they are able to cover broader perspective of factual knowledge within limited class time (Mode 3). In preparing future teachers for teaching with technology, Albion and Gibson (2000) combine an interactive multimedia (IMM) packages based on PBL principles to help pre-service teachers integrate technology in their teaching and learning sessions. Their evaluation of the approach elicited from a survey revealed that pre-service teachers gained insights and knowledge in technology, self- organization and classroom management.

## **Summary**

Across an array of university courses and programme, PBL implementation in higher education is strive to forge the university learning with the real world of professionals. The central tenets of PBL that highly emphasize the disciplinary knowledge integration and development of higher order thinking skills by placing the learners in active role confronted with the ill-structured problems accelerate the merge between both worlds. In teacher

education fields, PBL is used to adequately prepare pre-service teachers for the realities of teaching. School-based assessment, inclusion of generic skills in school curriculum and shift toward outcome based education are among the seminal issues that create a call to prepare teachers that both knowledgeable and skilful. From the collective empirical evidences of effect of PBL implementation on pre-service teachers' skill and knowledge acquisitions, it is clear that PBL enhanced their knowledge and skills. The current review works have shown that PBL appears to be appropriate in inculcating skills demanded in teaching profession such as information processing-related skills, critical thinking skills, self-directed learning skills, problem solving skills and social skills. Though PBL emphasize skills acquisition over knowledge, knowledge acquisition is seen as equally important as skills for the pre-service teachers. From all the empirical evidences reviewed, it is in agreement that PBL address both pre-service teachers PCK and conceptual knowledge. Both type of knowledge are particularly important to acquire by pre-service teachers for them to be relevant in teaching professions. As Peterson and Treagust (1998) suggest, PBL in teacher education could converge in addressing the development of content knowledge and PCK, and the central characteristics of PBL problems could lead to the development of range of knowledge from curriculum knowledge to how children learn. It is concluded that a PBL experience within teacher education provides opportunities for pre-service teachers to simultaneously develop skills and acquire knowledge.

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# REGIONAL INTEGRATION PROCESSES AT THE HIGH EDUCATION SYSTEM OF KAZAKHSTAN

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## Abstract

National systems of the higher education are considerably transformed, gain the increasing similarity, but it occurs taking into account specifics of the social device, economy, policy, pedagogical traditions of this or that country. In the organization and the maintenance of the higher education components of supranational universal property arise and develop. As indicators of this process similar changes in structure, the contents and methods of the higher education. Factors and the purposes of internationalization of the higher education can be distributed on four main groups: economic, political, cultural and pedagogical.

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**Keywords:** Region, internationalization, integration, cooperation, education

## Introduction

Basis of development of market economy is division, specialization of managing subjects on production of separate types of the benefits (products, services and works) and coordination integration (cooperation, collaboration) economic activity on achievement of the joint collective purposes.

Division of labor and specialization demands an appropriate level of integration and cooperation. Specialization and integration is the two parties of one phenomenon. Between them exist dialectic reasonable – investigative interconnection and inter conditionality. Progress in division of labor promotes development of integration processes.

«Integration, write P. - F.Gonidek and R. Sharven is at the same time process and the state including a tendency to replacement of the shattered international relations, consisting of the independent units, the new more or less broad associations allocated with the minimum powers to make decisions in one or several areas, or in all areas which enter competence of basic units. At the level of individual consciousness integration is urged to generate loyalty and commitment to new association, and at structural level –

participation of everyone in its support and development" [Bukin L.2002, p.23].

### **Main Text**

The objective economic basis for broad development of specialization and integration is created by scientific and technical progress. They take various forms: international, regional, intersectional, intra-branch. Integration increases efficiency of work thanks to that at addition of forces of participants of cooperation there is qualitatively new collective productive force. There is an effect whole (synergetic effect) from interaction and cooperation. Thanks to it becomes possible to provide production of the public benefits, that is the benefits satisfying public, collective needs of people. In economic science on nationality the concept of treatment of integration as public benefits (international and regional) acquires in recent years the right. So fundamental knowledge and monuments of world culture, environmental protection on a planet (prevention of expansion of ozone gaps in the terrestrial atmosphere), maintenance of the uniform world market and uniform world trade economic space, a preservation of peace and safety on the earth, a satellite communication system, the Internet and so on are examples of the international public benefits.

It is possible to carry to the international public benefit and the international cooperation in the field of education through the relevant international institutes (UNESCO, IOM, WHO) and their educational programs, through the international programs of the European Union and via the mechanism of implementation of bilateral contracts on cooperation in the field of science and education at the level of the countries and separate universities.

Existence of any state always assumes interaction with others. This interaction – the fundamental principle of the international relations. Spheres and the directions of the international cooperation are as though diverse were and is as though great there was their value, the central and most important point of the international cooperation remains political. The solution of problems of interaction in many respects depends on its efficiency in other spheres.

Integration processes can be limited to national and regional (local) scales. In this case it is a question about national and the regional public benefits. Integration examples in the sphere of the higher education as the public benefit consumed in national scale, are nation-wide guarantees of receiving by citizens of education, a uniform state policy in the field of education the state educational standard, a uniform state order of social support of teachers and students of the higher school, a uniform order of the state accreditation and licensing of higher education institutions, the central

government bodies of management of education, republican standards of financing of the higher education, the state control of quality of education, financing of training of students at the expense of the state grants.

At the same time there are the regional public benefits caused by integration processes at the higher school in scales of the region. It is a question of a regional component of the state educational standard and of financing within this component and training of specialists from means of regional and local budgets, of regional state and public governing bodies of education. As a rule, localization of benefits from the public benefit gains territorial character.

Among the most obvious manifestations of the main regularities of the international relations most the importance at the present stage was got by the integration and disintegration factor, observed today everywhere. The tendency of integration represents higher level of interaction between the states when participants of this process alienate part of the sovereignty in favor of supranational bodies. Both that and another, opposite to the first tendency reflect an objective condition of world system in this stage, uncertain nature of its development.

National systems of the higher education are considerably transformed, gain the increasing similarity, but it occurs taking into account specifics of the social device, economy, policy, pedagogical traditions of this or that country. In the organization and the maintenance of the higher education components of supranational universal property arise and develop. As indicators of this process similar changes in structure, the contents and methods of the higher education (open education, distance learning and etc.) act.

Factors and the purposes of internationalization of the higher education can be distributed on four main groups: economic, political, cultural and pedagogical. The first are closely connected with sure financial gains, for example, thanks to a tuition fee of foreign students. Even more important indirect economic benefits as high quality of training of graduates of the higher school appears one of conditions of economic progress. Political factors are generated by geopolitical interests of each country. Cultural follow first of all from intentions of promoting of national culture and familiarizing with foreign-language cultures. And, at last, pedagogical factors are concerned with requirements of modernization of the higher education.

The specific situation develops in the countries where appearing shortage of specialists for the higher school (Australia, Canada) is felt. Here mass recruitment moves to the forefront from abroad cases of teachers. For example, in Canada foreigners make to 25% of teachers of higher educational institutions.



All listed factors are developing. At the beginning they were concerned first of all with policy of strengthening of mutual understanding between the people, preservations of cultural influence in developing countries. Then economic priorities become more important. It was reflected, in particular, by the Memorandum of the higher education, accepted by participants of the European Union (1992). The political, pedagogical and cultural goals which follow from intentions to improve preparation of human resources for the successful competition on the international economic scene are subordinated to the specified priorities.

The integration of the higher education appears means of strengthening of economic competitiveness in the world market. Strengthening of the importance of economic factor causes creation of rather mass systems of the higher education and at the same time relative reduction of their financing. Internationalization of the higher education helps with this situation to the solution of economic problems of higher education institutions.

