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Leisure and Learning with Pleasure

The Conceptual Framework for Proactive and Integrative Environmental Education and Upbringing (PIEEU)

General editorship of A.N. Kamnev & V.I. Panov

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Multi-authored monograph

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This scientific monograph covers psychological, pedagogical, and legal framework of the proactive and integrative environmental education upbringing, experiential (practice-oriented) learning and ecological culture. It processes the experience of the children camps science adventural programs and “Leisure and Learning with Pleasure” project evolution. This book integrates the statutes and regulations, thematic references, English-Russian and Russian-English dictionaries of pedagogical terms. This edition is for educators, staff of children camps and other institutions of children recreation and development, researchers and experts of environmental education and Education for Sustainable Development. The monograph also can be used as a learning guide for pedagogical translation.

Dedicated to the 30 anniversary of collaboration between Dartmouth College and Lomonosov Moscow State University

Friends, teachers and mentors who dedicated their lives to reviving of active pedagogy

Gennady N. Nefyodov and Konstantin S. Burdin

Lyubov' E. Tikhomirova and Iraida S. Tikhomirova

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Irene U. Hooper and Valery N.Kubasov

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INSTEAD OF FOREWORD

Reminiscing about Ropes and Russians

During four years 1984–1988, I served as the US Director of the US–USSR Environmental Education Exchange Program, organized under the auspices of the US Environmental Protection Agency and its Soviet counterpart.

Two facts gave me unusual freedom in this role. First, the US government did not provide any financial support. Because I found outside funding to pay for the travel and other costs of the exchange, the EPA had no basis for exerting any control over it. Gary Waxmonsky, my EPA colleague, had a special interest in the program. But his role was merely as advisor. Second, the effort became personally interesting to Professor Gennady Yagodin, who was Soviet Minister of Higher Education at that time. With his assistance and support every academic and every academic institution in the Soviet Union was interested in our efforts and was a potential partner.

Most of the exchanges that I organized involved faculty members – US professors traveling to the USSR and their counterparts coming to the US to talk and learn about different approaches to environmental education.

However, towards the end of my term, I decided to organize a summer-long visit to Dartmouth by an elite group of Soviet graduate students specializing in areas related to environment. There were no environmental studies options in the USSR at that time, but students in biology, chemistry, chemical engineering, and related fields were interested in the issues that had stimulated creation of the exchange program.

Approximately fifteen outstanding students were selected from various Soviet universities. They flew to Montreal in the spring of 1988 with a Soviet Professor, Konstantin Burdin. I drove up to the Montreal airport with one of my Dartmouth students, Megan Ryan. We took two large vans to transport the group to Hannover. The students stayed in a Dartmouth dormitory over the summer, as I arranged a variety of lectures, site visits, and workshops for them on many issues related to environmental problems. It was a diverse experience. Among many activities was the visit to an integrated waste management facility, a tour of Dartmouth College and University of New Hampshire chemistry laboratories, game sessions, and lectures on a variety of environmental problems.

It was essential to the success of the summer that the students work together as a team gathering information and processing it for use back home. It became clear to me early in the summer, that some of the requisite attitudes for good team work were missing. Most of the students had not known each other before being selected for the program. There had been no time to build up mutual trust. And it is always difficult for professionals to communicate across disciplinary boundaries. Plus the Soviets had an ingrained, centuries-long tradition of male chauvinism.

That summer I learned about the ropes course that Dartmouth College had recently taken over from Outward Bound. It occupied a part of Oak Hill several miles north of the Dartmouth campus. I arranged with Brian Kunz, supervisor of the facility for my Soviet students and their accompanying faculty members to spend a day at the course engaged in a variety of individual and team activities. I was not a sophisticated user of the technology, having never before facilitated such a program. So we designed a program with a series of individual and team tasks.

I am confident that none of the students had ever engaged in such a program, but they were eager to do it.

Team building activities at a ropes course take the form of problem solving. By confronting a sequence of complex tasks, individuals in the group are given an opportunity to develop the attitudes and skills required to become the member of an effective team: trust, communication, governance, decision making, monitoring, feedback, adaptation. It is essential that the group learn how to use each person's unique skills and to carry out tasks in a way that engages each person fully, all the time.

During the day several of us observed that the men in the group were not treating their female colleagues as resources who could contribute ideas about solutions and then contribute to carrying them out. Instead there was an attitude, illustrated by the statement, "You girls stand over there while we figure this out. Then we men will help you do it." And this attitude prevailed even though it seemed to me that, on average, the women were more intelligent and capable than the men.

It was frustrating to me. I am not sure how the women felt about it. Perhaps they did not even notice it, since the events on the ropes course that day merely permitted expression of a dominant attitude in the Soviet society.

I called attention to this issue, but did not manage to change things significantly. Finally, I decided to conduct a second day of activities at the ropes course, but only for the women in the student group. With no males around to dictate solutions, the women took responsibility and had a very successful day.

I believe that the experiences out at Oak Hill contributed to the success of the summer program. Only the students themselves could tell you today whether there were longer-term effects.

My principal interest that summer was in preparing environmental scientists for work in the USSR. Improving the team skills of the Soviet group was for me one of the ways to achieve that goal. It was not an end in itself. Nevertheless, that experience on the Dartmough ropes course had several significant results.

Professor Burdin became enthusiastic about the methods of action learning, and he worked with great success to bring them into use in the USSR. I moved down to a position at the University of New Hampshire and used my resources there to build up a major action learning program. The Browne Center still flourishes; its staff conducts programs for about 10,000 people annually.

On one of my visits to Moscow, after the revolution in 1989, Gennady Yogodin took me out to an unused campus that had been constructed for Soviet elites. We considered building up a ropes course program there, but finally decided the economics would not work. I co-authored a book, *The Systems Thinking Playbook,* which presents 30 short games that can be used by teachers to illustrate and enliven their programs. This book was translated in Russian and is widely read and used there today.

Dennis Meadows

From Ropes Courses to active environmental education

The world is vast, though no given place for children existed in it.
All the five parts of the world had adults as masters....
Adults have probably forgotten their childish games and books they enjoyed being young
Leo Kassil

Global information explosion, globalization, undisguised and shameless competition for power and resources, demographic shift and deteriorating environment are leading the planet's population to a crisis. Mass media are promoting consumerist lifestyle and pursuit of money, power, and comfort by all means, regardless of the possible harm done to nature. At the same time, mass media are advocating immaturity, careless attitude, which results in people feeling no responsibility either to nature or to society. All of these factors negatively affect teenagers' values and outlook on life.

Moreover, in modern Russia last 20–25 years, the youth haven't had any real interesting and significant involvement with elements of romanticism, challenge and risk, which is an essential part of well-balanced physical and psychological development of a person from the psychological and pedagogical point of view. The lack of those crucial elements in the adolescents' lives creates additional problems in the society. The young start looking for escape from this reality through anti-social behaviour, crime, alcohol and drugs.

How could these problems be solved? Sensible and thoughtful organization of children's free time during the school year and school breaks is one of the possible solutions. Leisure time or free time does not mean, "doing nothing"; additional education of children shapes their personal development no less than school and family. However, many kids cannot get much parental attention during school breaks because fathers and mothers are occupied with their jobs. Therefore, this task is delegated to the society and proper organizations and institutions; they are supposed to organize children's leisure time, to give a broad range of exciting and developing activities, to provide rest and instill healthy habits of the rising generation and protect adolescents from adverse influences. Children's recreational and development camps are the most important among the top structures that can fulfill this task. In the children find themselves in unfamiliar conditions, have to adapt to new things and learn to be proactive and participate in different activities, which can get their gaps in education and upbringing filled, especially with regard to environmental thinking, promotion of a healthy lifestyle and refusal of bad habits. However, the educational process in the camp should be organized on a systematic and scientific basis.

According to our vision of the problem, we have been working for many years, running and upgrading educational environmental project "Leisure and Learning with Pleasure"; the program structure of which was written back in 1995. That project chronologically integrates various science adventure environmental programs like "Sea teaches everything", "Oceania", " The forest is full of knowledge – embrace it!", environmental ethno cultural programs "Red Chief", ecological program of psychological support "Brave Heart", environmental programs of professional training "DIY planet", "Jamaica", "Lingvocamp", and an ecological program of teenagers' vocational training "New experience". Also, we have conducted different scientific expeditions with teenagers doing research in the Black, Okhotskoe, Adriatic, Aegean, Mediterranean, and other seas and also in the Gulf of Mexico. Moreover, several programs were combined with students' practical

training where students were improving their professional skills and gaining pedagogical experience.

We have gradually formed our concepts, tasks and goals in the framework for proactive environmental education. The primary goals of the "Leisure and Learning with Pleasure!" environmental project are the same as any children's recreation camp where they have to entertain kids, strengthen their bodies and set new horizons in their lives. In addition, science adventure programs have specific goals; the main one is to instill responsibility in the rising generation to our community and the planet. In addition, the tasks of the project include:

- ongoing ecological education;
- the development of environmental ethics, ecological culture;
- to help children in choosing their future careers;
- to popularize modern science;
- to promote the refusal of bad habits;
- to steadily to steadily nurture spiritual richness and integrity and instill patriotism.

With our programs in the specialized camps, we try to involve our children and teens in real and meaningful activities, which they lack in their everyday life.

Our programs were designed, tested, and developed within the methods and principles of proactive education and experiential (practice-oriented) learning. Classes and training of our programs, as well as the whole set of material and methodological support, form the psychological and pedagogical set of tools for harmonious adolescent personal development. Proactive education programs produce the positive influence on the children as well as on the high school students who act as counselors and teachers. This form of participation advances young people's self-actualization, and reveals their different talents under unusual conditions during diverse activities.

The primary goal of our programs is the development of a broad understanding of ecological culture. Nowadays, environmental education programs are no longer unique or unusual; it has become an essential part of educational process. Any children's organization that provides physical, patriotic, spiritual, and intellectual education also supports environmental education programs. No one thinks about the future of humankind without environmental education programs. The things that shaped the necessity of the change of educational paradigm was orientation towards the future i.e. the transition towards education for sustainable development. However, ESD is not effective if performed within the sedentary learning framework. Modern students need activity, adventures, positive emotions, the joy of discovery, independence, and many other elements, which we have included into our framework of proactive environmental education.

Our programs give a broad range of opportunities for self-realization of children, teenagers, college students. They integrate elements of scientific ecological research using real scientific equipment. It includes self-written scientific papers, diving (including collecting samples for ecological monitoring), steering the ship, handling the sails and kayaks, mastering tourism and mountain climbing skills, horse riding, basics of observational astronomy, working at a glass, pottery and blacksmith workshop, and a host of other things. Because of real contact with these disciplines, children and teenagers start to consider school subjects more seriously and re-evaluate the purpose of life.

It is the romanticism, adventure, the opportunity to try something new that attracts youngsters. Moreover, children change and develop under the influence of natural factors such as water, sand, seabed, rocks, the night sky, trees and grass, physical exercise, hard work, emotional release, new experiences and knowledge which is easy to share with friends (or sometimes to show off, which is also quite important) as well as elements of reasonable. They become mature. For someone, these new hobbies could become a new profession and

the purpose of life. Youngsters eagerly share their new experiences and knowledge with their friends who come to us to get the same. Next year these teens can test themselves in involvement that is more serious. They can go on a real scientific expedition, e.g. to Egypt, Bulgaria, Crimea, or Kamchatka, which is also an element of our program.

We allow college students using our programs to participate in the education of the rising generation, which is an important and highly responsible practice. To get them ready for the camp, students from different universities train intensively during the year: they swim, dive, master hiking and climbing skills, study sailing and how to fix motors. In this way, they get an interesting and meaningful activity to fill their free time with. Moreover, the training year structure allows every student to do both - teach (so they learn leadership) and be taught. Working as instructors, college students prepare educational materials, plan the curriculum and develop the program of their courses. So our programs help youngsters to choose their careers, provide valuable workplaces for college students and organize scope for pedagogical practice, which is one of our goals. Our programs teach children, teenagers, and college students teamwork skills, to be responsible for one's actions, and to learn to protect rather than destroy.

Since 1995, science adventure programs of the "Leisure and Learning with Pleasure" project have been conducted in the largest Russian children's centers where more than 50 000 children, teenagers and college students have participated. Children from many social layers and regions have a chance to study the wonderful world of nature closely, meet unique people: scientists, cosmonauts, travelers, people of culture and engage in various unusual activities. The programs launch children's scientific and research careers and prepare them for applying to the best universities. After our programs, kids participate in scientific conferences and they find their path in life. Hundreds of children and teenagers have been involved in international research, diving, expedition tourism and have received diving and tourism certificates.

The international non-profit fund of young people's recreation, health improvement, and leisure industry known as the International Fund "Roads to discovery", and the regional public organization "New cultural and economic experience" run the environmental project "Leisure and Learning with Pleasure".

The programs of the environmental project "Leisure and Learning with Pleasure" were sponsored by the institutions listed below: the Federation Council Youth and Sport Commission of the Russian Federation, Senatorial Club of the Council of Federation of the Russian Federation, Defense Board of the State Duma of the Russian Federation, Ministry of Education of the Russian Federation, Federal Drug Control Service of Russia, M.V. Lomonosov Moscow State University, Moscow City University of Psychology and Education, P.P. Shirshov Institute of Oceanology, State Oceanographic Institute, "Russian Life Saving on Water Social Organization" (VOSVOD), Russian Underwater Federation, Russian Navy divers union, military-patriotic center "Vympel".