The main directions of internationalization of the higher education are focused on: association of pedagogical efforts and resources; promoting of ideals of mutual respect; education improvement due to the international experience; employment of experts with the higher education on the international labor market; formation at graduates of higher educational institutions of qualities and the knowledge necessary for functioning outside own country. Mobility of students and teachers is encouraged, scales of learning of foreign languages and cultures extend, training programs and diplomas approach.

Thanks to achievements of technological revolution direct contacts, trips of students and teachers are supplemented or replaced with virtual mobility by means of the latest technical means [Galagan A., 1994, p.14]. Communicative technologies, distance learning allows to make the international cooperation of universities more different formatively and intensive.

In Kazakhstan in the period of market economy at the higher school interaction of two tendencies – on the one hand, a tendency of integration, centralization and preservation of uniform educational space, and on the other hand, a tendency to regionalization and decentralization was observed.

The progressive tendency of development of a fundamentalization of the higher education was shown at the Kazakhstan higher school in various forms of integration. I passed process of streamlining of the nomenclature of specialties and the direction of training of specialists. University education gained priority development. Work on optimization of a network of higher education institutions, integration of existing higher education institutions and to creation of regional high school complexes was carried out.

Cooperation process between the leading high school centers and regional higher education institutions on the basis of coordination and mutual coordination of curricula and programs amplified. There is also an expansion of availability of the high school centers for citizens from regions with insufficiently developed network of educational institutions. It is promoted by development of target preparation and creation of social guarantees for non-residents in realization of the rights to the higher education (preferential journey, preferential terms of accommodation in a hostel and using other objects of high school infrastructure). Extending participation in support and development of public sector of the higher school of authorities of various levels. Increased a role of system of preparation and professional development of scientific and pedagogical shots, and also scientific and methodical providing in the high school centers for peripheral higher education institutions. The effect of integration is provided, on the one hand, due to use of scientific and personnel potential and scientific and experimental base of academic institutions for the purpose of improvement of quality of educational process in higher education institutions, and on the other hand – by creation of branches of chairs of the academic institutes, formation of scientific parks of the higher school. Deepening of integration processes expansion of independence of higher education institutions in the field of the international and university scientific and technical cooperation promotes in no small measure and removal of former regulatory restrictions in the field of combining jobs of scientific and pedagogical shots, and also.

The integration processes at regional and international level in the higher education are the public benefit, but the ratio of benefits and expenses by their granting in many respects depends on a concrete socio-political and economic situation in the respective country. Therefore the analysis both positive, and negative sides of development of various forms of integration in the higher education of Kazakhstan in modern conditions on the example of the concrete region and concrete higher education institution is extremely important. It will give the chance to generalize more deeply positive experience of the solution of problems of integration in the higher school and to make reasonable recommendations about further improvement of cooperative communications in the higher education.

The research of a regional role of the higher school has to be based on definition of the concept "region", its borders of rather physical space and system of interconnections between the economic subjects located in its limits.

The processes of territorial differentiation of production happen in interrelation with integration tendencies in economy. Specialization causes the necessity of strengthening of communications between them as all set of the necessary products, goods, services it is possible to provide with only

cumulative activity of many regions. At the same time, separate branches and territorial educations are included in a uniform economic complex as its component with specific functions peculiar to them. Along with functional specifics they possess also reproduction features. Therefore it is expedient to consider regions from positions of the general methodological approach to understanding of territorial development and development separate administrative and territorial units.

The region as territorial unit can be characterized by unity of two of its parties: a certain territorial and branch set and organic part of the uniform economic complex including branches of industrial production, services sector, their infrastructure.

As the region we can observe large economic regions, territorial – industrial complexes, administrative and territorial units, etc. The region objectively possesses some relative independence within uniform process of reproduction. Each territorial complex has to in every possible way and develop comprehensively own economy, the social sphere and form infrastructure corresponding to them.

The concept of regionalization of education has semantic "wash- out" as it is analyzed on separate various aspects, including economic, pedagogical, national and cultural. Complete understanding as independent part of a component of a uniform social and economic regional complex it isn't developed yet, significant regional internal communications of education aren't allocated. The variety of a tendency of development of regions complicates the solution of problems of determination of properties of education as a part of regional complexes.

The mean of regional educational systems consists that those can be in the presence of the following main signs:

- Sufficient level of development of the educational system, allowing satisfying the corresponding requirements of the population and economy for a mode of differentiation of educational services;
- Abilities of educational system to reflect specifics of local requirements for multidimensional social and pedagogical space in the functioning;
- The presence of the subject of management by education creating round branched system and providing the center of regional educational space.

The understanding regional education systems is expressed that at all levels of its functioning priority there are the tasks directly connected with satisfaction of educational needs of this region. The regional education system also has to be closely connected with all-social, world interests and development tendencies that are the most important conditions of

preservation of integrity, stability and continuity of an education system and the prerequisite to its entry into world educational system.

The importance of regional aspect of an education system seems that the region acts as the guarantor of steady political resolution of conflicts of development in the state and personality relations, giving the chance to citizens on the basis of the uniform principles in a favorable, available mode to use material, intellectual, educational, social values. Thus the resource financial security of expenses guaranteed by the state on the standardized education level remains.

Regionalization of an education system acts as a condition of its self-determination and self-sufficiency. On this background education system interaction with various parties of activity of the region giving, on the basis of feedback, an education system individual and personal and social sense is carried out. Individual and personal interest of subjects of the region is shown in creation material a condition for satisfaction of humanistic, educational, cultural inquiries of subjects of the region; a variety, within the region, opportunities of a regional labor market; formation social relation.

The public importance of education including the professional is defined by that circumstance that if in regional economic system the emphasis on development of any specific branch of economy is placed, it doesn't mean that all specialization in educational system has to be interfaced to economic specialization. The educational system assumes replaceable function of completion and expansion of knowledge of variety of economic structures, communications and the relations, creating conditions for versatile development of the social sphere as a whole and education systems in particular. Impact of a regional education system on development of society is shown by means of the social order to educational system which in turn develops a social environment, forming its information base, stimulating economic transformations, developing prerequisites of free development of subjects of the region. Socialization of the personality in the conditions of the region becomes result of this process.

Promoting development of individual and personal creative abilities there is an education by an indispensable condition of accumulation of professional potential in the region. Education acts as the prerequisite of social development of society by means of self-development of his individuals.

The education system as a systematizing component of social system as training creates economic prerequisites of social transformations and promoting development of the personality in the course of finding of knowledge. The personality in process of growth and development of creative opportunities realizes sense of education not only as means, but also in the form of the purpose. High level of intellectual and spiritual

development of societies is a continuation of a tendency of perception of education as practical usefulness and economic category.

Deepening and expanding knowledge level, the personality not only requests, but also builds under the inquiry elements of a social environment. Education in the conditions of the region, acting as objective requirement of social and scientific and technical development becomes a factor of regional development.

However professional education can't be expelled from system economic categories. It forms a basis of development of abilities of the person to work that conducts to need of consideration it with economic positions.

### **Conclusion**

Consideration of essence of a regionalism of education leads to a conclusion that process of regionalization includes consecutive orientation of activity of educational institutions of various profile and level to needs of the region with their subsequent inclusion in social and economic system of the region. As backbone elements of regionalization of education act orientation to the needs of the personality realized in the concrete social environment: formation of uniform educational space of the region; the accounting of concrete features of the region at the organization of activity of an education system; development of spheres and directions of vigorous activity of an education system; development of structure of training programs and the courses focused on studying of natural, geographical, cultural, national, industrial, historical, ethnic features of the region.