Alexander Kamnev

List of acronyms

art. – article
CIS – The Commonwealth of Independent States
CMAS – Confederation Mondiale des Activites Subaquatiques (Fr)
DESD – The Decade of Education for Sustainable Development
d.b.s. – Doctor of Biological Sciense
EE – experiential education
ES – education for sustainability (SE/ESD)
EL – experiential learning
ELT – Experiential Learning Theory
EnE – Environmental Education
ESD – Education for Sustainable Development (SE/EfS)
Fig. – figure
GD – group discussion
GMO – genetically modified organism
ICT – information and communications technology
Intern. – international
IT – information technology
lab. – laboratory
Mid. – middle
MSU – Moscow State University
P. – page
PC – personal computer
PIEEU – Proactive and Integrative Experiential Education and Upbringing
POE – Practice-Oriented Education (EE)
PR – public relations
RAS – Russian Academy of Science
RLE – real-life-experience
RUF – Russian Underwater Federation
SAP – Science Adventure Program
SE – Sustainability Education (ES/ESD)
SOE – Subject-Oriented Education (TDE)
SPNA –Special Protected Natural Area
SPNT – Specially Protected Natural Territories
RSUE –Russian State Unified Exam
TDE – Traditional Didactic Education (SOE)
UNCED – The United Nations Conference on Environment and Development
UNECE – UN Economic Commission for Europe
UNESCO – United Nations Educational, Scientific and Cultural Organization
The USA – United States of America
The USSR – United Soviet Socialist Republics
WSSD – World Summit on Sustainable Development
WUF – World Underwater Federation
y.o. – years old

1. What is proactive and integrative environmental education and upbringing (PIEEU)*

Nature and life were the primary educators of humankind.
They were teaching our remote ancestors,
and they will be teaching our most distant descendants.

V.P. Vahterov

1.1. *Environmental education and experiential learning play a very significant role in the meeting of global challenges and problems of the present*

Each new generation is developed on the basis of the knowledge accumulated by the previous ones. However, the volume of this information was rather small in the past, so one had the chance to be proficient in the majority of sciences, engineering, and art if was willing to. Information revolution of the turn of 20–21st centuries changed the situation dramatically. Nowadays, it is impossible to master that huge volume of the knowledge accumulated by our humankind, which is increasing it day by day. Young people are flooded with information. Only a strong personality can resist this flow, and to benefit from its power.

The ideology of consumption or consumerism (Kamnev et al., 2004) is prevailing in the world nowadays. Everything is consumed – from the Earth's atmosphere to its subsoil. Consumer behavior is constantly being promoted by mass media and advertising. The aspiration to wealth, material welfare and comfort is made into a cult everywhere and what this cult imposes is irresponsibility, dependency, and infantility in a person. Apart from this, it undermines many important moral values.

"General consumption of everything" has resulted not only in ozone holes but has lead to "holes" in a person's consciousness, soul and system of values. Those "holes" are especially dangerous to a child as while growing up they can turn into the real "black holes". But what the young generations end up facing is not only potential emptiness inside their souls but also the lack of formative directions. Over the last 20–25 years, young people have had no real interesting and significant involvement, with elements of romanticism, challenge, and risk. As a result, their personal development is hindered. The youngsters feel the lack of these elements, so they start "cruising for a bruising", and get themselves involved in destructive, criminal activity, or spend their time in front of the computer.

What can be offered to teenagers by pedagogical community and society, as opposed to organizers of youth gangs, groups of football fans, and those living on the edge? The current educational institutions, despite their importance, lack those elements which would help to save up life experience, satisfy the natural taste for adventure, promote the versatile development of the personality. Placing emphasis on knowledge accumulation and academic preparation, the orthodox education (traditional education) partly loses its value, partly. The information revolution got the noosphere overflowed with sometimes inconsistent and unnecessary data. The ability to use information, social and psychological skills (how to control yourself and interact with people), get more importance nowadays than the development of knowledge and erudition (Asmolov, Yagodin, 1992; Lishin, 1994; Gershunskii, 1998; Mudrik, 2001; Sadovnichii 2005; Soloviev, 2007). The development of

* Kamnev A.N., Kamnev O.A., Kamneva M.A., Grigorev G.V., Yefremov K.D., Kononova O.A.

environmental thinking also gains more importance (Sidelkovsky, 1988; Moiseev, 1996; Derybo, Yasvin, 1996; Gil'miarova, 1999; Gagarin, 2003; Marfenin, Popova, 2006 a,b; Environmental education in Russia…, 1995; Environmental culture instilling…, 1997; About ecology of youth, for a teacher, 1996; Promotion of environmental awareness, 2004).

By the end of the XX century, the trend of semantic work and "sedentary education" had gathered pace. The belief that automatic machines would soon replace people emerged.

The idea that children have to stay at a table, studying books, rewriting exercises, learning a large volume of "important and necessary" knowledge is ingrained in modern pedagogies and social attitudes. We have finally discovered some shortcomings of this approach from the viewpoint of the competence-based approach. It turned out that students who have obtained a lot of information are not able to apply it, they do not possess many useful skills, and they are immature and not ready for professional activity. Comparative examination showed that students from the developed western countries showed a greater development of analytical and synthetic skills on some occasions than Russian ones. Europeans and Americans also demonstrate a higher level of decision-making abilities, though they lag behind on a "knowledge" indicator (Yalalov, 2007). The situation was aggravated by the social and economic crisis in the former Soviet Union in the 1990s. This caused the crisis of values and loss of life purposes in people's consciousness.

By the end of the XX century, more and more people had begun to realize the importance of the global problems (Moiseev, 1996 a,b; Sadovnichii, Kasimov, 2006; Medows et al., 2007; Shabanov, 2007; Yagodin et al., 2008) which humankind is facing, such as:

- environmental pollution,
- destruction of the biosphere,
- climate change,
- resource depletion,
- uncontrolled growth of population,
- overproduction and consumerism (or extent of the consumer lifestyle),
- the crisis of labor relations and traditions,
- the threat of uncontrollable financial and political crises,
- arms race and militarism,
- the threat of global nuclear war and local conflicts,
- terrorism,
- the increase in cross-ethnic and cross-religious intensity,
- ethnic-cultural identity conflict,
- erosion of social and human values,
- information saturation, etc.

Humankind has realized these problems and gloomy prospects and has started to look for a way out. Upbringing and education were accepted as the most important directions to solve global problems in the 1970s because teaching forms a person's consciousness, which in its turn, forms the reality. The United Nations Conference on the Human Environment was held in Stockholm, Sweden in 1972 and it contained principles concerning the environment and development. One of them states: 'Environmental education is essential'. In October 1975 The Belgrade Charter was the outcome of the International Workshop on Environmental Education held in Belgrade. The Belgrade Charter was built upon the Stockholm Declaration which defined goals, objectives, and guiding principles of environmental education programs.

The Charter states that EnE, should constitute a comprehensive lifelong education, one responsive to changes in a rapidly evolving world. It should prepare the individual for life through an understanding of the major problems of the contemporary world, and the provision of skills and attributes needed to work toward improving life and protecting the environment with due regard given to ethical values. The goal of environmental education is to develop a world population that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations, and commitment to work individually and collectively towards solutions of current problems and the prevention of new ones (UNECE strategy on education for sustainable development – ESD, 2004).

Environmental education was declared a component of general education and continuous process involving people of all ages. In 1977, the Intergovernmental Conference on Environmental Education in Tbilisi, Georgia, emphasized the role of EnE in preserving and improving the global environment and sought to provide the framework and guidelines for environmental education. The Conference laid out the roles, objectives, and characteristics of EnE, and provided several goals and principles for it. Therefore, the conceptual base and methodology of environmental education and upbringing were developed in the 1970s, and so far, the environmental block has become an integral part of any educational process.

In the 1990s, it became evident that environmental education is not enough to solve global problems. A more powerful tool and the strategy considering social, ecological and economic contradictions were required. The United Nations Conference on Environment and Development (UNCED) was held in Rio de Janeiro 1992. The issues addressed included: systematic scrutiny of patterns of production, alternative sources of energy to replace the use of fossil fuels which delegates linked to global climate change, etc. The suggested way out of the catastrophic situation was outlined based on signed agreements that stated rights and obligations of states considering industry, environmental pollution, and natural resources utilization. Massive work, which was carried out, by the UNESCO and various UN environmental commissions for many years was logically completed with the Rio Summit. After the conference, the concept of "**sustainable development**" became widely used as a standard and reasonable term (Moiseev, 1996 a,b; Adams, 2006; Marfenin, 2006; Sadovnichii, Kasimov, 2006; Kasimov, 2008; Education for sustainable development, 2004).

The subsequent international top level conferences, meetings, summits (Toronto: 1992, Copenhagen: 1995, Thessaloniki: 1997, Johannesburg: 2002, Kiev: 2003, etc.) promoted recognition of **the crucial role of education in achieving sustainable development**. They ensured the development of the concept and methodology of education for sustainable development, and improvement of school system. The UNESCO World Conference on Education for Sustainable Development was held in Bonn, Germany 2009. The United Nations General Assembly adopted Resolution 57/254 to start The Decade of Education for Sustainable Development (DESD) 2005–2014.

In the 1990s, despite the social and educational crisis in the world, Russians were advancing the principles of environmental education, cultivating environmentally friendly mindset in people. Here are some Russian **charters** including federal laws underlining the importance of environmental education:

- Decree No. 236 of the President of the Russian Federation dated February 04, 1994 *On the Approval of the Russian Federation Strategy for Environmental Protection and Ensuring of Sustainable Development*. It places the environmental education of population as one of the key directions for sustainable development that allows citizens to implement their constitutional right to live in a favorable environment.

- Decree No. 440 of the President of the Russian Federation dated April 01, 1996 *On the Approval of the Framework of Transition of the Russian Federation to Sustainable Development*. According to it, one of the key factors of ecological safety is the education of the population created on the environmentally friendly basis. This document prioritizes development of environmental responsibility, promotes active promotion of sustainable development principles, and guarantees the creation of an appropriate educational system.
- Federal Law No. 3266-1 of the Russian Federation dated April 10, 1992 (with amendments) *About Education*. Article 2 claims "commitment to the environment" is one of the leading principles of national education policies.
- Federal Law No. 33-ФЗ of the Russian Federation dated March 14, 1995 *Protected areas of Russia*. It ranks environmental education as one of the top priority tasks for National Parks and other Protected areas of Russia, as they are environment-oriented and environmental education centers.
- Federal Law No. 7-ФЗ of the Russian Federation dated January 10, 2002 *Concerning the Protection of the Environment*. It states the necessity of forming ongoing environmental education programs that includes all stages of formal and informal education, colleges, and universities, personnel training. (Chapter XI, Article 73). This law assigns the following institutions with a task to be responsible for environmental education: the Government of the Russian Federation (Art. 6), dedicated federal environmental agencies (Art. 7), local governments of the Russian Federation (Art. 8,9), local authorities and subordinate educational branches and educational facilities (Art. 10).
- Decree No. 1225-pr of the Government of the Russian Federation dated August 31, 2002 *On the Approval of the Ecological Doctrine of the Russian Federation*. It describes the relevance of ecological education and its strategies.

Alongside these, there are also local decrees and laws that regulate environmental education, and decrees and legislation concerning Protected Areas of Russia. Such laws were adopted in the Republic of Daghestan, in the Republic of Bashkortostan, in the Regions of Vologda, Irkutsk, Ulyanovsk, in the Primorye Territory, in the Khanty-Mansijsk Autonomous District, in the city of Moscow and other subordinate entities of the Federation.

Many Russian specialists were working on the **research and development of environmental education methodology**; then they shaped **Education for Sustainable Development (ESD)**. Their names are V.P. Bespal'ko (2008), N.F. Bochkarjova (1996), A.V. Gagarin (2003), S.D. Derjabo (1999), D.S. Ermakov (2005, 2009), K.D. Yefremov (1999a,b, 2002 a,b., 2005b, 2007 b), A.N. Zahlebnyj (1981), D.N. Kavtaradze (1998), N.S. Kasimov (2008), N.N. Marfenin. (2000, 2002 a,b., 2006, 2009), N.N. Moiseev (1996; 2001), V.I. Panov (2000, 2001), V.A.Sadovnichij (2005), A.P. Sidel'nikovskij (1988), I.T. Suravegina, 1993,1997; G.A. Jagodin (2008), V.A Jasvin (2003, 2006) and others. They created various manuals, techniques, textbooks and conducted scientific research.

Authors of this monograph also took part in this process (Kamnev, 1997, 1998 a,b,s, 2007, 2009; 20013; Kamnev, Yefremov, 2004; Kamnev, Kamneva, 2001; Kamnev et al., 1998, 1999, 2001, 2007a,b, 2009, 2013), working on theoretical justification and practical application of experiential ecological education in adventure camps.

Effectiveness of environmental education and Education for Sustainable Development (ESD) is based on the **experience- and practice-oriented approaches**. That is indirectly mentioned in the UNECE Strategy for Education for Sustainable Development 2005-2014 (2005). In particular, paragraph 28 ESD demands a reorientation away from focusing entirely on providing knowledge towards dealing with problems and identifying

possible solutions. Therefore, education should retain its traditional focus on specific subjects and at the same time open the door to multi- and interdisciplinary examination of real-life situations. This could have an impact on the structure of learning programs and on the teaching methods, demanding that educators shift from being solely transmitters; learners change from being only recipients. Instead, both should form a team. In addition, the strategy Paragraph 33 recommends using a broad range of participatory, process and solution-oriented educational methods tailored to the learner (UNECE initiative on education for sustainable development (ESD), 2004). The article notifies that apart from the traditional ones, these should include:

- discussions,
- conceptual and perceptual mapping,
- philosophical inquiry,
- value clarification,
- role playing and simulations,
- scenarios,
- modeling,
- games,
- information and communications technology (ICT),
- surveys,
- case studies,
- excursions and outdoor learning,
- learner-driven projects,
- good practice analyzes,
- workplace experience,
- problem-solving.

As we said above, all these tasks are fulfilled within the experience- and practice-oriented methods of teaching: *практико-ориентированное* (practice-oriented), *опыто-ориентированное* (experience-oriented), *эмпирическое* (empirical) *образование* (education/learning). (*To emphasize peculiarities of the methods and loyalty to the Russian pedagogies we will use* ***experience- and practice-oriented education*** *and more rarely* ***experiential learning,*** *and sometimes, western well-made pedagogy term "experiential education", which is translated into Russian by calquing –* ***экспериентальное образование****).*

The concept of experiential education was developed in a discourse of political and pedagogical philosophy (The Theory of Experiential Education, 1995). So behind seemingly simple exercises of experiential techniques of training one could foresee the big national and world-wide effects. John Dewey, the philosopher and public figure, advanced pragmatic methodology in the field of logic and gnoseology, and instrumentalism as the direction of a philosophical pragmatism (Dewey, 2000). Also, he was one of the authors of experiential approach. Another supporter of experiential education, Brazilian Paulo Freire, created an efficient literacy teaching that he applied for the needy Brazilians. Frierean literacy methods have been adopted by the government of Brazil (Freire, 1998). Another experiential approach follower, Kurt Hahn developed the productive pedagogy based on adventures and passing of trials (Hahn, 1958).