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# THE ROLE OF SCHOOL AND THE TEACHER IN CHILDREN'S CRISIS INTERVENTION IN THE CZECH REPUBLIC

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## Abstract

This study interprets hermeneutically the specific position of the teacher in the crisis intervention in the Czech Republic as an independent phenomenon. It pays attention to connections resulting from the manner of providing care and the teacher's own understanding the character of the subject of crisis intervention. On the one side the study arrives at the conclusion that the crisis intervention approaches the solution in an instrumental and pathogenetic manner. On the other hand this care specifically neglects the fundamental issue, i.e. the point of view of the child itself. Should crisis intervention be approached salutogenetically, the teacher and school form a specific place. For the time being this field of the "teacher's treatment of the child" appears to be an overlooked issue in consequences of the hermeneutic explanation of crisis intervention.

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**Keywords:** Crisis Intervention, Pathogenetic Approach, Salutogenetic Approach

## 1. Introduction

The scope of legislature regulating a relationship to the child, his/her social and legal protection and assistance that should be given to children, is extraordinary. It is an enormous effort from the outside and its aim is the "removal of a problem", which is distinctive of the pathogenetic approach.

The determination of competent persons by statute, however does not mean that these persons will be trustworthy for the child and that the child might be entrusted into the hands and care of such person. An extraordinary role is played, in connection with these problems, by pedagogues (teachers and educators) since they have a permanent, wide and regular (in terms of time) contact with children.

Although educators can be guides in the right sense of the word, since children know them and thanks to the regular contact with them, they can establish a trustworthy relationship with them, i.e. the relationship leading to

closeness and intimacy, this possibility, in fact, is not realised. Pedagogical employees in our society are not still granted the competencies they would deserve for the above-mentioned reasons, which corresponds with the crisis intervention being understood and perceived by our school system as something that is secondary or as menial work. In the pregradual teacher preparation no condition (or precondition) that even children in distress or children without peace in mind can appear in every classroom, is not yet taken into account. From wider statistical relations we can assume that every day teachers and educators meet children who are not in perfect piece of mind in their process of education. The research focused on the opinions of 126 interviewed teachers/pedagogical employees gives evidence that **87 % of them do not know what to do with children if they experience this situation. Then it means that children's education and upbringing is not accommodated to the state of their minds and situations a lot of children can get into.**

The salutogenetic approach is based on the principle of the support to what keeps us in full life. Looking at the problem from the philosophical point of view, it concerns the soft style of grasping reality, i.e. the very opposite approach to the pathogenetic hard removal of the problem from the outside. The salutogenetic approach follows the principle of risks prevention. To achieve success it necessarily makes use of the awareness of risk factors and directs its goals to supporting the so called protective factors which have been differentiated for the purposes of research, into two groups: individual characteristic features and favourable impacts of the environment.

Protective factors are applied only in the presence of risks and for that reason it is not possible to understand salutogenesis as prophylaxis (prevention), which is, in its character, also pathogenetic.<sup>9</sup> Whereas the projective factors are closely/tightly linked to man's social determinacy, the core of which in the childhood is a family, and then, if the family becomes a risky environment, *the* care for individual characteristics of resilience **is even more topical (relevant to the current situation). In this sense the teacher himself can have an unsubstitutable role as a prospective trustworthy guide who disposes of the proper means for salutogenetic support of resilience, for supporting individual qualities of resilience, i.e. specifically focused educational strategies.**

## **2. Statutory Qualifications and Reality**

I consider as necessary to select the consideration of the width of the statutory support of crisis intervention in the Czech Republic as underlying. The acts that govern children's crisis intervention cannot be separated from the acts concerning children. For that reason the scope of this legislature can

be understood as extraordinary. It is an enormous effort coming from the outside and its aim is, *ipso facto*, “the removal of a problem”.

All employees of our medical and non-medical places of work who are governed by Act No. 359/1999 Sb. (Coll. of laws of the Czech Republic) on social and legal protection of children<sup>1</sup>, are expected to be guides to children in distress. The act, however, stipulates the responsibility of these employees for healthy mental development of children, so to speak, across the board. The mentioned guides, who are determined by law/by statute to protect children, are for that reason lacking in trustworthiness that is a necessary condition for the child’s establishment of a contact. The idea that a child would open out to a person with whom it has not built up an intimate relationship, or even to a person it does not know at all, is quite naïve, even on the basis of a sound judgment. For that reason to determine competent persons by statute does not mean that these are bearers of trustworthiness, or persons who will create the atmosphere of familiarity, and in this sense they will fulfil specific requirements for becoming competent guides for children in distress.

In consequence, neither the vast legal regulation, nor the application of laws, can be a good warranty of our intervention care. If we suppose that the necessity of such massive legal regulation is caused, among other things, by the permanently comfortless situation in this field, we can understand why the effect of our crisis intervention is so weak.

In addition to that, the approaches of our crisis intervention are confirmed by the international legal overlap, which is ensured in our country by the Bureau for International Legal Protection of Children, included in the gestion of the Ministry of Labour and Social Matters (Špeciánová, 2003).

### **3. The third paradox of children’s crisis intervention: *neglect of the apparent/the obvious***

I have included in the theory of three paradoxes of children’s crisis intervention (Závora, 2010) three significant paradoxical implications, i.e. the fact that the crisis intervention is (i) ready to affect (or lend a helping hand to) *the apparent cases of distressed children that suffer without showing it on the outside*, (ii) *that children crisis intervention is at the same time, inaccessible for children*, and (iii) *that school teaches children according to a false assumption that they are all in good mental condition, without crises and traumas*. The consequences of three paradoxes will be discussed in the following paragraph.

The third paradox describes an invalid **presumption that “school” teaches children that are healthy and unabused. The opposite cases are considered examples of “pathology” and educators have to solve the problem of sending this child “somewhere” with a proper**



**recommendation.** In this case we can see a significant manifestation of philosophy of the pathogenetic approach. The above given example of the precondition leads to our negation of reality and therefore to neglecting the specific preparation of teachers. Very often educators have to face seriously anxious or nearly suffering children and do not know how to cope with this situation. Their confidence in “any other” institution that will solve the problem seems to be a purely mechanistic solution which allows to manipulate the child, or child’s problem as if it was an object –i.e. something separate, defective, designed for remedy or correction.

If our presumption is based on the established reality and not on the constructed presumptions and competencies resulting out of them, all those who meet children and have an influence on their education and upbringing, are children’s guides. Pedagogues (teachers and educators) have, in this sense, the essential position in this process. Taking into account the fact that the child attends school *systematically, regularly, and for a long period of time*, the competencies of our teachers and educators (in the sense of their preconditions) are, *ipso facto*, much wider than it “has been agreed on” at present. Here we can include competencies for diagnosing changes in children’s behaviour, in their acting and thinking. The competencies concerning diagnostics are closely connected with those of support, i.e. such acting or such forms of treatment that follow healthy physical and mental development of the child and its progress. For that reason the questions of competencies in the area of children’s protection and care for their mental development should not be a matter of practice or habit, although they are anchored in law. The formulation and content of competencies of this type must result in a pregnant answer *to natural needs of the children, real things in their lives and to real and practical contributions of all competent institutions.*

I consider the fact that **teachers such have duties, even duties defined by law, although they practically do not have any competencies (possibilities to act)** as the third serious paradox. In fact, our pedagogues are, in terms of competencies as they are **understood at present**, deprived of solving problems of the children not having peace of mind, or who are not at ease, or even children with risks to their health. The only competence these teachers and educators have is their statutory obligation to notify relevant institutions of the cases of abused children.