It should be noted that the term *"experiential education"* did not become widespread in Russia because education is a multidimensional process, it cannot be based on experience and practice only; it surely should include theoretical learning as well. Therefore, the term ***experiential learning*** was more popular. It was translated into Russian as

экспериентальное, or more often as **эмпирическое обучение**, that is education through experience or experience and practice-oriented education.

Experiential (experience and practice-oriented) learning has deep roots, going back to ancient and even primitive times as well as pedagogical work with representatives of various types of occupation (Leontev, 1975; Vakhterov, 1987; Ivanov, 1987; Kornetov, 1993; Loskutov, 1994; Glazachev, 1997; Gershunskii, 1998; Ogurtcov, 2002; Kaliuzhnyi, 2004; Kamnev, Kamneva, 2001; Lishin, 2007; Solovev, 2007; Hazard, Vershlovskii, 1992; History of preschool pedagogy…, 1989; Anthology of pedagogical thought.., 1990). Nevertheless, during a particular period, there was an alienation from experiential methods in pedagogies. Only a few thinkers (Ya.A. Komensky, J.J. Russo, etc.) actively advanced the idea of practice-oriented approach in pedagogies. By the 20th century, in the course of development of psychology, the practice-oriented pedagogies were "rediscovered", and philosophically verified and proofed by scientific methodology. The emphasis on experiential learning was outlined in the works of Kholb, K. Rogers, J. Jean Piaget, M. Montessori, R. Shteiner.

Formation of experimental psychology caused rapid development of experiential approach in the pedagogies. Development of experiential pedagogies is tied with such names as E.Meunmann, V. Lay, A. Thorndike, A. Fishier, R. Lokhner, P. Petersen, S. Holl, G. Rot.

The experiential approach proved to be efficient and is widely applied in the world practice of education and training in meeting global challenges and problems of the present.

It is essential to consider the unrecognized global problem, which is the necessity of **lifelong education**. Experiential learning provides a solution for that. There is a demographic shift in the modern world – life expectancy is increasing, the number of children in a family is decreasing, so the humankind is "growing old". Features of the labor organization and social changes have made all-age education real, which is widely exploited. Now the "students" category includes many people over the age of 25, and even pensioners. Most of the modern seniors tend to travel and gain new knowledge as they have deserved this right. Such activity significantly prolongs active person's life. This steady tendency will probably lead to the shift of education and upbringing systems' focus from children to adults. However, adults are more demanding to the **competence-based potential of training**. Besides, it is simpler for them to study through practice and live experience, rather than learn the didactic material. Thus, it is assumed that demand for experiential learning will soon be growing.

People worldwide have been considering this trend for some time. In November 2002 the Conference on Adult Education took place in Sofia, Bulgaria. It was part of UNESCO "Education for all" program. Sofia Conference on Adult Education Call to Action states: The Conference was concerned with the increasingly narrow approach being taken to adult basic skills education as demonstrated by the reduction in funding for learning for cultural, health, democratic participation and sustainable development objectives (UNESCO, ESD, 2005).

What about those tendencies in Russian pedagogies? There was a broad tradition of the practice-oriented education in Russia and the USSR, the necessity of it was dictated by the life itself. It was used in secondary vocational schools, military academies, musical schools, and kids' sports clubs. It nurtured brilliant athletes, musicians, circus actors, and a full range of various professionals. For arts and crafts classes, schools were equipped with joiner's workshops and locksmithery, housekeeping classes, school allotments and farms. In the senior grades, the whole school day was dedicated to living practice in training and production facilities. Military classes and military games for young people also had practice orientation.

There were also many elements of practice-oriented education in colleges and universities: laboratory research, work practice, sea and land expeditions. Scientific faculties

offered an even wider variety of field practice. All students besides the acquisition of professional skills were taught how to bring down trees, build rafts, ride horses, and some of the mountaineering and tourism elements. Students' construction brigades provided good practice-oriented education. Let us not forget about a wide network of free, well-equipped sports clubs and young technicians' clubs based on the practice-oriented ground.

Environmental education also has the same practical component; it included clubs of young naturalists, and supported different events. School biology classes were conducted outdoors. Students were involved in hiking and camping on a regular basis. Tourism was an important part of an educational process. There were many travel clubs and communities. Pioneer and Timurite movements, as well as summer camps provided kids with further practice-oriented education and life experience.

The methodological base and scientific framework of this approach were developed by K.D. Ushinsky, V.P. Vackhterov, S.A. Rachinsky, V.A. Sukhomlinsky, A.S. Makarenko and many others. Activity theory approach in psychology and pedagogies was studied by B.L. and L.S. Vygotsky, D.B. Elkonin, A.N. Leontyev, S.L. Rubinshtein, etc. The efficiency and usefulness of experience- and practice-oriented approach at comprehensive school were verified by works of teachers like L.E. Tikhomirov, I.S. Tikhomirov, M.P. Shchetinin, S.A. Amonashvili, V.F. Shatalov, V.F. Bazarny, E.I. Ilyin.

Proactive and integrative environmental education and upbringing (PIEEU) *uniquely integrates the principles of environmental upbringing, education for sustainable development (ESD), eco-friendly education, experiential learning, adventure education, as well as methods and techniques which allow to train personnel and create uniquely different scientific and adventure programs for children and teenagers.*

1.2. *Pros and cons of traditional didactic subject-oriented education (formal school)*

Generally, traditional didactic (subject-oriented, explanatory, and illustrative) model of education is based, as a rule, on the principle "**Study – Observe – Act**". The practical component is provided, but it follows academic training (Kharlamov, 1990; Okon, 1990; Davydov, 1996; Kaliuzhnyi, 2004; Solovev, 2007). One receives data about a fact, law, model, strategy at first, and then observes how the principle or model is applied. Only after that, one should put the gained knowledge and skills into practice. However, quite often, the last (practical) stage is postponed for a long period or even rejected entirely.

This didactic (explanatory and illustrative) approach provided the world with many outstanding artists, scientists, and writers. A substantial portion of Russian and world culture and customs was created on its basis. The didactic method allows the learner to receive and accumulate new knowledge in a complete form, saving time and efforts instead of reinventing the wheel. The advantages of old traditional education system (formal education) are well known. Nevertheless, it also has disadvantages, which can be vividly seen, especially recently. (Kamnev, et al., 1998, 1999, 2009).

Firstly, within the didactic approach, information is transferred mainly using abstract concepts and symbolic means. The quality of assimilation of information mostly depends on the learner's ability to perceive, understand, and apply this symbolical language. In particular, if a student has an insufficiently developed cultural level, linguistic, verbal skills and knowledge, then assimilation of information is more difficult.

Secondly, a significant disadvantage of the traditional model of education (formal school) is its focus on abstractions, which are not supposed to be applied immediately in everyday life, if at all. I.e. the out-of-classroom real-world processes hardly correspond with the student's acquired concepts, thoughts, and views. In other words, real life and student's

knowledge never merge; they do not supplement and enrich each other; they just never meet like parallel lines. Therefore, people who mastered symbolic language are hardly capable of creatively putting the theory into practice. So, Professor U. A. Ustynyuk in the article "How to board the Leaving Train" (Ustynjuk, 1988 a,b) gives an example of the unusual experiment conducted at the chemical Faculty of Lomonosov Moscow State University. The investigation revealed defects of the existing education system focused only on memory filling. Simple questions of examiners, requiring comparison of the facts from related subjects or search of analogies baffled the most diligent students who had got used to learning by the book. This leads the author to draw a conclusion that the modern education system is not capable of providing active and creative command of knowledge for students even at such prestigious institution as the MSU department of chemistry, which is the top chemical school in Russia.

The third large disadvantage of the traditional model (formal school) is the very long time interval between the first and the final steps of training. I.e. in this model, strong motivators of training like real activities and achievement of practical results are postponed for uncertain time ("to use it sometime in the future") and stand at the end of a consecutive chain of training. Therefore, we have to use marks as subjective judgments and other artificial incentives.

Fourthly, the didactic education model deals more with the development of intelligence. It underestimates the physical and emotional aspects of the development of the personality, ignores issues of self-discipline, self-determination, self-development, free choice, personal experience, relation with the surrounding people and what is critical, with the environment. The development of these features of character has to be addressed not only by teachers but also by society. Now we have teenagers who show no initiative, discipline and who are physically weak due to the "softness" and comfort of modern life, lack of adventures and risk. As a result, it leads to drug abuse, stimulators, and tranquilizers, computer addiction, and other ways of escaping the reality and making up for the lack of life interests. From the other side, the fast pace of life in combination with the modern mass production of goods destroys the need of the personality in the skillful work, in the art and the craftsmanship. Impersonality, rationalism, and bureaucracy of a state system lead to a lack of involvement, absence of personal responsibility and compassion. All these diseases of modern civilization cultivate apathy, cynicism, the feeling of helplessness, and social and moral loss of consciousness in considerable part of the youth.

Fifthly, the major part of school knowledge often remains unused in the students' life later on; in fact, they often realize that while studying in high school. It often occurs because children do not know why they need all this, and where to apply the knowledge, and this fact is the main reason that this knowledge, and sometimes skills do not become the property of a personal life experience of a child.

Sixthly, the traditional didactic model of education does not consider the way a child sees the world, the environment at their age, as well as their own personality and place in life. Threfore, we can distinctly see a student facing disadvantages of traditional education model during adolescence crisis, when a child deals with the problems of determination and their place in life. The traditional education model is not capable of addressing this.

At last, seventhly, the traditional model of education fails to stir up a student's interest, which increases attention, working capacity, develops thinking, imagination and consequently, search and creative activities.

Thus, the present traditional didactic model of education provides passive absorption and reproduction of received information that, unfortunately, is not up-to-date with the requirements of modern society, modern teaching, and computer technologies.

Moreover, it should be noted that the current situation significantly differs from the crisis of the early 1990s in Russia. The modern schooling and higher education as far as possible are trying to solve the designated problems. Vocational schools and a wide range of clubs and societies ensure harmonious education for children and adolescents. Outdoor clubs, sports clubs and different children's summer camps assist in solving those educational problems too. In this regard, experience and practical-oriented teaching methods show their high efficiency.

1.3. *What is experiential learning?*

Experiential (*experience and practice-oriented*) learning i.e. education through experience is a process of getting information and skills through direct, independent studying of an object or performing a task. It is the method of "trial and error", one tries to do something even if they don't know how to do it. One is not supposed to study someone's experience. Education through experience is very similar to the action learning and cooperative/collaborative learning, but there are also some differences.

Education through experience goes without the direct participation of the teacher but needs students' reflection, therefore, a mentor/trainer/tutor is desirable to take part in the process to help a student to analyze the experience. This method shows an excellent result if applied correctly. Otherwise, it can lead to the "hot stove effect". Experiential learning means that anyone can participate in it (regardless of age and state of health). Each person introduces "him/herself" and own experience into the learning environment. Each person helps to improve educational material by using them (Medrick, 1977; Bacon, 1983; Marsh, 1986; Miner, Boldt, 2001; Dewey, 2007).

Most consistently, the principles of such an approach and pragmatic trends in pedagogies have been reflected in the concept of the so-called experiential education (The Theory of Experiential Education, 1995). In Russia the original English experiential education (or German Erfahrungsbasiertes Lernen) was translated differently:

Experiential education seems to us to be a pedagogical process based on the "Action — Studying — Action" model, during which the person, at first, gets his/her experience, then improves it, adopting knowledge and skills of the mentor/tutor, and further builds up on the experience with the help of practice, trial or adventure.

Let us have a closer look at the specifics of experiential learning. Generally speaking, traditional education is known to provide the following pedagogical chain:

1. theoretical foundation (lecture, textbook),
2. practical task (exercise),
3. material revision (test).

Experiential learning, in our understanding, evolves according to the following scheme:

1. briefing (accident prevention and direction of research);
2. first practical step — studying of an object, accumulation of individual experience (what the object is, how it acts, how to use it);
3. discovery (learning unknown function, solution finding, etc.).
4. studying others' experience and findings (how it was done before, real functions of an object, what experts and masters know about that);
5. getting deep theoretical foundation (academic part, lecture);

6. personal experience re-evaluation (using new knowledge);
7. practical revision (mastering the subject);
8. feedback and debriefing (critical discussion and understanding of personal feelings and ways of search);
9. test those skills and knowledge by trial and adventure.

Experiential learning integrates not only declarative (explicit) but also procedural (implicit) and emotional memory, it develops not only verbal intelligence but also social, spatial and emotional intelligence. Such components of intelligence as curiosity, mind flexibility, logic (based on performing of practical procedures), criticality and variability of thinking are therefore developed. Thus, experiential learning is considered as an effective pedagogical method though demanding in terms of of time, work, and material resources.

Experiential approach motivation of training is internal; it is practice based and needs no outside incentives. The student is supposed to solve a problem employing practice: gathering information, acting and operating, then generalizing consequences of these actions, gaining experience and skills needed for new steps. Such an approach leads to better assimilation of information, as every learned thing is associated with specific activities and events, not with abstract symbols and general principles. Moreover, knowledge acquisition and its application are close in time. Experiential learning is based not on reproducing of data from books, textbooks, and lectures but on the whole world of new individual discoveries. It gives the pleasure of learning and goes with positive emotions, which ensures the success of learning.

1.4. *Main purposes of experiential learning*

Experiential education aims at the development of psychological qualities of students, such as initiative, competence, feeling of social unity, and environmental care.

- *Initiative* assumes taking responsibility for the actions, development of self-control (the quality that characterizes person's skill to attribute the results of activity to their abilities and efforts), and development of leadership.
- *Competence* makes the basis of actions; it enables a person to show initiative, and it is interpreted as a feeling of one's capabilities, needed for applying of abilities in various fields. Competence includes not only the received stock of knowledge and abilities but also the possibility of their practical application.
- Feeling of *social unity* is understood as a tandem of group identity feeling and an active group and society position. It also includes knowing of the rights and duties in different groups, both communicative and social skills that are necessary for the social life, as well as the understanding of and ability to consider interests of various groups within a community.
- *Environmental care* means a profound understanding of fragility of the nature, interrelations and importance of its every part, and understanding of the person's place in the environment.