The question “Who is responsible for children’s protection?” is answered by Petr Pöthe (1999), in the chapter of the same name as his book, as follows: “*The representatives of the departments under the Ministry of Labour and Social Affairs, the Ministry of Health, the Ministry of Justice or the Ministry of Education, are authorised by the state to solve all concrete cases of endangered children as conscientiously as possible and, above all,*

*in the child's favour.” (s.18). As our experience proves “The cases of cruelty to children, those of child abuse and neglect are reported by teachers and educators in 13.1 % of all cases. Educators are thus the most frequent initiators of statutory reporting, thus - following health service institutions. It is therefore very important to pay attention to educating pedagogical employees in problems of the child's protection and inform the relevant institutions, among other things, about the specification of the signs and symptoms that appear in children suffering from physical, mental or sexual abuse.” (Špeciánová, 2003:85).*

**Our school belongs among main sources of information** on the basis of which the CAN Preventive Programmes<sup>2</sup> are being elaborated according to the recommendations of The Council of Ministers of the European Member States (of 22<sup>nd</sup> March 1993) (In: Dunovský, 1996, p. 53; similarly also Mellan & Brzek, 1995; Täubner, 2005).

School is also an institution on which a theoretical demand is made to **increase sensitiveness of the whole society** to phenomena of the ill-treated, neglected and abused child (e.g. Gianotten, 1993; Špeciánová, 2003; Běluša & Matuška, 1985; Weiss 2005; Dunovský, 2005, etc.).

*For a teacher it means one great duty- to be responsible* for children's protection and their healthy development. However, in principle our teachers have no information about how to teach and bring up children with traumatic experience and children in a crisis, how to deal with their anxiety, discomfort or agitation. The teacher, so to speak, is not well prepared for such situations. Our pedagogical faculties, instead of preparing teachers to be able to provide children with direct assistance, the care for children's mental life at school is, according to the model of pathogenetic grasping, “is organized”, which means that it is treated separately (in an object-oriented manner), as if it was a school subject. The objectification of this phenomenon means its exemption from a complex context of relations.

The greatest attention is paid to the prevention of sexual abuse of children. Prevention is a subsection of sexual education, family education, or a subsection of specific pre-school programmes (Täubner, 1996, 2006; Špeciánová, 2003). For other phenomena, often “unclassifiable” due to their character and manifestations, the so called educational counsellors have been established in schools. Even this solution can be assessed as a kind of separate (object-oriented) understanding of the child's “problems”.

*The school/educational counsellor* is an institute with a hard style of handling reality, the establishment of which only confirms that the child has a problem. Its existence participates in exempting the anxiety from the child's subjective reality by grasping this anxiety as pathological, as something that must be completely removed. This also suggests an assumption of the result. To be more precise, by means of this “removal” the

child is expected to be returned to “normality”; it is, in fact, the transfer of an abstract structure of physical pathology into the mental sphere (Foucault, 1971).

#### **4. Pedagogical assumptions and reality**

Although school and all school facilities are obliged by law to be engaged in the system of intervention care, the position of our pedagogues does not correspond with this situation.

As I have outlined in paragraph dealing with the so called third paradox of crisis intervention (Závora, 2010) in pre-gradual preparation of teachers, the fact that even children considerably anxious, or distressed children or those suffering from the CAN syndrome may appear in every classroom is not taken into account. The elementary training of teachers being prepared at faculties of education is carried out as completely separated. Prospective teachers are trained in special elective modules, usually within the family education and special courses (Marádová, 1999). According to our research, crisis intervention is perceived by pedagogues as segregated and separated also in school practice. (Závora, 2010). Such is the answer of reality to the statutory obligation which has, more or less, an across the board character.

To support the assumption that children who require a special approach appear in school benches, allow me to refer to a couple of statistical data about mental health of contemporary children, both in our country and abroad.

According to the foreign monitoring of the World Health Organization (WHO) (2004) only one of five children and adolescents had mental problems that could be identified and treated. At least one of 10 children, i.e. approx. 6 million young people, had a serious emotional disorder. From the point of view of medical treatment of children one piece of information is surprising, i.e. that only one third of all children with a mental defect or disorder have been treated (SAMHSA, 1997).

It is undoubtedly important to give a thought to the perspective of suicides. According to the statistical data, the USA is in the 9<sup>th</sup> place as regards the main causes of death (Centers for Disease Control, 1997). Specifically, the suicide itself is the third main cause of death in persons at the age of 15-24 and the sixth cause of death in children at the age between 5 to 15 years. The incidence of suicide in young people 15 to 24 years old has increased three times since 1960 (American Academy of Child and Adolescent Psychiatry, 1995). One child of 33 and one adolescent of 8 suffers from clinical depression (CMHSS, 1996). Every year more than one million young people will come to contact with the legal system for juveniles and more than 100 000 people are placed in a certain type of corrective

institution. All studies discovered unanimously that the rate of mental deficiencies is twice or three times higher in juvenile delinquents than in the total population (Coccozza, 1992), (retrieved on 31.3.2008) from:[<http://www.tigis.cz/PSYCHIAT/PSYCH499/09zpr.htm>].

According to the report of 2007 in the area of psychology the most frequent diagnoses of children at the age of 0–14 years are not only developmental deficiencies they suffered from in childhood and their adolescent age, but also neurotic defects for which nearly 85% of the total number of children in this age category have been medically treated. The greatest number of children are hospitalized in psychiatric wards due to the treatment of deficiencies of their mental development and defects of children's behaviour and diseases appears most often in childhood and at the beginning of their adolescent age (i.e. the group with diagnoses F80–F98), and that is usually more than 77%. Among other deficiencies there were neuroses, stress, somatoform disorders and syndromes of deficiencies of behaviour (the groups with Diagnoses. F40–F48; F50–F59), and they cover nearly 11% of all hospitalized children. (Retrieved on 3rd March 2009 at: [http://www.uzis.cz/news.php?mnu\\_id=1100&archiv=1](http://www.uzis.cz/news.php?mnu_id=1100&archiv=1)).

In the years 2001–2005 the number of out patient psychiatric treatments of children in the Czech Republic grew up by 7% and the biggest interim growth was found out between the years 2003 and 2004.

As it is evident from the logic of the presented statistical findings that our pedagogues (teachers and educators) must daily meet even children who are not at ease or children without peace in their minds. Unfortunately, they are not being prepared specifically for this situation. From the research of 126 teachers of the first degree of primary schools who were asked four questions with an attempt to find out the mental condition and frames of mind (mood) of the children on whom the respondents exercise their pedagogical influence, we could observe that the following relations have arisen (Závora, 2009):

1. 44% of the responding teachers answered the question “*Do you think that all children are of good mental health?*” by estimating that approximately 12% of all children they exercise their influence on are not mentally healthy;

2. The answer to the question “*Are you convinced that all children are relatively at peace of mind and permanently at ease?*” has been estimated by 63% of the inquired teachers as follows: Approximately 15% of all children are not at permanent peace of mind;

3. The answer to the question “*Do you think that some of the children would need a special intervention?*” has been “yes, some children would need a special intervention (psychologist, psychiatrist, psycho-therapist) in 83% of all respondents (teachers);

4. The question “*Do you think that some children would need a special approach in the teaching-learning process?*” has been answered by 87 % of the responding teachers as follows: Some children would need a special care at school (due to their mental condition and health).

Do teachers have professional diagnostic competences? If they do, then these are competencies in the educative sphere. For that reason it is probably suitable to consider the answer to Question 4 as extraordinarily alarming: **87 % of the addressed teachers are not able to take care of children in connection with their state of mind.**

## **5. The salutogenetic approach - a support to resilience**

The care for mental health is connected with pathogenetic reasoning. It means that we have to look for courses of such diseases with the aim of their removal. From the philosophical point of view this approach is based on the so called hard style of dealing with reality, which has its implications that may represent something that is not always quite effective.

**It is possible to take care of mental health also with the support of what keeps us to be healthy.** Aaron Antonovsky (1987) has introduced (only recently) the notion of salutogenesis<sup>3</sup> for this approach.

From the point of view of philosophy behind this approach, we can speak about a soft style of grasping reality. The salutogenetic approach follows the principle of risk prevention. Here lies the importance of looking for and making use of what keeps us healthy and resilient (Public Health). **The salutogenetic approach is not prophylaxis (prevention), the principle of which is avoiding the unhealthy style of life.** The factors taken under consideration by salutogenesis “.....have a positive effect per se, and thus they can protect.” (Tress et al., 2008:49).

### **5.1 Protective factors**

In connection with the salutogenetic approach, at first I have to explain briefly the so called projective factors. These are such considerations that lead to protection; however, they assert themselves *only in the presence of risks*. Protective factors become a matter of unfulfilled possibilities, connections and the permanent movement/stream of live reality. The protective factor therefore cannot be understood as an “object”, as a pill the shape of which, small and round, is adapted to the act of swallowing and thus it can be swallowed at any time it is necessary.

This fact urged researchers to *study protective mechanisms and processes* (coherent and the related actions). It makes the difference in the approach to understanding the individual's qualities, which are used by psychology for giving an aggregate expression of resilience. For that reason for instance *resilience*<sup>4</sup> *cannot be, according to* Werner and Smith (1989)

understood as a more or less permanent protective shield in the salutogenetic conception. The question of its duration here has a completely different character.

The present-day bio-eco-psychological and psycho-social approach to man's health and its defects is in compliance with salutogenetic principles. Provided that we get over from the wide field of general science to the area of sociological sciences, in particular to psychology, we can see that psychological projective factors are closely linked with man's social determinism,... "*which is mastered and lived out predominantly in the family*" (Vymětal, 2003:98).

If a man is influenced (determined) by social relations to such a great extent, it is not surprising that the protective factors are relational factors. According to Vymětal (in the same article) they are related ***to the person himself/herself and to the world:***

- a. *meaningfulness in the view of the world and man's own activities, i.e. seeing the world and one's own life as a meaningful picture;*
- b. *the faith in the firm and stable personal and surrounding world;*
- c. *comprehensibility and understanding– i.e. above all rational orientation resulting from the existence of regularities that govern the world and that can be learned;*
- d. *mastering and controlling the course of event that part of which I am, i.e. mastering the personal competence and ability to influence other people* (p. 98).

If it is possible to investigate the life and features of character of a resilient man who has overcome harmful conditions of his own childhood, since only in childhood we can expect the presence of protective factors according to salutogenetic principles. Then however, the question what we should focus on appears. Tress (2008) quotes Reister (1995), according to whom he observes and investigates salutogenesis *of the man's ability to get himself (or accept) a social support* (instrumental and emotional). This ability is formed by the personality qualities acquired in *man's relational experience*. The present day salutogenetic research focuses on this ability and on these qualities and researchers further work with them while trying to support man's health (Tress et al. 2008).

## ***5.2 Risk factors and individual characteristics of resilience***

While introducing the salutogenetic approach, it is also necessary to explain **risk factors**. The goal-directed studies of risk factors have resulted in differentiation of a great number of such factors (Ebina & Yamazaki, 2008; Konu & Lintonen, 2006; Wolf & Ratner, 1999; Gribble et al., 1993;

Lösel et al., 1992; White, 1985; etc.): According to Cederblad and his colleagues (1994) these are for example:

- a. *a mental disease or an alienation defect on the side of mother or father;*
- b. *misuse of alcohol or mother or father's alcoholisms, or drug abuse in parents;*
- c. *criminal behaviour of mother or father*
- d. *the socioeconomic pressure, e.g. life in poverty or misery, in an overcrowded flat, in the family with too many children, or the child's illegitimate origin, the parent's promiscuous behaviour, social degradation of the family;*
- e. *a defect in the family relationship, for instance the child abuse, disintegration of the relationship between the parents, violence in the family, the age difference between the parents that is too large, the parents that are too old;*
- f. *separation of the child from its parents when the parents are divorced, death of one of the parents, life in a substitute family, the fact that the child is illegitimate, too frequent moving children from one place to another;*
- g. *the parents' heavy and long-term physical sickness;*
- h. *the parents' low intellectual qualities;*
- i. *the child is affected by perinatal complications, by the child's developmental retardation, low intelligence, high level of aggressive behaviour, early delinquency.*

Tens of salutogenetic factors have been discovered by the same study (Cederblad et al., 1994). Some are understood as *individual and characteristic* (some of them are more or less inborn), while the other factors are accepted as *favourable environmental impacts*.

### **Characteristic salutogenetic features of endurance<sup>5</sup> in an individual:**

1. *an energetic child*
2. *successful dealing with problems*
3. *good control of impulsivity*
4. *autonomy*
5. *well-developed ability to cooperate*
6. *self-respect*
7. *intellectual abilities*
8. *improvement of the child's own situation<sup>6</sup>*
9. *self-control<sup>7</sup> (internal locus of control)*
10. *hobbies and special interests*
11. *creativity*

### **Salutogenetic (favourable) environmental impacts to resilience<sup>8</sup>:**

1. *confidential and really deep relationship at least to one of the parents*
2. *shared common values*
3. *clear rules of cohabitation and family standards*
4. *the largest number of children in the family was four*
5. *openness in the family*
6. *another emotionally significant individual*
7. *additional individuals taking care apart from the parents*
8. *mother with a permanent job outside her own household*
9. *taking into account the fact that the child is the only child or the oldest child in the family*
10. *ability to help somebody else provided that they are asked for help/assistance*
11. *assistance resulting from common social sources*

### **5. Conclusion**

The above mentioned examples of risk factors point at a conspicuously important role of the child's family, or the role of the family environment. Provided that the family fails to fulfil the role in terms of the point of view dealt with above, or that it even becomes a risky environment, the care for individual characteristic features of resilience is even more topical in the teacher's hands.

If the family becomes a risky environment, the care for individual characteristics of resilience is even more topical (relevant to the current situation). The teacher can have an unsubstitutable role as a prospective trustworthy guide who disposes of the proper means for salutogenetic support of resilience, for supporting individual qualities of resilience, i.e. specifically focused educational strategies.

Every day teachers and educators meet children who are not in perfect piece of mind in their process of education. However, 87 % teachers and educators do not know what to do with children if they experience this situation. Children's education and upbringing is not accommodated to the state of their minds and situations a lot of children can get into.

This is the consequences of three paradoxes which has been discussed here: i.e. the fact that the crisis intervention is (i) ready to affect (or lend a helping hand to) the apparent cases of distressed children that suffer without showing it on the outside, (ii) that children crisis intervention is at the same time, inaccessible for children, and (iii) that school teaches children according to a false assumption that they are all in good metal condition, without crises and traumas.



**Footnotes:**

<sup>1</sup> for the comment on this act see Novotná & Burdová & Brabenec, 2002;

<sup>2</sup> Child abuse and neglect

<sup>3</sup> from the Latin word *salus*, i.e. health; Aaron Antonovsky related salutogenesis to the “sense of coherence”, (i.e. the notion meaning a well-developed sense for understanding the world as a complex and sensible whole) and elaborated the SOC questionnaire that will enable to find out the level of the sense of coherence; individual items of this questionnaire are closely connected with the below-quoted correlation factors.