All these qualities ensure the development of student's consciousness, which is the main goal of experiential learning.

1.5. *Basic principles of experiential learning*

Let us state some principles of experiential learning, as it is the leading method of proactive and integrative environmental education and upbringing (PIEEU). These principles

were formed because of the research of J. Piaget (Piaget, 1954), K. Hahn (Hahn, 1958), P. Harmon (Harmon, 1980), D. Dewey (Dewey, 1981, 2007), D. Kolb (Kolb, 1984), S. Frene (Frene, 1990), L. Joplin (Joplin, 1995), and independent works of the authors.

A student participates in the experiential learning much more than a teacher. Experiential learning takes a student as a central figure and considers only their studying pace. To achieve this, freedom is required for a teacher to choose an unplanned topic for a lesson, or to skip the planned one, if the student can easily learn it. Although this approach provides less material covered during a lesson than it was planned, it is compensated as the students are more engaged and willing to study.

Personal, not impersonal studying. Experiential learning starts with nurturing the student's interest in a subject. Student's personal experience is as important as knowledge and practical skills.

Process and result orientation. Experiential learning considers student's attitude to a question as vital as the "correctness" of the answer. The result of the study leads to the unity of thoughts and the follow-up actions. The concept of this unity is essential to mark students' efforts. Usually, the amount of learned material is taken as a mark. The experiential approach requires students' ideas to be taken into account, as well as their development and the strategies chosen for it. Students' diary shows it well.

Inner and outer motives rating. Experiential learning integrates assessment process into the experience of learning. The mark is not the last word, not a verdict. It is possible to encourage students to assess themselves, participate in and observe the process of learning. A student's ability of adequate self-assessment fosters independence, self-control, it also helps to set and achieve goals independentaly. Self-assessment skills increase student's responsibility.

Component analysis and complex thinking. Monitoring the results of experiential learning includes the explanation of phenomena using statistical equations, and learning the object's special features and wide range of qualities. Educator-researcher can get data from interviews, personal reports, questionnaires, creative seminars or group discussions. The broader viewpoint results in much greater knowledge of the situation complexity than conventional approach can do.

Experience based. Experience is a foundation that students build their knowledge on. Problem and topic approaches get along with experiential learning quite well and provide a solid basis for it.

Deductive reasoning. Learning goes not from simple to complex; it does not follow the top-down logic. The process goes from complex to simple, from general experience to its analysis and conceptualization.

Cognitive learning. Special attention is taken to ensure student's ability to interpret and explain, not to repeat expert's opinion blindly. Experiential learning appreciates all the levels of knowledge of a subject, from student's views to expert's opinions.

Individuality orientation. The experiential learning goal and the most important part of it is to monitor personal advancement and consciousness development. Individual relations and roles inside a group, person's knowledge of group functioning as a unit and his/her feeling as a part of it are taken as crucial matters.

Authenticity and involvement. Everything that happens to students, all activities, tasks performed, skills acquired and so on - should be taken by the participants as hands-on, related to real life, and meaningful. In this case, a person realizes the idea of education, enjoys, and loves the learning process. Assessment becomes a formality, as every student monitors their results and takes full responsibility for it.

Activities. Experiential education promotes different kinds of students' activity, both physical and intellectual. It improves a person intellectually as well as socially, physically,

and emotionally. Active (subjective) attitude toward the education develops thinking through the search of alternatives and discussions; it uses imagination, creative approach, instead of passive listening to and repeating after the expert, as in the traditional methods.

*Future orientation. S*howing the practical application of a new experience is considered essential. Opportunities opened by this experience call for learner's involvement and initiative.

The joy of participating. Experiential approach tries to obliterate "to make someone to study" concept. Everyone chooses an appropriate difficulty level, takes or does not take a challenge. Difficult and risk taking tasks may cause negative emotions and frustration but the job of an educator-manager is to solve it. The joy of reaching a goal, satisfaction with accomplished work are the primary motives for participating in the process.

All these principles and goals are used to some extent when a certain educator creates a specific program. Educator's main task is to create physical and social conditions where participants can get new experience because of their interplay with the study subject and solving different tasks working as a team. An educator organizes the educational process, creates conditions, provides security and safety, offers tasks, assists, helps if needed, sets the rules and limits for the students' actions (basic required minimum). Educator's behavior, reactions to the students' acts, cooperation with them may change their behavior and become a part of their social experience. The principle teacher's function is not to provide correct and already prepared answers but stimulate the search activity, create conditions of independent and personal discovery of something new (knowledge, technology and so on); in other words, it should not be the direct guidance to a predetermined result but facilitation of individual searching activity.

That is why preparation and support of teacher's work is an essential part of experiential education. Such work is carried out by the experiential education conferences, seminars and training for teachers, "The Journal of Experiential Education", and web pages about experiential education.

A necessary part of an experiential learning course, regardless of its length is the reflection on experience. It is the process of sharing feelings and understanding of the work done; it results in assessment and integration of experience. Incorporation of any emotions into the big picture of a person's life experience ensures the importance of learned knowledge and future steps.

There are several well-known psychological methods of reflection, which are applied in experiential learning.

- *Group discussion* (team debating). It could be a free or chosen topic discussion; it could be prepared by a teacher or could be not. GD participants speak out whenever they want to or take turns (e.g. sharing emotions and feelings, when people take turns to describe their emotions and feelings, which provides prompt feedback on group's current performance). The advantages of GD are: the opportunity to speak out in front of the whole team; quick involvement into process; chance of controlling GD course; encouraging everybody's contribution; collision of opposite viewpoints.

However, GD is quite time-consuming because every member needs some time to speak; it can provoke formal answers or cause someone to avoid the discussion if one has no public speaking skills.

- *Small groups* (4–8 students) intensifies work of every team member, requires little time, involves students who are passive and poor public speakers, as it provides a safer environment for speaking out.

The disadvantage of the GD method is the homogeneity of the groups and the lack of opposing opinions. Therefore, some matters of a discussion can remain untouched. It is harder for a leader to control a small group; a discussion may go any direction. After small

group discussion, it is essential to have a bigger one, to ensure every participant shares their ideas and progress.

- *Diads* (pairs) deepen interconnection, foster greater trust during discussions, involve the most passive students. This method is crucial in the beginning while teamwork skills are not set, it ensures closer acquaintance, the atmosphere of trust and comfort. The leader can also use diads to target a particular person, a leader or a passive one, being still within the course.

The main diads problem is the lack of control. One of the diaders may dominate, and impose their opinion.

There are following traditional forms of individual work inside groups.

- *Self-reflection*. A student has some private time for independent reflection on events, to have a break from teamwork. Private time can be not set once and for all, but it is obligatory to have some in the group timetable. A group can be dismissed for 15 minutes for self-reflection and thinking about something important for each member, without talks and other ways of communication between each other.
- *Diary*. It is a vital form of feedback; it provides analysis of emotional experience. It helps to express and formulate personal ideas and thoughts and to trace dynamics of changing relationships. Diary offers an outlet and expression of covered emotions, those that a member does not want to discuss with their partner. That is why it is important to decide at the very beginning if the participant's diary should be considered by a whole group, if they want to share their ideas and feelings of a diary because it affects the frankness while working with it. In addition, the necessity of this job should be stated at the program's start; special 'diary' time should be appointed to ensure everyone has enough time to put some notes in their diary. It is possible to have "guided" notes, as a response to the questions asked by a leader. Nevertheless, that should be a private and uncontrollable sphere.
- *Painting.* Individual or group-wide, free topic or guided, it works for the group.
- *Survey.* Filling in polling lists (active lists) is a good feedback method, which records a participant's position before and after discussions (e.g. 'My values include...', 'I have understood that is difficult for me to...', 'At the end of the course I have realized...').
- *Filming and record analysis.* Watching the records brings joy and satisfaction, one understands their behavioral patterns under different circumstances, and it reveals the relationships inside the group. This technique of watching and discussing the records helps teachers to form individual (most appropriate, sensible, and correct under the current conditions) behavioral model.

1.6. ***Proactive and integrative environmental education and upbringing (PIEEU) is one of the possible ways to solve the present educational problems***

The development and practical use of PIEEU in Russia have started back in the 1990s in Russia (Kamnev, 1992, Kamnev, 1994, 1997, 1998 a,b,c; 2005 a,b,c,d; 2006 a,b,c,d; 2009; Kamnev, Yefremov, 2008; Kamnev, Tolkacheva, 1993; Kamnev, Kamneva, 2001; Kamneva, Kamnev, 2003; Kamnev, Konjushev, 1996 a,b; Istomina, Kamnev, 1997; Kamnev et al., 1998, 1999, 2007 a,b; 2009, 2013; Panov et al., 1996).

The necessity of theoretical and practical development of PIEEU in Russia firstly was dictated by the current social and economic crisis in the 1990s. At that moment, following social and methodological problems arose in pedagogies:

- Increased aggression of children and teenagers, involvement in crime and antisocial behavior.

- Poor health, sedentary lifestyle, lack of life experience, the crisis of values and ideals,
- Do-not-care attitude to the environment and ecological problems; scornful mindset to anything connected with the biology and ecology; barbarism and consumerism; irrational use of natural resources.
- Traditional secondary and higher education was undergoing through systemic crisis, losing ethical and moral components and providing students with poor skills and competences.
- Russian science was going through crisis, with a shortage of young scientists. The authority of science, in particular, with ecology and biology, went down.
- Environmental education was usually conducted formally, indoors, abstractly, without connection with the real nature.
- Education for Sustainable Development (ESD) did not gain wide popularity, as the definition, the structure, and the realization were quite complicated (a teacher required specialized training, integration of material skill and inter-subject communications knowledge). Also, the term was rather overused.
- Experiential learning methods required particular preparation and were costly (discipline and safety assurance, equipment and tools, teachers training, the organization of outdoor classes and so on), therefore, not often used.

These and other problems brought about the creation of a very special type of education, which we name "PIEEU", which during its evolution absorbed principles of the following pedagogical directions.

1. *ESD*. Integrates education for peaceful leaving, economy development, environmental safety, sustainable use of natural recourses (Mamedov, Surovegina, 1995; Marfenin, 2006; Sadovnichij, Kasimov, 2006; Education for sustainable development, 2008).

2. *Environmental education.* Includes scientific, environmental education, development of ecological ethic, environmental legislation, and development of environmental culture as a whole (Kochergin et al., 1987; Bochkareva, 1996; Derjabo, Jasvin, 1996; Moiseev, 1996 a,b; Environmental culture instilling…, 1997; Learning toward an Ecological Consciousness, 2004; Ermakov, 2005).

3. *Eco-friendly pedagogies*. It does not consider the student as an abstract subject but as an individual, personality, child, living person, with its needs, biorhythms, evolution, and also as someone who is a part of the ecosystem, society, and cultural and historical fields (Gagarin, 2003; Bespal'ko, 2008).

4. *Health development pedagogies.* Teaching process should not destroy the child's health but improve it, strengthen, increase physical qualities because of changing types of work - physical, physiological, and mental (Surovegina, 1993).

5. *Adventure pedagogies.* Highly efficient education leaves bright impressions, it mobilizes perception and memory, increases thinking capacity, enriches emotional sphere, provides sophisticated work for the mind, which ensures the harmonious development of a personality (Lentz, Smith, 1976; Schoel at al., 1989; Nadler, Luckner, 1992; Miner, Boldt, 2001; Pieh, 2002).

6. *Anthropological approach.* 'Myself' of a human stays in the middle of the big picture of the universe; it is a system of intuitively understood ideas about reality; that is why didactic model, which ignores the human, is incomplete. A man should be implemented into a didactic model, but consumerism and anthropocentrism should be transformed into altruistic egoism, while accepting environmental ethic and principles of sustainable development (Ogurtsov, 2002).

7. *Science education.* It lays a basis for scientific thinking, empirical logic argumentation, provides the picture of the universe construction, natural history (Schwab, 1963; Dewey, 1981; Sidel'kovskij, 1988; Autleeva, 1992; Bekker, 1998).

8. *Practice-oriented education.* Accumulation of knowledge is based on experiential foundation, practice goes before and after theory, providing initial experience, and then is used for the revision of the covered material. Practice-oriented education is built on the unity of emotionally vivid and logical components, on gaining new knowledge and forming practical experience of applying it while solving some critical problems in life as well as emotional and cognitive fulfillment of student's original search.

9. *Experience-oriented education.* Here we consider learning through expanding of life experience in all respects, which allows to solve various tasks without special training and to be competent in unexpected situations (Dewey, 1981, 2007).

10. *Experiential (experience- and practice-oriented) education.* It aims pragmatically to teach quickly anyone by dividing the studying task into small steps which everyone can make (Harmon, Templin, 1980).

Formally, **PIEEU** (Kamnev, 1997, Kamnev et al, 1998, 1999, 2009, 2013) harmoniously combines principles of Traditional Didactic (Subject-Oriented) Education (TDE/**SOE**) as well as experience and practice-oriented education/**POE** also known as experiential education/**EE**.

Therefore, this *education aims not only at knowledge acquisition but also at the process of progressive gaining of life experience, which is one of the educational elements. Speaking of psychology and pedagogy, the central part of active education, especially* ***PIEEU*** *is that educational atmosphere is not only a condition but also a tool of education and children's upbringing.*

The methods of PIEEU are supposed to teach practical activity, which is defined by natural (ecological) relationship between Man and Nature. A crucial part of PIEEU is **environmental subjects (ES),** and **ecological** teaching **methods (EM)** (Figure 1) (Kamnev et al, 1998, 1999, 2009, 2013; Panov, 2000, 2001, 2015; Panov et al., 2006).