<sup>4</sup> resilience depicts one of the qualities of individual resilience

<sup>5</sup> the order is determined by the common ratio of presence of an individual factor of resilience in individuals who were living under the influence of at least 3 risk factors

<sup>6</sup> this means the extension of skills and their deepening

<sup>7</sup> i.e. the factor relating to adolescence: the feeling of an individual that is holding life in his hands

<sup>8</sup> the order is determined in the same way as in case of resilience factors

<sup>9</sup> prophylaxis is based on the principle of keeping people from the unhealthy way of life.

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# DEVELOPMENT OF THERAPEUTIC ATTITUDES: ATTITUDES OF TRAINEES IN TRAINING

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## **Abstract**

**Objectives:** Therapeutic attitudes of trainees were identified and a possible relation between the therapeutic attitudes and the interpersonal problems of the trainees were examined. Therapeutic attitudes and the emotional reaction (countertransference) of the trainees to a standardized patient and the trainees' ratings of the therapeutic relationship and the trainees rating of affect experience and affect regulation of the standardized patient were also related to each other.

**Methods:** A random group of trainees of the psychotherapeutic propaedeutic (n = 59) was investigated. In the course of this training standardized patients had to be explored. The measurements used are the questionnaire for therapeutic attitudes (TASC 2), the questionnaire for interpersonal problems (IIP), the emotional response questionnaire (CTQ), the questionnaire for psychotherapeutic relationship (PRQ), and the questionnaire for affect perception and affect regulation (AREQ-K). To assess the relation between therapeutic attitudes and the reaction of the therapist to the standardized patient, the TASC 2 scores were analyzed in relation to the ratings in all the other questionnaires using Pearson correlation coefficients.

Results: Therapeutic attitudes of the (future) therapist and his or her emotional response towards the patient were interrelated. The trainees' evaluation of the emotional response is associated with his or her therapeutic attitudes and reflects patient-induced countertransference reactions.

Conclusion: The results indicate that trainees' self-perceptions are related to patient-perceptions. This leads to the conclusion that (future) therapist's self-reported attitudes are of considerable value in understanding how individual therapists contribute to the therapeutic process.

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**Keywords:** Countertransference, psychotherapeutic attitudes, standardized patient, trainees, psychotherapy training

## Introduction

Understanding the modes of operation of therapeutic training is of high relevance regarding the optimization of training outcome and even more so in the context of psychotherapy research in general. Nevertheless, up to now research in the field of therapeutic training was more or less neglected (Rønnestad & Ladany, 2006) and existing studies almost exclusively focused on skill achievement as a measure of outcome (Taubner, Kächele, Visbeck, Rapp, & Sandell, 2010). Though, measuring skill achievement is certainly a valuable approach it yet poses some limitations. For instance, therapists who were trained in the same theoretical orientation and who achieved the same therapeutic skills do produce significantly different outcomes (Luborsky et al., 1986; Shaw et al., 1999). Thus, there must be some further variable that additionally influences the training outcome.

Beutler and colleagues (2004) introduced the *therapist variable*. Hence, the influence of inferred states – like the therapist's personality and his or her therapeutic attitude – is to be considered as a crucial element in the therapeutic process. Coming to think about the sparseness of literature in this area of research, the renewed interest in this topic seems inevitable.

Following the work of Rønnestad and Skovholt (2003), who proposed a model of professional development in the field of psychotherapy on several dimensions, not only the simple acquisition of skills is considered, but also the personal changes the trainees undergo. According to the tripartite model of psychotherapy training – incorporating personal therapy, supervision, and skill achievement (Orlinsky & Rønnestad, 2005) – the training itself, besides the achievement of theoretical skills, contributes to personal development and fosters personal change. By offering the possibility of self-development in personal qualities required to be an effective therapist, skills training not only enhances performance but also facilitates the personal development of the trainee. This is of high importance considering that choosing a career in the psychotherapeutic field demands much of personal resources, thus,

placing emphasis on the capability for self-knowledge and self-care appears to be inevitable. However, it is still unclear how these personal changes can be identified and how skill achievement can best act as a sort of supplement to the other parts of therapeutic training (Pascual-Leone, Rodriguez-Rubio, & Metler, 2013).

One possibility to convey theoretical knowledge as well as personal experience to students is the training with standardized patients (SPs, Brenner, 2009). SPs are trained actors who are deployed to assist health care providers in various types of clinical encounters for the purposes of training and evaluation (Weaver & Erby, 2012). Trainings with SPs have a long tradition in medical curricula most often applied as a tool for training clinicians in medical skills like conducting physical exams or taking up medical histories. More recently SPs have been increasingly used to assist in the development and assessment of psychosocial skills, including those related to patient-centered communication and relationship building (Long-Bellil et al., 2011). In order to provide students with the possibility to experience their personal strengths and weaknesses in working with a patient, training with SPs is incorporated in the curriculum of the Medical University of Vienna and in curriculum of the basic psychotherapeutic training program of the University of Vienna. In various lectures psychiatrists or other qualified experts (e.g. psychologists, psychotherapists, and psychoanalysts) operate together with actors trained on role scripts written by those experts. The various scripts display different types of disorders and pathologies (e.g. depression with suicidal tendency, somatoform disorder, anxiety and panic disorder). However, all role scripts that actors are trained on share the same level of psychic structure namely borderline personality organization and thus demonstrate defensive mechanisms of splitting, projective identification, idealization, as well as devaluation (Kernberg, 1993).

During the course of the training trainees conduct initial interviews with the SPs to gather information usable for a psychiatric diagnosis, for diagnosing the personality structure, as well as to encounter transference and countertransference phenomena. The didactic conversion is based on a feedback-slope, in which trainees reflect their experience in the interview with the SPs, enhancing (self-)perception and therapeutic attitudes.

Therapeutic attitudes derive from the personal background of the (future) therapist and offer the base on which the therapeutic process develops during the treatment (R. Sandell et al., 2004). The therapeutic attitudes are grounded on values and convictions of the (future) therapist, on his or her epistemological style of thinking and belief in the nature of human mind and psychotherapy (Rolf Sandell et al., 2006). Therapeutic attitudes contribute substantially to the explanation of variance of treatment outcome and are

clearly associated with the personal attitudes and experiences of the (future) therapist (Rolf Sandell et al., 2007).

Thinking about the tripartite model, it is of interest how theoretical skill training could best serve as a complement to personal therapy and supervision. Not only personal therapy and supervision, especially skills training would benefit from considering the inferred states of trainees. Training with standardized patients offers a good combination to convey theoretical knowledge and personal experience. It therefore seems to offer one possibility to encourage trainees to reflect on their personal attitudes towards the patient and the presented theoretical and practical material. This fosters the development of therapeutic attitudes, as well as trainees' awareness for themselves. In order to investigate the influence of inferred states of trainees, especially their therapeutic attitudes, the relation between interpersonal problems and the therapeutic attitudes of trainees was investigated within training with SPs. Furthermore, it was of interest how the therapeutic attitudes relate to the trainee's ratings of the therapeutic relationship, as well as the trainee's rating of affect experience and affect regulation of the patient.

### *Methods*

The study was conducted in accordance with the *Declaration of Helsinki* (1973, revised in 1983) and local guidelines and regulations of the Medical University of Vienna. The study protocol was approved by the Ethics Committee of the Medical University of Vienna. Written informed consent was obtained from the study participants after a complete description of the study.