Thus, PIEEU is a complex, guided process of creating a harmonious person that integrates components of the traditional (subject-oriented, explanatory and illustrative**) didactic education, methodology of experiential (practice-oriented) education, natural science education programs, environmental education and development of life experience. This approach can be used to shape the education for sustainable development.**

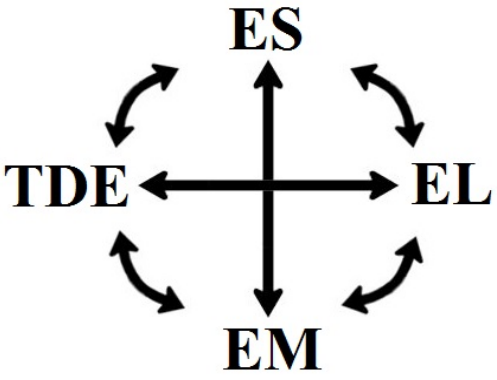

Figure 1. Structural and functional interconnections within PIEEU.

Active education in Russia, as well as environmental education, has deep roots. Probably, one of the first Russian teachers trying to combine different educational approaches (**Traditional Didactic Education + Experiential Education**) was Konstantin Dmitrievich Ushinsky (1824–1871). He thought that the foundation of a creative process was the mixture of studies, work, games and school life. Nevertheless, he placed work as a key factor in the practice-oriented education which increases teaching influence (Ushinsky, 1939). "Every school should possess a garden, farm, small field where children can work, and every teacher should teach different crafts, as much as possible".

Our own and international experience and theoretical knowledge show that EL decreases psychological disorder rate, at all ages, including children and teens. EL liberates a person's creativity and develops the personality; it forms the base of healthy relationship, fosters love to everything alive. It has an advantage that a student can see the result of their work, which ensures a change of social position from criticism and destruction to creation.

This combination of ***TDE&EE*** is believed to soften the crisis of education and upbringing in Russia. That is why Russian education may include elements of ***EE*** into the curriculum. **However, it is essential not to lose home pedagogies achievements and traditions of *EE* that were widely used in Russia while implementing international experience.**

The majority of countries follow the strategic trend of developing their educational systems as an effective combination of principles of Traditional Didactic Education and Experiential Education.

1.7. *Goals and objectives of PIEEU*

Let us have a closer look at the goals and objectives of PIEEU.

Student-focused goals:

- to make the younger generations responsible for the future of this planet, and realize global ecological and social problems;
- to instill *amor patriae* ("love of one's country") based on knowing its nature, history, challenges and capabilities, and responsibility for and comprehension of ecological and cultural and historical processes;
- to foster responsibility for personal actions to nature, society, and the person him/herself:
- to expand life experience, to bring up mature citizen, to decrease infantilism rate;
- ongoing environmental education, to develop environmental competence and literacy;
- to raise environmental morality;
- to develop environmental culture as a whole;
- to encourage interest in research, adventure and work;
- to promote an active lifestyle, interest in nature as an alternative to a passive urban life, computer addiction etc
- to provide early career guidance for adolescents, to introduce them to professional scientific and educational work;
- to popularize modern science;
- to create a warm atmosphere for the physical and psychological development of children, to strengthen their bodies and personalities;
- to promote healthy habits in a non-moralistic way;

- to boost teamwork skills;
- to continually educate youngsters in terms of spiritual and moral and family values;
- to form positive emotions, attitudes, joyful desire to continue working with science adventure programs and the environmental education;

Goals focused on teachers/instructors/mentors, interns:

- to foster responsibility for the future of this planet, and face global ecological and social problems;
- to promote responsibility for personal actions to nature, society, and the person him/herself:
- to expand life experience, to bring up mature citizen, to decrease infantilism rate;
- to advance environmental education programs and ecological culture during practical activity;
- to provide career guidance;
- to enhance professional experience and professional advancement;
- to start a professional career during student years;
- to boost teamwork skills;
- to raise environmental and pedagogical morality;
- to ensure healthy lifestyle.

Goals focused on PIEEU:

- to develop the methodology of PIEEU;
- to design new methods and programs of PIEEU;
- to ensure bright and modern didactic materials about ecology, local history, and tourism;
- to discover application range and effectiveness of eco-pedagogies methods in different teaching situations, conditions, and environments.

Management and practical tasks

To achieve those aims the following practical management, psychological and pedagogical, scientific and methodological aspects should be accomplished:

- to organize activity holidays for children, to provide them with active leisure on the base of children's camps and other science-adventure programs;
- to ensure security and safety of children and personnel;
- to conduct professional headhunting, training, and management of pedagogical stuff for science adventure programs;
- to give multilevel planning of science-adventure programs;
- to organize an efficient and ongoing work of services, teachers, and other personnel for accomplishing a program;
- to run comprehensive and effective classes of PIEEU;
- to ensure psychological, ethical, moral, legal, and pedagogical correctness of work with children;
- to create, maintain and develop the material and technical base of science adventure programs, including manuals, tools, instruments, props etc;
- to balance all the components including adventurous, scientific, health-focused etc;
- to control the effectiveness of pedagogical work;
- to supervise scientific research and guidance of science-adventure programs.

1.8. *Principles of PIEEU*

To distinguish the difference between basics of experiential learning and traditional didactic education (formal school) we should investigate their fundamental qualities. PIEEU is based on the several mutually reinforcing components (Figure 2).

The primary teaching method is the academic approach: students get some knowledge about science and technology (no art or spiritual practices). In particular, diving courses start with basics of physics, physiology and oceanology; tourism courses begin with elements of geography, ecology and history. The experiential approach is applied as well, students are involved in practice, and they gain real life experience. Environmental approach is imperative, as the subject of an educational investigation is nature, the environment. Every human action affects nature, including the human him/herself, being a part of it. Students should be taught to minimize possible adverse effect of human interference into the natural processes. Finally, nature-aligned approach places a child with their needs, and personal and physical qualities at the first place. This relationship is shown on the graph (Fig. 2).

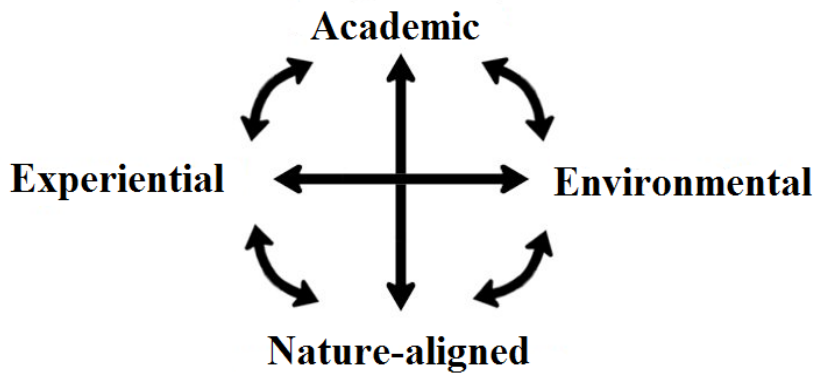

Figure 2. Approaches of PIEEU

Let us state some universal principles that we follow when creating different projects and programs of PIEEU.

1. The fundamental principle is experiential learning.

Practice is an integral component of any education; any curriculum is founded on students' life experience. However, experiential learning as a complex method is rarely used due to its labor intensity. In other countries, methods of experiential learning nowadays are used mainly not for getting academic or professional knowledge but to form young man's character, to promote his/her civil and moral responsibility and socialization. Experiential learning is widely used to master craftsmanship. In addition, PIEEU integrates experiential learning.

2. Active education aims at not only gaining skills and knowledge but also it delivers real life experience.

Experiential learning as a component of active education is based on experience, which is a multidimensional phenomenon. Gnoseology considers *experience knowledge* as person's understanding and skills, which were got because of feeling, impressions, observations, practical actions; that is opposite to learning of symbolic information through abstract thinking.

Experience knowledge integrates some levels of knowledge, which a man gains as a result of his/her:

- experiments, trials and errors, exercises;
- observations at acting people, imitating their actions;
- perception of others' experience and expertise;
- going through many problematic life situations, accumulation of real life experience.

In the last case, the accumulation of real life experience happens to be formed by combining massive data got from perception, logical evaluation, intuitive processes, remembering, emotional estimation, and integrative long time psychology work, so to say. A person with substantial life experience gains the integrative ability to conduct various activities and solve problems. That person demonstrates knowledge and skills in the generally new situations.

Therefore, rich real life experience provides the possibility to extrapolate skills and knowledge under new circumstances, based on the flexibility of intuitive decision-making process. This level is higher than any training with its rules and limitations

3. Active education relies on adventure education.

The concept of PIEEU presented in this monograph is an original creation of the authors. Years of research, management and pedagogical work resulted in this innovative educational approach. In fact, not only the authors of the programs determined the PIEEU creation but also many camp managers, camp personnel, kids and teens, all the participants of programs and expeditions, young scientists and adventure seekers were involved in this process.

4. PIEEU is aimed at expanding worldview

Rich real life experience does not make a man harmonious and adaptable. The primitive hunter could have had it, along with the simple and irrational worldview, which would make him being completely lost in the civilized world. That is why it is essential to develop and expand person's horizons.

A comprehensive worldview is the fundamental cognitive orientation of an individual; it integrates irrational superstitions and myths, changing opinions and relationship and values. A worldview can include natural philosophy; fundamental, existential, and normative postulates; themes, values, emotions, ethics. Child's psychology actively forms the word view, principles and values are changing, and attitudes to the environment, person's place in the universe are shifting. Child's worldview is continuously expanding; it gets new horizons opened, and a growing man tends to correct their mindset and to learn something new. The worldview is reforming and reorganizing during their personal growth.

It is vital to understand that when a child encounters a new environment, full of tests and adventures, the child's worldview is altered; its components are rethought and reconstructed, and values and ethics are reevaluated. At that stressful moment a child (as well as an adult) can be aimed at some constructive and positive ideals, at self-improvement and self-development, which would help them can get rid of the wrong paradigm.

The expenditure of modern man worldview comes as the result of common knowledge, morality and ethics, spiritual experience and scientific data. The last component is the most challenging to master; that is why scientific beliefs are separated as an independent principle:

5. Active education introduces scientific methods of learning to students.

Contrary to the common opinion that science is made sitting in the office, real science is an outdoor activity. It's the data obtained through research rather than speculations of all sorts that is considered relevant scientific result in terms of "study-made/chair general hypothetical speculations". Scientific methods of learning integrate developing a hypothesis and it further proof, observation, evaluation, experiment, modeling, extrapolation, and estimation and analysis of prejudice. Such patterns reflect intellectual business in general, and children are quite capable of getting them if those are explained in simple examples. Here comes the principle:

6. Active education considers information as open for everybody.

Special adventure programs information (i.e. safety, diving techniques, climbing ...) should be given any student in a friendly way. Until that data has not been mastered, they are not allowed to get into practical classes. The same refers to the scientific part of the program. Scientific (ecobiological, geographical, astronomical, etc.) information needs special work to be done, to adapt to children's perception level. There should be no low-performing and uncomprehending students at classes. In this case only, they can work independently, to analyze their experience, to discover something new.

7. Active education ensures making discoveries.

Educational process should eventually result in a child's small or great discoveries, get them learn something incredible, find a paradox, observing nature from a new point of view, get them surprised, impressed, let them solve some mystery, grasp researching skills. This promotes self-actualization and mastering the skills, and it simply brings joy to children.

8. Active education brings joy to children.

There is no time for boredom, constraint or emotionally negative background; that is why our main project has the name "Leisure and Learning with Pleasure". Although, the negative motivators (punishment, "stick" method) have proved to be highly effective as educational approaches, we follow positive motivators approach. Moreover, they are not primitive reinforcement ("carrot" method) but encouragement as the student has realized their success. Conscious study and cognitive learning as a tandem form the following principle of education:

9. Active education provides conscious and responsible free will, decision and action.

Such a principle promotes not only specific skills but also maturity, ethics, and morality, which are the foundation of a personality, the core that drives the avoidance of any negative influence and promotes right decisions. A man should learn how to make decisions and to understand, that when the free will choice is made, they are personally responsible for all the consequences of that choice. Ecologically speaking, the responsible approach does not impose stereotypes of ecocentrism (that is quickly destroyed when facing real needs) but advance ethical egoism, ethical consumerism and the sustainable use of natural resources, in particular, the principle "**being the lord of nature is not permissiveness, it is the highest responsibility**".

10. Active education motivates students' self-development.

During the educational process, it is essential to give children active and constructive ideals, to form their life goals (it especially important for children who find themselves in a complicated life situation). While being in the classes, children should be told that none but themselves can advance their life, develop it, make a career and succeed in life. It is important to inspire them to achieve success in their studies although it is only a game; this

success lays the foundation of future personal advancement and positive development. Therefore, the program aims not at praise or good grade but personal, spiritual, intellectual, and physical advancement. What is more, it is important for a man to keep high morality, not to turn into soulless careerist.

Here we should point out empirical approach nowadays is mostly used rather in technical then in humanitarian and in natural science fields. The incredible power and effectiveness of experiential learning remain unrecognized, although the bright and objective example of its success is right around us. Here they are, children and teenagers of the XXI century, they can easily handle any electronics, they control computers, iPods, iPhones, netbooks, smartphones, play stations. Seniors cannot even pronounce the names of the gadgets, leaving aside dealing with them. However, a child needs only to lay a hand on it, and they soon become advanced users.

In addition, modern children and teens have no problem googling something, creating web pages, carrying out online transactions, fixing their PCs. Many of them have their Internet start-ups; they can do the job of a designer, script editor, journalist, animator or director. Moreover, they can deal with difficult practical and theoretical tasks seniors cannot even think of. Sometimes something unbelievable happens: kids teach their parents how to work on the computer, and get surprised, why they learn it so slowly. So the question is – how do they master all this? They attend no specialized courses, read no textbooks. They just have the possibility to put a hand on the devices, and to get confidence and intuitive competence. To be more specific, children go the practical way, they learn something and immediately put this knowledge into practice, into something, which is of interest to them and which they aren't forced to do at classes. During the working process, knowledge and skills have immediate application, which makes them stay forever.

Along with that, the world of gadgets and the addiction to IT separate kids and teens from nature, from the active life, depriving them of the possible harmonious development. PIEEU is supposed to fill that gap by the means of the following principle:

11. Active education gets man closer to nature and the real life; it promotes respect and love to the world of nature and advances formation of ecological culture.