### *Participants*

The group of trainees investigated in this study participated in a basic psychotherapeutic training program (7 male, 52 female; mean age:  $31.45 \pm 7.93$ , min 20, max 49 years). Of the trainees 10% completed studies at the Medical University Vienna, 32% had a degree in psychology and 7% were trained as social workers. 51% did not state their profession. 56% reported to have self-experience regarding psychotherapeutic methods and interventions.

### *Measures*

The assessment was structured as follows:

- (a) A demographic questionnaire; measuring participants' age, gender, education, and level of self-experience.
- (b) The therapeutic attitude (ThAt) questionnaire developed by Sandell, Carlsson, Schubert, Broberg, Lazar, & Grant (2004) measures the attitudes and assumptions of psychotherapists in three dimensions

- (TASC-2 scales) displaying nine factors: curative components of psychotherapy (Adjustment, Insight, Kindness), attitudes toward psychotherapeutic approaches (Neutrality, Supportiveness, Self-doubt), and basic assumptions and beliefs about psychotherapy (Irrationality, Artistry and Pessimism).
- (c) The Inventory of Interpersonal Problems (IIP; Horowitz, Rosenberg, Baer, Ureño, & Villaseñor, 1988) is based on the interpersonal circumplex model designed to evaluate persons' problems in relation to others. In this study the short version was used, which is a 64-item self-report questionnaire designed to provide a normed, psychometrically valid instrument for assessing problems associated with each octant of the interpersonal circumplex (IIP-C; Horowitz, Strauß & Kordy, 2000).
  - (d) The Emotional Response Questionnaire, the former Countertransference Questionnaire (CTQ; Zittel & Westen, 2003; German translation: Löffler-Stastka & Grassl, 2006) is a 79-item clinician-report questionnaire for assessing countertransference patterns in psychotherapy, on the following dimensions: 1. overwhelmed/disorganized, 2. helpless/inadequate, 3. positive, 4. special/overinvolved, 5. sexualized, 6. disengaged, 7. parental/protective, 8. criticized/mistreated.
  - (e) The Psychotherapy Relationship Questionnaire (PRQ; Bradley, Heim, & Westen, 2005) German translation: Löffler-Stastka, 2006) is a 90-item clinician-report questionnaire for assessing transference relationship patterns in psychotherapy. It provides five dimensions to describe these patterns: angry/entitled, anxious/preoccupied, secure/engaged, avoidant/counterdependent and sexualized.
  - (f) The Affect Experience and Affect Regulation Q-sort (AREQ; Westen, Muderrisoglu, Fowler, Shedler, & Koren, 1997) is used in the short version, which is a 27-item clinician-report questionnaire designed for assessing affect regulation and affect experience of a patient (AREQ-K; Löffler-Stastka & Stigler, 2011). It yields three factors of affect experience: socialized negative effect (e.g. guilt), positive affect (e.g. interest), and intense negative effect (e.g. anger). Affect regulation dimension includes three factors: reality-focused response (e.g. goal-directed coping), externalizing defenses (e.g. projection), and avoidant defenses.

### *Procedure*

Trainees participating in this study were assessed after the training with standardized patients incorporated in a basic psychotherapeutic training program (psychotherapeutic propaedeutic). Besides rating their therapeutic



attitudes (TASC 2) and interpersonal problems (IIP) the group of trainees rated their emotional response (countertransference) towards the standardized patient (CTQ), the transference relationship pattern with this patient (PRQ) and the affect regulation and affect experience of this patient (AREQ – K).

### *Statistics*

All statistical analyses were performed with IBM SPSS Statistics 19 software (IBM Corp., Armonk, NY, USA). For all analyses the significance threshold was set to  $p \leq 0.05$ . To assess the inferred states of the trainees the relation between TASC 2 scores and IIP scores was examined. Furthermore, to assess the relation between inferred states of the trainees and their ratings of the standardized patient the TASC 2 scores were analyzed in relation to the ratings in the PRQ, CTQ and AREQ-K using Pearson correlation coefficients (using two-tailed significance levels).

### *Results*

*Therapeutic attitudes and interpersonal problems.* Regarding therapeutic attitudes, trainees rated kindness ( $M = 2.97$ ,  $SD = .68$ ) higher as a curative factor in therapy than insight ( $M = 2.76$ ,  $SD = .57$ ), or adjustment ( $M = 2.21$ ,  $SD = .49$ ). Regarding therapeutic style factors, trainees rather focused on supportiveness ( $M = 2.67$ ,  $SD = .48$ ) than neutrality ( $M = 2.60$ ,  $SD = .54$ ) and showed a moderate amount of self-doubt ( $M = 1.12$ ,  $SD = .63$ ). Concerning their basic assumptions, trainees tended to believe that the human mind is rather rational (irrationality:  $M = 2.10$ ,  $SD = .63$ ) and alterable (pessimism:  $M = 2.75$ ,  $SD = .47$ ). Concerning the basic assumption of artistry ( $M = 1.85$ ,  $SD = .59$ ) trainees tended to consider psychotherapy more as a form of science compared to artistry. The standardized IIP scores demonstrated the main problems of the trainees according to the underlying circumplex scales. Trainees showed most difficulties regarding the scales overly exploitable (IIP-JK = 4.05,  $SD = 2.94$ ), overly nurturant (IIP-LM = 3.46,  $SD = 2.41$ ), and overly subassertive (IIP-HI = 2.97,  $SD = 3.75$ ). Regarding possible relations, for the curative factors of the TASC 2 a significant correlation with IIP scales for the scale adjustment and kindness was found. Trainees who reported to be less assertive believed that adjustment is less likely to be a curative factor ( $r = -.432$ ,  $p = .008$ ), whereas those more vindictive and self-centered reported that kindness is a likely curative factor ( $r = .326$ ,  $p = .049$ ). The therapeutic style did not correlate significantly with interpersonal problems. The basic assumption about the nature of psychotherapy and human mind again correlated with interpersonal problems. Participants who considered the human mind as more irrational are less socially inhibited ( $r = -.381$ ,  $p = .20$ ) and more self-sacrificing ( $r =$

.497,  $p = .002$ ). Furthermore, those trainees who considered psychotherapy to be a form of artistry compared to science are less domineering ( $r = -.378$ ,  $p = .021$ ) but to a higher extent socially inhibited ( $r = .452$ ,  $p = .005$ ).

*Therapeutic attitudes, countertransference, psychotherapeutic relationship, and affect.* Adjustment as a curative factor correlated positively with positive affect and reality-focused affect in the AREQ-K and negatively with parental and protective countertransference. In contrast, in case insight was judged as an important curative factor the emotional response (countertransference) of the trainee was more parental and protective. No relations were found between the curative factors and the PRQ. Reality-focused affect (AREQ-K) was further related to the therapeutic style. Participants who were more supportive ( $r = .335$ ,  $p = .046$ ) and those who reported more self-doubts ( $r = .420$ ,  $p = .011$ ) judged the patients affect regulation as more reality-focused. Self-doubt was further correlated with a positive working alliance and positive, satisfying countertransference. Irrationality, as a basic assumption concerning the human mind, was associated with the patient experiencing socialized negative affect ( $r = .373$ ,  $p = .025$ ) and the judgment of the therapeutic relationship as being more compliant ( $r = .345$ ,  $p = .043$ ) and avoidant ( $r = .422$ ,  $p = .011$ ). High scores on irrationality were further associated with a less positive, satisfying and more parental, protective countertransference. Similarly, Artistry was associated with less positive, satisfying and more parental, protective as well as helpless and inadequate countertransference. Finally, there was a positive correlation between intense, negative affect and pessimism ( $r = .426$ ,  $p = .010$ ). No other analysis reached the level of significance.

Table 1. Correlations between TASC 2 scales and Emotional Response Questionnaire scales (CTQ) of trainees (n=59)

	Hostile/ mistreated	Helpless/ inadequate	Positive/ satisfying	Parental/ protective	Overw helmed/ disorganized	Special/over- involved	Sexualized	Disengaged
Adjustment	-0.137	-0.191	0.317	-0.498*	-0.201	-0.014	0.349	-0.323
Insight	0.145	0.313	-0.007	0.565**	0.312	0.198	0.078	0.115
Kindness	-0.181	-0.105	0.072	0.281	-0.082	-0.207	0.167	-0.339
Neutrality	0.135	0.058	-0.207	0.201	0.042	-0.077	0.197	0.142
Supportivenes s	-0.128	-0.278	0.105	-0.22	-0.2	-0.059	0.398	-0.257
Self-doubt	-0.01	0.11	0.521**	0.042	0.225	0.1	0.165	0.105
Irrationality	0.036	0.362	-0.489*	0.533**	0.188	0.188	-0.1	0.348
Art	0.088	0.424*	-0.475*	0.49*	0.113	0.028	-0.261	0.215
Pessimism	-0.065	-0.005	-0.021	0.205	0.003	-0.067	0.259	0.09

Note: \*...p<.05; \*\*...p<.01; \*\*\*...p<.001

### *Discussion*

The aim of the present study was to identify the inferred states of the trainees, especially their psychotherapeutic attitudes, and to examine the relation between the psychotherapeutic attitudes and the emotional reaction (countertransference) of the trainee to a standardized patient, the trainees ratings of the psychotherapeutic relationship and the trainees rating of affect experience and affect regulation of the standardized patient. Analysis revealed that therapeutic attitudes of the (future) therapist and his or her emotional responses towards the patient are interrelated. The trainees' evaluation of the emotional response is associated with his or her therapeutic attitudes and reflects patient-induced countertransference reactions.

As already mentioned, the therapeutic attitudes and the emotional response of the trainee towards the patient and the therapeutic relationship are closely related. Though, this is the first study investigating therapeutic attitudes in relation to the patient, previous studies which focused on the emotional responses towards the patient reported similar results as were found in the present study (Heinonen et al., 2013; Rossberg, Karterud, Pedersen, & Friis, 2007). For example, Colli (2013) demonstrated that the patient's pathologies are associated with consistent emotional response of the clinician. Furthermore, clinicians of different therapeutic approaches produce similar emotional responses, suggesting that patients' pathologies are quite robust in evoking specific emotional responses. The results of the present study show that in association with the emotional responses there are two

main attitudes emerging in the trainees while working with the standardized patient with borderline personality organization: First, trainees who are engaging in a rather parental, protective countertransference tend to rate adjustment as a less important curative component and emphasize the value of insight, irrationality and artistry. Second, trainees who are engaging in a rather positive, satisfying countertransference, tend to attribute the highest value to adjustment and supportiveness.

Interestingly, trainees' scores on a type of difficulty in practice called "Self-doubt" (denoting doubt about one's professional efficacy, Sandell 2004) were positively associated with a positive working alliance and positive, satisfying countertransference after an initial contact with a patient with borderline personality organization. This last result is in line with previous findings (Nissen-Lie, Monsen, & Rønnestad, 2010) pointing at the positive influence of "Self-doubt" on the working alliance. Contemporary theoretical and clinical literature claims that countertransference reactions, the emotional responses of the therapist, are specific to patients' presenting concerns, interpersonal styles and underlying pathology (McIntyre & Schwartz, 1998; Schwartz, Smith, & Chopko, 2007). Clinical reaction related to the patient can profoundly affect psychotherapist perceptions of a patient's presenting concerns, symptom severity, and prognosis (Hayes & Gelso, 2001). In particular patients with a borderline personality organization have been found to provoke intense emotional responses in the healthcare professional (Aviram, Brodsky, & Stanley, 2006; Liebman & Burnette, 2013; Salzer et al., 2013). Especially, but not only, for novice-trainees it seems challenging to rely on countertransferential reactions in diagnosing and working with a patient. For the purpose of training it therefore seems necessary to enable trainees to work with their personal feelings provoked by a patient. The results of the present study underline the importance of creating a possibility to get in touch with these feelings. This is in line with previous findings suggesting that clinicians can make diagnostic and therapeutic use of their responses to patients (Colli et al., 2013). Thus, personal feelings should not be judged as a confounding variable in the diagnostic and therapeutic process, but rather as a helpful contribution to professional development. Since self-doubt was associated with a positive working alliance and positive, satisfying countertransference, it could be positively interpreted as the willingness to get in touch with these personal countertransferential feelings. According to literature (Nissen-Lie, Monsen, Ulleberg, & Rønnestad, 2013) the factor "self-doubt" is interpreted as reflecting a healthy self-critical evaluation and a humble attitude towards the complexities of therapeutic work. It refers to openness in questioning one's own personal experiences and in taking one's own unknown, conflicting affects into account. Training with standardized patients raises the possibility

for experiencing oneself interacting with a patient and being confronted with the feelings provoked in this situation, this does not only promote performance enhancement, but fosters personal development of the (future) therapist. This form of training serves as a supplement to supervision keeping the tripartite model of psychotherapy training in mind. In the case of medical students the experiences gained in training with standardized patients incorporated in the medical curriculum could best serve as a first step towards the use of emotional responses and personal understanding in clinicians work and nurturing the therapeutic potential of the clinician-patient-relationship. Training with standardized patients offers a preliminary stage in dealing with personal experiences to best be continued in intervision, supervision and Balint groups.

Leasure and colleagues (2013) already point out that in patient-centered professions it is common to prioritize the other's needs and goals over individual ones. As the results of the IIP demonstrate, trainees show difficulties being overly exploitable, nurturant and subassertive. As Laska and colleagues (2013) point out, these characteristics are in line with characteristics of effective therapists, showing flexible interpersonal style and the ability to develop a strong therapeutic alliance. It is eligible to suppose that these characteristics of the trainees, provide a possibility to develop functions like containment (Bion, 1962), and holding (Winnicott, 1989).

Taken together, the results indicate that certain trainee's self-perceptions, their therapeutic attitudes and emotional responses, are clearly related to patient-perceptions and lead to the conclusion that (future) therapist's self-reported attitudes can be of value in understanding how individual therapists contribute to the therapeutic process. In order to foster professional development of psychotherapy trainees and medical students it seems necessary to deliberate their personal experiences in concordance with skill achievement and to take their therapeutic attitudes into account.

Though, Taubner and colleagues (2010) claim that attitudes are established before the training in the therapeutic field (Taubner et al., 2010), the present study proposes that training can provide a framework in which the personal beliefs and assumptions can be made aware and can develop. As Carlsson and colleagues (2011) propose, training makes it possible to use the trainee's own value system in a more flexible way afterwards and thus to adjust to the clinical situation with a particular patient (Carlsson, Norberg, Schubert, & Sandell, 2011) (Carlsson, Norberg, Schubert, & Sandell, 2011).

### *Limitations*

Since, the patients' affect experience and transference pattern was rated by the same trainee whose own countertransference emotional

response towards this patient was inquired, this might have been a source of measurement bias. Thus future research should apply a more rigorous research design including an independent assessment of the patient's characteristics or the use of an observer-rated analysis of trainee's reactions, or both. Furthermore, future should focus on the analysis at an item level of the questionnaires, to identify personal developmental processes in more detail.

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