Education should strengthen the bond between nature and human and bring peace between human and their nature and physical part. We often happen to notice reserved, aggressive teens, wearing the "armor" of their teens' subculture and displaying cynical and skeptical attitude but when they get into the world of the sea, sun, mountains, and woods they transform into completely different persons. The natural environment just washes away everything artificial and fake from their souls and turns the man around to the face of real and active life. Moreover, this process generates positive emotions worth remembering forever. However, such "natural therapy" requires "diving" into natural and active environment. Along with it, conscious and emotional care for the environment should be nurtured. Any cruelty to animals and thoughtless devastation of the living nature elements, destructive ways of learning that were widely applied during period of the idealization of positive science (autopsy of animals, removing birds' eggs from nests, catching insects) are not allowed.

12. Active education is based on immersion into the educational environment, and on on embracing it and identifying with it..

One of the greatest differences between traditional semantic education and EL can be easily demonstrated on the example of learning a foreign language. One can study thoroughly a textbook for a year, learn all the rules, do all the exercises but speak worse than a child, who without any books or theories just has one-year immersion experience. Toddlers master their native language just observing, imitating, and practicing, although they know no

rules. This example was introduced by American philosopher and sociologist, E. Tolmen, who studied the forms of learning (Tolman, 1958). They are language immersion or even living different situations, expressing feelings, empathy, and emotional reality processing that provide more effective learning then any abstract mrthod. Natural environment immersion, living in it, going through it, being constantly with a mentor deepens skills, knowledge, and ethics.

13. PIEEU forms a humane attitude toward people, the friendly mindset, and develops the ability to get on well with people.

Nurturing the love to nature, a man should not be forgotten, because friendly attitude, teamwork skills, communicative skills, the ability to prove one's viewpoint in a conflict-free way are essential to be developed.

1.9. *Science adventure program as an important form of PIEEU*

PIEEU can be applied in various forms such as a class, seminar, discussion, excursion, training, expedition, research, and competition or adventure. Moreover, the last one, **adventure** is one of the most useful tools for delivering a real life experience during the learning process **(**Flavin, 1963; Dewey, 1981; Bacon, 1983; Rohnke, 1984; Lentz, Smith, 1986; Schoel et al., 1989; Nadler, Luckner, 1992; Pieh, 2010). In contrast to a test or exam, adventure is a complex psychological experience that integrates problem-solving, contrasting emotions, multi-channel existential perception, multidimensional situation analysis, mobilization under **eustress**, aesthetical and ethical analysis, a combination of physical and mental activity, formation of a complete **Gestalt**, active communication, demonstrating **empathy**, reflection and so on. To put it otherwise, an adventure is an exciting and risky practice, which brings the joy of strong problem-solving, meeting challenges, conquering weaknesses, showing compassion to one's teammates, and finding inspiration in beautiful landscapes (Shulman, Keisler, 1966; Lentz, Smith, 1976; Schoel at al., 1989; Nadler, Luckner, 1992; Pieh, 2002; Project Adventure, 2010).

The most fruitful of adventures is the integrated science adventure program. Originally, we started to develop PIEEU programs aiming to develop future researchers and scientists and as a result, many skills required for biological and ecological field research were included into the program. Thus, those programs were quite narrow in their scope and provided only early career guidance. Further programs got wider and reoriented based on the needs of the children, which included recreation and the promotion of health and harmonious development at the out-of-town children camps.

Now, we do not share the viewpoint that environmental programs should provide only scientific and unique ecological preparation, limited by biology, ecology, and local history classes (similarly to ecological schools and special environmental camps). In our opinion, science adventure programs should combine many components, which contribute to all-around development of a child.

- scientific knowledge (local and natural history in general);
- scientific skills (gaining and analysis of scientific data for research);
- adventure experience (special techniques, equipment and gear for diving, climbing, tourism etc.);
- adventure skills (how to use equipment, to adapt to new situations);
- psychology of negotiation (ability to deal with personal weakness, to solve problems);
- psychology of team cooperation (teamwork, avoiding conflicts);

- safety and extreme situations (skills of safety, first aid, survival skills);
- promotion of health (strengthening of one's physique by the sun, sea and air baths and by physical exercises)
- physical education (development of supporting-motor apparatus and cardiovascular system by using, learning special combined movements and techniques);
- ethics education (amor patriae, friendliness, general culture);
- cultural and historical traditions (exposure to the cultural values, including traditional, folk, ethnic);
- creativity (development of artistic, musical, plastic and stage skills);
- applied survival and everyday skills (how to look after yourself, hygiene rules, how to live and cook in camping conditions);
- traditional craftsmanship (introduction to pottery, ceramics, blacksmithing, tanner and peasant labor, and other crafts);
- active and passive recreation (rest, reading, games);
- entertainment and humor (something that brings joy and friendship, and is invigorating);
- getting impressions (bright aesthetic emotions of being part of amazing nature).

At large, the science adventure program of PIEEU is a combination of activities and events which enhanc harmonious development of children and teenagers by combining components of ecological, physical, psychological, and creative education based on the active approach, which could be implemented at the children's recreation camps, expeditions, and at the facilities of further junior education.

The science adventure program can have a variable term, from several days to a few years. It is normally conducted during school breaks at out-of-town children's camps and facilities of further junior education. In the course of our practice, we had students who kept coming to the camp for years, during summer and winter breaks, on public holidays and weekends, when we ran courses, programs, and excursions, and during spring breaks when we hold our international expeditions abroad. They were enhancing their ecological knowledge and mastering adventure skills. In addition, they attended diving lessons, at the children's diving school and they participated in sea expeditions such as open water diving, and they earned diving certificates. Then they grew up, went to universities and then came back to the program as the team leaders and instructors. This ensured ongoing ecological education.

It should be mentioned that *PIEEU is not just about physical activities. It involves profound intellectual work, introducing children to some professional knowledge beyond school curriculum, particularly in the fields of biology and ecology. The students claim that this kind of preparation helps them to get ready for final exams like the SUE (Russian State Unified Exam), to be confident during school lessons of Science and understand the terminology better.*

1.10. *An example of practice-oriented education application for English phonetics course (teaching pronunciation)*[*]

The area of PIEEU application is limitless; it is even suitable for such a subject as phonetics which has little to do with ecology, though environmental approach can lead to high results. This example demonstrates the capabilities of PIEEU.

[*] Grigorev G.V., Kamnev A.N.

The traditional approach to teaching children phonetics of a foreign language, i.e., English at the middle school is well-known to all Russian citizens. Standard conversations with a professor and classmates with each other are the primary teaching method. The curriculum sometimes includes listening to the taped audio exercises though recorded by non-native speakers. Obviously, this approach has children listening to the wrong pronunciation of words and expressions for the most of the time. It is highly improbable that children will master the skill of performing accurate sounds and intonations of the learning language if they go this way.

It is worth pointing out that teaching English phonetics was a little behind if compared to other foreign languages. Probably, due to some cultural and political traditions. The Tsar's court usually had Germans or French people present, though hardly ever English. Russians used to study in Germany, Holland, Italy and quite rarely England. Many Russian scientists read works of their English colleagues in the original but did not know phonetics. E.g., in the worldly famous "Her Majesty, Tsaritsa Elisaveta Petrovna Ascension to the All Russian Throne Ode" M.V. Lomonosov has written "…And bright Newtons (the 'w' was pronounced as 'f') Russian Land to bear": not taking phonetics rules into consideration resulted in Newton becoming Nefton. Examples of the same nature could be found in the Soviet Era. We can illustrate this with the quite vivid and humorous example. K.I. Chukovsky, a brilliant translator, a talented poet, claimed to know English only with his eyes only. That is why Korney Ivanovich had to use an interpreter service being in London. Though being a renowned master of English he could not understand the speech, and English people did not understand his spoken English.

The heavy accent is a psychological barrier, and it happens mainly because of the fear of one's incorrect pronunciation. This fear also blocks the understanding of native speech, though a classmate's spoken English with the same accent is usually easily understood. The brain center responsible for acquiring and processing of phonemes works inseparably with the center responsible for performing them, and it is just one communication channel. There is no communication when one center is down. A student who speaks in a "from hiz khart" fashion cannot comprehend the English speech and vice versa.

The methodology of teaching foreign language phonetics. Nowadays, there are two methods of mastering the art of pronunciation: traditional and one based on the empirical learning.

Let us call the first approach as "*school way*". This way does not have a profound theoretical basis. Since the majority of the school foreign languages curriculums are not aimed at the serious and real teaching of pronunciation, this approach has it as a very long process and of quite low effectiveness.

The second method can be called "*sprint race method*". This way is a short time one (5–10 days) though highly intensive regarding workload. Students spend about 3 hours daily just on phonetics training. Since the school curriculum is jam-packed, the specialized linguistic children camps are better places for the second method to perform it.

The first method, "school way" has the learning process being gradual and "continuous", it takes several school years. Mastering audio-lingual skills within this approach takes two stages:

1. Beginner stage or the "*Shaping skills stage*". This phase work integrates the sound samples active listening exercises and the cognitive imitation.

2. "*Skills maintaining*". This stage is not just about maintaining the gained skills but also keeping them as good as automatic. The most reasonable exercises for this phase are: listening to and reproducing words and expressions, which is important not just for the development of listening skills but for speaking them as well. Different technical equipment

is used for these exercises. Teacher's control is highly necessary at this stage, to coordinate the students' work, correct inevitable mistakes, and motivate children to study foreign languages, and the last goal is the most important (Bobrova, www)

The "sprint race method" approach provides brief time to master pronunciation. It is surprising that this method is used in some Moscow universities preparing future linguists. For example, this approach is used in the department of Linguistics and translation of the Institute of foreign languages of Moscow Aviation Institute (National Research University). There are plenty of similar courses in the Internet like I.Serov's "Black-ops Linguistics 2" (Xtreme English Academy, www); U.Druzbinski's "Seven distinctive features of Harvard accent online seminar dedicated to get rid of Russian accent" [7 отличий акцента Гарварда…, www]; I. Nishimenko's "The first step to the ideal English pronunciation" course [Первый шаг…, www]; IstraSoft's "Professor Higgins, Accent-less English" software [Профессор Хиггинс…, www]

It is fascinating that the last piece of software is already used on a daily basis in several Russian schools. Unfortunately, though the price for this software is relatively low, 6–70$ (the Europe made phonetics courses cost no less than 400$, ex Star Pronunciation, www), these courses target mainly adults as their primary audience.

2. Methodological components of PIEEU*

2.1. *Adventure based development*

One of the advantages of experiential learning is the activation of psychological mechanisms of activity and emotional reactions. A person doesn't just learn something new but lives through various events; s/he actualizes events and actions on the basis of personal experience, makes the knowledge his/her own by integrating it into the system of values and into his/her "PERSONAL" world. The learning process takes the whole range of emotions such as the senses of touch and smell but also involves the vestibular sensory system. All that makes the perception comprehensive and authentic. No learned information is abstract as it has elements of real life, and as such, it is easy to remember and requires minimum revision. The following factors of the experiential learning are originality, risk, potential danger, excitement, expectation of self-actualization and self-affirmation, the desire not to let down the group and understanding of a team work. All of that is named as an "adventure". The spirit of adventures sharpens emotions, which mobilize memory and attention, resulting in a significant growth of education efficiency. By taking an adventure, a man advances his/her consciousness and a reappraisal of values takes place. Bits of stress, which an individual experiences during an adventure, mobilizes the whole body and intensifies the resistibility. However, it does not achieve a depletion phase, i.e. it does not lead to distress but goes as eustress, according to G. Selye (Selye, 1979). Reinforcement of learning results is ensured by basic cognitive principles (concentration, reevaluation of the challenge, and debriefing). Therefore, an adventure, if applied correctly could be a treasured teaching device. One can find an amazing illustration for this point in the well-known children's book of E. Seton-Thompson "Two little savages; being the adventures of two boys who lived as Indians and what they learned" (Seton-Thompson, 1991, first published 1917).

Nevertheless, how to put the adventure education model of experiential learning into practice? Laura Joplin demonstrates the following Five-Stage Model, developed to prepare

* Kamnev A.N., Kamnev O.A., Grigorev G.V., Yefremov K.D., Kononova O.A.

future educators (Joplin, 1995). The core stone is a *challenging action*, or a risky, brave step. However, the action should lead somewhere, so it is preceded by a "focus" stage. *Debrief/report* follows the "challenging action". The teaching environment provides *feedback* and *support*. Those five phases make a complete cycle, where the last debriefing stage is followed by the first stage of a new cycle.

Here are the key elements of adventure-based education:

- to define the highest priority and the goals to be achieved
- to strengthen trust in people and the world, to escape the feelings of team hostility and trial
- *Challenge* + *Stress*, to test one's incapability, lack of confidence, weakness and to summon one's strengths
- *Peak Experiences*, means to beat emotions by experience of overcoming hardships resulting in "completion of Geshtalt", which relaxes the nervous system.
- *Humor/Fun*, not to lose sense of humor and enjoy it, never to panic, to find good in everything, to be funny
- *Problem-solving* to get maximum results useful for self-improvement from any situation.

A number of well prepared and organized adventure activities aimed at the experiencing success releases a person from the repetitious circle of failures and increases his/her self-confidence. The increased ability to bear risks and responsibilities is the basis of and a necessary condition for personal development.

The author of force field analysis, psychologist Kurt Lewin who had enriched social psychology with group training methodology for change of behavior, proposed a reasonable idea that a person can achieve psychological success under the following conditions (Lewin, 2001):

1. Individuals should be able to set his/her own goals
2. Those goals are related to that person's inner needs and values.
3. One can plan and identify the necessary steps and phases that lead to the accomplishment of those goals.
4. The goals are realistic, they are neither too high nor too low, they are high enough to mobilize and inspire a person.

The model of experiential learning that we use, lays emphasis on cognitive motives of rewarding; they go with original cognitive work and represent the major part of human activity. The majority of our actions are motivated not by the "stick and carrot" but by inner conscious impulses, that is why these impulses are the first to work on. A person who participates in training starts to feel that every exercise gives him/her confidence which improves his/her personality and this is the best possible reward.

For the training group to succeed, or to put it otherwise to achieve group maturity, the therapeutic Full Value Contract setting the goals, objectives, rules and the agreement with the principles of the exercises should be created. Each person promises not to devalue him/herself or others and not to spoil the exercise fun. That is an unusual technique of physical, emotional and psychological safety, which integrates rules of achieving the goal. The Full Value Contract ensures everyone's right to hold his/her ground and make straightforward decisions.

Any developing adventure program should be provided with sufficient information coverage and monitoring.

L. Joplin points out the following key components of a developing adventure program (Joplin, 1995).

The foundation consists of the following elements:

- definitions of the basic principles;
- goals / the essence of adventure;
- developing a project;
- leadership and training;
- program resources;
- mobilizing procedures that involve the group members into the adventure training;
- discussions and debates that shape the team.

Planning. Determination of the course of events during the adventure training. Developing the program.

Briefing. Group preparation for the adventure experience and carrying out the program.

Implementation of the adventure program. Conducting certain training actions.

Debriefing. Processing the adventure experience.

Setting and implementing the goals and experience analysis are core elements of independent cycle, some of which form the adventure wave. To keep its creative nature, planning should integrate some game elements. During the planning, the following questions are supposed to be answered:

- What to start with?
- What certain actions correspond with the program goals?
- What to do, if the group does not want to follow the suggestion?
- What is the current group status?
- How hard should the group be pushed?
- What does every member feel, is s/he satisfied?

Beginners often ask veterans: "What are we to do right now?" And they get the answer: "The more you do with the group, the more experience you gain".

Planning integrates three types of work:

- Setting components of adventure wave plan.
- Making the whole of the adventure program, based on the goals and objectives and the information, collected beforehand. The plan is supposed to be set before the first meeting of the group.
- An adventure wave plan gets an ongoing correction along the work with a group.

2.2. *Debriefing at practical lessons*

Debriefing is one of the components of practice-oriented education. The term has a military origin; it denotes an inquiry after a combat mission is completed. But here we consider the process, opposite to debriefing, when students analyze a performed work.

Debriefing has the following functions:

- to get the participants out of the played or analyzed roles;
- to make clear current events (regarding facts);
- to eliminate misunderstanding and correct mistakes;
- to reduce tension (stress, anxiety) of those who get them;
- to find out ideas, feelings and changes that happen with the participants during, say, role games;

- to let the members of the training to develop their self-control, self-analysis abilities and to demonstrate them;
- to advance skills of participant's observation;
- to correlate final result with the pre-set goals;
- to analyze why the actions went that path, not any other;
- to summarize the analysis of student's behavior and actions;
- to correct and solidify new knowledge;
- to set new topics for reflection and preparation for the next lesson;
- to make the bond between the previous and the following training and so on.

It is essential during a discussion for the students to disregard the content of the situation and analyze what happened. Instead of discussing feelings and emotions that they got while performing individual roles students should discuss the problem itself. This educational process helps participants to think about their new experience, find new interesting ideas, discover something useful for themselves and share that with each other. In addition, it develops team relationship. Debriefing allows completing the current phase of training, to make it accomplished.

The debriefing procedure is driven by the key questions, developed by a number of specialists (Gaw, 1979, Lederman, Stewart, 1986; Van Ments, 1989). We can divide these issues into the following groups:

Stating the facts:

- *What happened?*
- *What did you feel?*
- *How did you value that?*
- *Do you agree with what happened?*

Analysis of reasons:

- *Why did that happen?*
- *How could you explain that?*
- *Who was right/wrong?*

Planning of actions:

- *How could the situation be changed?*
- *What if...?*

Practical application:

- *What did you gain/loose?*
- *How could you apply that?*
- *Does it correspond with the real life?*

It is very useful to debrief after the training. Along with that, a moderator should correctly guide the discussion and monitor (and aim participants at this) the discussion to be brief and constructive, let it not change the subject or become mutual blaming or self-affirmation. Everyone should speak out but participants should skip unorganized arguments, which steal the time, such a precious thing in a packed camp curriculum.

2.3. *Psychological aspects of optimization of active education environment*

An important part of the proactive education and experiential learning is the search for and optimization of the educational environment in which a child gains life experience and meets new fields of activity. We can separate the following components of the process.

Firstly, the **educational process** should be **proactive**, i.e. the environment of the training process is supposed to allow a child to show all his/her qualities (it is opposite to the passive acquisition of knowledge, where s/he has only to absorb knowledge that teachers provide him/her with). While a child solves a problematic question or situation (even under extreme conditions) s/he should not reproduce memorized examples, so, education should be oriented at the developing of abilities of creative thinking and searching for something new and unexpected. Many Russian and foreign educators share these views. Some of them, including Janusz Korczak, prioritize personality in group education but with individual attention to everyone (Korczak, 1990). In his works on theory and methodology of bringing up children, Soviet educator V.A. Sukhomlinsky mentioned the effect: "I tried to make the environment and nature nurture student's consciousness with bright images, pictures, emotions during their childhood ... to make this "**book of nature**" reading ... be a start of active thinking, theoretical learning of the world, a beginning of scientific knowledge system". (Sukhomlinsky, 1997)

Secondly, the **educational environment should support, assist the development of children**, and meet learning needs. For that matter, the particular conditions of an educational environment should be created; a child should realize the importance of learning laws and processes of nature, which are **essential for the child's activity**. It is important to provide a kid with the possibility to show his/her independence and leadership by creating problematic situations, which require his/her active actions and creativity; it enhances child's cognitive interest. Along with it, used in the educational process material should attract children by its freshness and brightness, variety and reality, faithful representation and (that is rather important) romanticism (of any adventures, journeys, expeditions).

In addition, the educational environment should ensure the **education to be cooperative**. By doing something together, children are involved in real research; they show interest and emotions; which profoundly stimulates their efficient development (Rubtsov, 1996). An adult should organize a collaboration of children to guarantee the teamwork and mediated task solving. The problem-solving foundation should be the mutual interchange of operations (communication, understanding and coordination). Collaboration with both adults and with other children is rather important. Adults are the bearers of knowledge and ethics; a teacher/instructor/counselor monitors and evaluates. Collaboration with other children, students and friends implements differences of viewpoints among the participants; that produces conflicts and then lead to the common path of acting. Such cooperation is a necessary condition for a child taking up an initiative, which creates the desire to protect one's ground and purposefully develop one's beliefs (Davidov, 1996).

With the collaboration of adults and children, upbringing and education enable children to master integrity with other people. This activity forms common goals of children, which can be noticed through realization and creative approach to problem solving, and through mutual understanding and ability to communicate (Davidov, 1996; Rubtsov, 1996).

As it was mentioned above, to form these cognitive needs (sense-making motives) and system of values (subjective attitude towards the world) and vector of a personality, – children activities should be specially organized according to their interests.

Adventure education is one of the most perspective forms of it. In everyday speech, adventure means "an event, unexpected undertaking in life" (Ozhegov, 1984, 2008). This phenomenon has not been studied in psychology and pedagogy yet, although many educators were using this approach in their work. In fact, adventure is a valid form of educating and upbringing within the concept of proactive education. Adventure is based on the dynamic integration of a personality into current events; it expects a creative approach to be used for problem solving. Being participants of an inspiring adventure, children deal with the real world, they realize that they belong to it; they learn its laws and interact with it. That

nurtures care for the environment and all humankind. Also, they look for the ways of interaction with the world around us without any possible damage to it, using alternative ways when needed.

Experiential learning integrates three interconnected and interdependent parts that were discussed above (Lishin, 1997):

1) module of needs, motives, and interests – everything that motivates;
2) module of operations and actions, including the system of services, activities, and goals;
3) business and personal communication, connected with the activity.

Every module should be to a certain extent designed at the stage of planning and then efficiently used in the program.

As far as neuropsychology concerns, according to A.R. Luriya (Luriya, 2006) brain contains three functional modules: tonus, gnosis, and praxis; so, experiential learning should be planned to affect positively all these modules.

- *Tonus*. Nature of practice-oriented and adventure education allows students to keep tonus of nervous system that mobilizes perception, attention, and intellectual processes for an extended period. Put it otherwise, there should not be any sleeping, bored or distracted students at those lessons.
- *Gnosis*. The freshness of feelings and stressful emotions mobilize perception and make the impressions brighter. All senses absorb the material as an integrated picture, painted with excitement and enjoyment during a specified time. That is why knowledge is gained as the life event, not as some abstract story.
- *Praxis*. Included into the educational process independent physical and mental activities (research, problem solving) ensure the development of practical intelligence and procedural memory, and completes verbal intelligence and declarative memory developed by the traditional model of education.

Experiential learning and proactive education require specially organized **learning environment** and educational environment; they could be quite different. Classroom, laboratory, ecological station, sports facility, pool, seashore, and clearing in the woods - those are the places where the education takes place. Decoration, orientation, lots of signs, safety regulations of that environment affect seriously the pedagogical process. Every learning environment needs a customizable approach. For example, in open space environment students can be easily distracted. However, in closed classrooms, they suffer from closeness and monotony. Diversity of visual materials disperses and overloads children's attention but the lack of it makes lessons boring. Therefore, a collective of professionals including a designer, a psychologist, and an educator should organize the perfect educational environment. Plenty of options should be kept in mind; according to the following groups.

1. Proxemic factors are related to the space location of people, teaching materials, furniture and other things. For example, a teacher can be isolated from the students with a high platform and a long table. As he/she is at the top one may feel it is an official business meeting; that is entirely appropriate at a scientific conference or grave briefing, but it is no good for a field class. When a teacher is at the same level with the students, shoulder to shoulder, it creates the atmosphere of trust and unity. If the children are sitting in two rows, face-to-face, that already makes two confronting teams. Moreover, just turn around the tables at the ends and we have a workshop, round table, assembly. Therefore, while organizing classes, it is essential to predict how space configuration of teachers and students, windows and doors, material, light sources, and furniture will affect the educational process.

2. Perceptional factors consider special aspects of perception. Bright light, cool colors, laconic but stylish design increase not just the efficiency of work but also the subjective value of the lesson itself. At the South territories, it is better to use cold and pale colors for the design of the interior environment and warm and light at the North ones, but these recommendations are rarely taken into consideration. Perception is not limited by the vision only. Acoustic and smell stimulus affect the emotional evaluation of an event as well. Some classrooms are difficult to teach at because plastered wall absorbs all sounds. A unique smell of sports and medical facilities (dentist's cabinet!), penitential institutions, as it is known, may be associated with psycho-traumatic memories. It is not acceptable for learning environments to be one of them. Olfactory experience is closely connected with the emotional memory, as they have the same localization in the brain (limbic system, hippocampus); that is why bad, bothering smells in the learning environment cannot be ignored, the sources of them should be taken out. Impressions depend on tactile signals too: thermal conductivity (e.g., metal chair), qualities of the surface (slippery floor or chair), and the stability of the furniture (shaky table), body position and muscle tension. All of that change work efficiency, perception and emotional evaluation of the impression. An outdoor class because of its special acoustic, olfactory and tactile experience gains new meaning and is remembered for long. There are many such science adventure programs at our camps like "Sounds of the night forest", "Night seashore walk", "Night dive", "Life of an ocean floor", "How land animals move" and so on.

3. Factors of safety and comfort. When an unorganized group of children appear at a learning environment, they follow the laws of crowd sociology. Simply speaking, no matter how many times you instruct the children to be decent and disciplined, they run, push each other, stand crowded at the exits, ignore their turn, run into pedestrians, tend to go alongside rather than create a column of pairs, so the children at the flanks can get hurt within the walls, and so on... Impatience also causes a problem: kids want to get an access to a resource at once, to touch it, to investigate it, to leave the room, to reach the serving meal place. All of that requires both discipline improvement and special space layout for children. Everything that may cause any trouble should be taken into consideration like narrowing corridors, sharp corners, small, closed spaces, heavy doors, and many other things. Thus, the space layout is supposed to be rationalized. The learning environment should not contain any messed up tools, rigs, equipment, dangerous things, wires, and so on. Fire- and electro-safety and in the case of adventure camps – special safety should be taken into serious consideration.

4. *Communication factors*. World of proactive education tends to enable equal possibilities for kids to communicate with each other and with the teacher. Put it otherwise, there should not be front and rear desks. Some tools to control the group and for emergency cases should be provided, such as loudspeakers, alarm signals, whistles).

5. *Semantic factors*. Plenty of signs in the learning environment can themselves get a very high pedagogical effect. That is why laboratories, classrooms, training ground in the open air should be equipped with thematic attributes. To keep the camp tidy is of an extremely high importance, it is not an easy task though. It is not formal and theatrical order that is required (like neatly made beds) but practical and reasonable one. No classes about environmental care will have any success if the camp is littered, the canteen and bathrooms are poorly organized, or if the instructors will show no respect to nature. Educational environment is not supposed to have little data, but on the contrary, excess of information can also spoil the harmony. For example, students get into the cabinet-museum with thousands of small objects in it, and their attention is not sharp any longer, they slow down and the covered material is poorly understood. It is very unpleasant to see stocks of posters, which no one has ever read, or books or other documents locked down in the utility room for good.

6. *Value factors*. Some symbols of space affect emotional evaluation and formation of attitudes. What do children feel or think about the camp, classroom, school, university? Respect or disgust, love or fear all that change education and in the long run - the development of the personality. These attitudes are formed by the most different elements like interior environment, visual propaganda, personal relationship, and special cases. Moreover, even one single negative impression can revolutionize these attitudes.

2.4. *An example of PIEEU methodological basis for an English phonetics*[*]

This book is bilingual because it targets the harmonization the relationship between all the societies and nations and with nature as well. This layer of practical and theoretical pedagogics was developed in Russia after several dozens of years of work and absorbed traditions of Russian education and the best of international experience. This project was always considered as a global design requiring a team effort of different individuals and societies to achieve the goals of PIEEU. As a tool for intercultural communication and as a second language for this monograph the English language was chosen since it is the most primitive of the UN international languages and thus the easiest to learn. In the PIEEU based specialized children camp, as a rule, there are linguistic programs to learn and practice foreign languages. Below, we provide an example of designed and tested methodology of such an essential environmental competence as teaching phonetics, the art of beautiful speech (Grigorev, Kamnev, 2016). Teaching phonetics is the least methodologically developed area of foreign language learning while writing skills or grammar have numerous guides, textbooks, courses, etc. Learning phonetics, unlike grammar or writing studies, always require another person in some way or another. That is why teaching phonetics can illustrate the unique flexibility and authenticity of educational processes integrated into empirical learning which is the very basis of high results in learning a foreign language.

The features of empirical method in teaching English phonetics for foreigners. The empirical method features the following aspects:

1) strict and demanding and systematic schedule;

2) rough on vocal apparatus muscles;

3) a mentor provides clear explanations, how to manipulate vocal organs;

4) due to the intensity and limited time (children have school vacations around 5–20 days) students do not forget covered material;

5) results are achieved pretty soon though they should come along with the intensive gained skills practice (by poems and songs, tactile contact, games and even reasonable "fooling around", i.e., by various elements of empirical learning) until muscles remember actions mechanically and subconsciously.

This method pays much attention to the most popular mistakes, common for "Russian English". A teacher should always remember that applying this method one can observe emotionally weak children having stress especially during the first days of the courses. In this case, the workload should be adjusted accordingly.

As an example of one "sprinter race" exercise, we provide the course description which is a part of the educational program in the children specialized environmental camp "Leisure and Learning with Pleasure" (Kamnev, 2014; Kamnev, Kamneva, 2001; Kamnev, Kamnev, Gavrilenko, Kunz, 1998; Zubanova, 2015). The classes are conducted during the school vacations according to the well-known interactive lesson structure designed by David Kolb (Sternberg, Zhang, 2000) and current legislation concerning children additional

[*] Grigorev G.V., Kamnev A.N.

education (The Federal Law № 124-ФЗ of the Russian Federation), also the pedagogical tools that experiential (practice-oriented) education can suggest are used as well.

The following methods and tricks are used:

1. Speaking Russian with English accent, impersonating various accents of foreigners that are important for understanding English speaking people. Such a trick demonstrates the accurate pronunciation is crucial and makes speaking easy. Wrong articulation and misguided pronunciation of sounds, words, and expressions require a lot of useless efforts. This method has the excellent result. Children find themselves in relaxed, calm situation; they start to pretend being Englishmen studying Russian and that amazes them. As a result, they quickly remember the required sounds.

2. Cicero method; declamation with the teeth brush or marker hold by one's lips. After 5 minutes children experience facial muscles discomfort but articulation clearness rockets up so much that kids want to overcome this discomfort and continue to work.

3. Speaking out with a mouth closed. Professional speakers can be easily understood when speaking with their mouth shut. Obviously, this is not an easy task for kids, though it does positively affect the pronunciation and articulation.

4. For phonematic hearing development, children listen to English speech of different semantic complexity. It goes like this: stand-up comedy, movies, linguistics lectures and then kids repeat the circuit. It brings joy to children. Everything which seemed awkward in the first place now seems not just easy but primitive. This motivates students to continue foreign language learning.

5. Willing to demonstrate their language success students (selected accurately and tactfully by a teacher) take an exam-encouragement where they are suggested to read out loud an English text (like an announcement) which they have never seen in front of the whole camp community. In other words, a stressful situation is created, and a child wants to impress the people; the support of the entire community is required. In most cases the result is perfect: sounds are clear, though intonations are not usually authentic. This performance stimulates other kids to desire being praised for their success in front of the whole camp community.

6. During evening events, children have a possibility to sing songs in different languages. Trying to master various phonetic systems they broaden their mental outlook. E.g., kids can perform the "Katusha" song in 10 languages. That makes them feel very proud.

7. Children play the "interpreter" game from the day 1. They work in triads, one student act as a native Russian, another – interpreter, the third – native British/American. Kids choose a situation, their roles, discussion goals, and then start talking. The mentor's function here is continuous stimulation of the discussion. Children are not allowed to keep silence or think before speaking. For English learners, this game is said to be the only opportunity to practice their foreign language live. In most cases, children enthusiastically participate in the game though it is tough sometimes. Students are expected to demonstrate the necessary flexibility and agility of thought for the discussion to keep going. However, some students have troubles with quick responses even in their native language.

8. The possibility to employ non-Russian-speaking foreigners whose only way of communication is English is a remarkable advantage of the phonetic course. Students work in diads with the task to learn from a stranger some pre-set list of questions. Diads is a proved empirical learning method for activation of passive students and creating a comfortable and confidential environment. After the conversation with the foreigner, children tell the rest of the group what they have learned. Other kids ask questions like: "Did you ask him/her what university do they study at?" This possibility to have a meaningful conversation with a non-Russian-speaking foreigner using one's poor English is an incredible stimulus to study English further.

9. Feedback method, listening to one's own recorded or live voice with self-control and pronunciation adjustment.

10. Watching movies and cartoons with Russian subtitles and the audio track switched off. Since there are non-Russian-speaking foreigners present children are supposed to translate what is going on the screen until foreigners fully understand the idea. The benefit of the exercises is maximum if the Russian-made media materials are used as kids have to translate not just from Russian into English but deal with some nationally biased units and explain them.

11. Interactive alternation of various interpreting combinations, usage of subtitles and audio tracks. E.g., children interpret for foreigners (it is much more pleasant to explain something to s/he who does not know them rather to a teacher who knows the matter). Here of all exercises, children face the accurate pronunciation is crucial. One wants to say "love" but pronounces "laugh", or means "sand" but mentions "sent" and the communication is broken. The mentor's task here as a bilingual person is to assist the communication and correct the wrongly pronounced sound.

We provide a suggested plan of a lesson integrating eight parts to illustrate the application of empirical learning for teaching phonetics according to principles presented above.

Part 1: First of all, children should learn the hygiene of vocal apparatus, particularly the use of lip care stick (avoid fissures), tongue and teeth cleaning; due to the intensive dehydration issue during the course students are suggested to drink much water. Then students should realize that they may and must speak out loud, there is nothing wrong in "*enthusiastically salivating*" your conversational partner here. Kids learn about the right posture (do not cross their arms/legs, keep their back tight). A mentor tells them about the so-called Anglo-Saxon smile (bared teeth) which is necessary for the proper facial muscle development and accurate sound articulation (the best example – Prince William's grin, children study his manner of speech and his lips movements using media materials just as an example);

Part 2: Students listen to (do not repeat) English sounds pronounced by the teacher, and then they guess whether the sound is Russian or English. After this, a brief explanation of how to position one's vocal organs to pronounce a new sound is provided.

Part 3: Children try to repeat the sounds making the appropriate manipulations with their jaws, tongues, lips, and diaphragm.

Part 4: A teacher tells the history of sounds, factors influenced the phonetics evolution, *"the Great Vowel Shift"*; then a teacher pronounces the same sounds in different ways showing how they vary in different British and American subcultures and sub-ethnic groups speaking their dialects/accents;

Part 5: Students learn the reading rules; though it should be emphasized that one should not memorize them all, just to make the reading skill subconscious.

Part 6: Many various exercises are introduced to master the reading and speaking skills; at first a student hear and then repeat a phrase without any visual contact with the text. Then the learner does the same but following the teacher speaking looking at the text. So then a student reads out loud him/herself. This algorithm is most authentic since we all have learned our native languages by listening, then attempting to repeat after our parents and then some years later we learned how to read.

Part 7: After a break, the same exercises are repeated, the same algorithm but individually not in a group. Moreover, the easiest way is to repeat phrases after the native of the same sex;

Part 8: Afterwards children are asked the question – what they have learned today, what was the problematic part? Answering the question every child is supposed not just to

tell in details but also demonstrate what s/he has learned. A teacher corrects the mistakes if any; thus the full repetition of the covered material and the effective feedback loop provide the teacher with the necessary data to adjust the program;

After the course is completed, children during one lesson are supposed to explain to another group of children and adults how to pronounce all the English sounds ("try being a teacher"). The newly appeared "teachers" do the minimal set of exercise with their students and then ask – what they have learned today, what was the problematic part? This is a highly beneficial method for covered material reinforcement, students shape their knowledge into a solid foundation, also enhance their leadership and competence skills, it instills responsibility into children, they feel more respect for teachers whose tough though socially crucial job they just have tried to perform. The majority of the children keep coming back to the camp next vacations, after the graduation, they keep coming back as a group counselors and instructors, and this "try being a teacher" method allows to trace what exactly they remember after several months or years after the intensive phonetic course.

This is important that children with this course not just bring their articulation, pronunciation and English language knowledge to a whole new level but their motivation and desire to extend and improve their skills and expertise as well. Moreover, as a result, they come back to the camp again.

Thus, the designed and tested by authors methods of teaching English phonetics using empirical learning principles appear to be a successful educational model. Integration of Empirical and traditional didactical approaches into teaching English phonetics motivates children to learn the language further and demonstrates positive results.

3. Proactive education and the development of the ecological culture*

3.1. *The development of principles of ecological culture*

Environmental literacy, ecological literacy, eco literacy is an integrative term. It integrates culturology, social psychology, ecology, anthropology, history, and philosophy. What is its origin?

They say the development of eco- consciousness, culture and way of thinking is closely connected with the global ecological crisis of the XXth century. As we see it, it is more likely to be the result of a new XXth century paradigm of education (Kochergin et al., 1987; Vernadskij, 1989; Environmental education in Russia…, 1995; Environmental culture instilling…, 1997; Glazachev, 1997; Bekker, 1998; Gil'mijarova, 1999; Marfenin, 2000; Borejko, 2002). Humankind was facing ecological problems for many centuries. Desertification, degradation of soil, forest destruction, the extermination of animals, household and industry pollution, urbanization – were quite common to happen in the last two thousand years, and even earlier. No one was struck with the idea of environmental education programs or protecting nature. There were some limitations to the management of natural resources in the traditional communities; one could hunt animals up to a certain number or some "holy woods" could not be cut. But those limitations were mythical and irrational taboos, rather than logical reasons. Since the ancient times, there were "forbidden forests" but they were made as such not for the sake of preserving natural ecosystems but because spirits of ancestors dwelled in there or the Tsar was hunting there. (Forest and the society, 2000).

* Kamnev A.N., Yefremov K.D., Grigorev G.V.

It is important to understand that the XXth century can be characterized by not only the aggravation and globalization of the ecological crisis but by the **global awakening;** the climate of viewpoints has changed, **the revolution in the consciousness and education** has happened!

How can we describe that "revolution"? Firstly, **knowledge** has changed. Ecological problems were proved to be caused by human activities, and its negative effect on our health and prosperity was understood. It was not easy to prove that, as many harmful factors, traditions, and products some were considered useful and even necessary. The development of the science did not lead to the unity of opinions, though. There are still intense arguments whether the people are the primary cause of the global warming and the decreased biodiversity, and whether humans' high technologies in agriculture and GMOs are harmful or beneficial. At the beginning of the XXth century, the idea of the adverse negative effect on nature appeared to be quite new. It even conflicted with the current belief in the technical progress and industrialization. Many people thought that they did not damage the Earth with all their transformations but developed and enhanced it.

Secondly, the **attitude** has changed. People have started to disregard activities harmful for nature, which cause environmental problems. The role estimation of a hunter, woodcutter, dam builder, virgin lands conqueror and other pioneers has changed, and is no longer considered as a correct one. Nature has gained positive attitude toward itself. It became a "new myth", as until the XXth century the barbarous and consumer attitude to nature and indifference to the ecological problems were dominating in the world. The devastation of nature (forest destruction, the extermination of animals) was considered as a reasonable, appropriate even heroic act at that time. Landscapes of the mountains, woods, and seashores that modern tourists admire are the most precious recreation resources. Nevertheless, before the XXth century, they were believed to be a wild, chaotic and frightening mess, which either should be civilized or ignored.

Thirdly, the **activity** has changed. People have started to nurture environmentally friendly attitude to nature. At the XXth century, new educational strategies, which were oriented at the world of nature, were adopted all over the world; millions of events about environmental education were organized. Apart from the school system, the variety of children's books, movies and toys have a powerful influence on the child's mind. Those, at the first sight "insignificant things" became extremely effective agents of eco-literacy, even more influential than any training courses.

Two examples of such agents of a "children's world" would be enough. Those are Teddy Bear and Bamby deer. Teddy "was born" in 1902, after the president of the USA Theodor Roosevelt had failed while hunting. He was chasing bears but found only bear cub, took pity on him and did not kill him. After that, the caricature of Roosevelt and the little beast appeared in the "Washington post". The bear was so cute that some shop owners decided to make toy bears labeled *"Teddy Bear"* and try to sell them out. The demand for the toy was enormous. A whole Teddy Bears industry arose. Children and adults' love for the teddy bear became almost irrational. The effect was even advanced by 1920s Winnie-the-Pooh, created by A. Miln. Nevertheless, before that, wild bears had been feared everywhere; they had been hated and exterminated, as they attacked people and cattle. By the beginning of the XXth century, there were almost no wild grizzly bears. But the image of the teddy bear that people loved so much as kids had influenced their views. So as adults who take responsible actions they create National Parks where grizzlies are protected, and they promote ecotourism as an opposite to the industrial land invasion.

Bambi Deer from the book of F. Salten (1923) gained worldwide popularity after 1942 when Walt Disney produced the animated drama "Bambi". Ever since billions of kids (no exaggeration here) have been worried about the Deer Cab fate, who by the plot loses his

mother-deer killed by the cruel hunters, then he barely survives wildfire and vicious hunting dogs. Here we'd like to highlight that a toy or cartoon are the agents of ecological mind changing because they confront characters of the traditional biophobic plots (like fairy tales with dragon slashing motives or the "Little Red Cap").

Hereafter many other "biophilic agents" have appeared in the pop culture. By the 1990s, almost every popular children cartoon had some components of ecological ethics ("The Lion King", "The Rescuers Down Under", "The Little Mermaid", "Finding Nemo" and so on.). Ecological movies starring animals gained immense popularity ("Flipper", "Skippy", "Lessie", "Free Willy", and so on). The whole world has watched the documentary "Birds". Toy industry started to produce plenty of "ecological" toys, which had the precise looks of rare animals. These agents of mass culture have significantly influenced the environmental education programs and popularized eco literacy.

As for the scientific, philosophical, social and political basis of actual ecological mind, it was developed because of some concepts, such as environmentalism, environmental conservation, biocentrism, Russian cosmism, ethical egoism, ethical consumerism and sustainable development (all names are quite relative). Let us explain.

Environmentalism goes back to the middle of the XVIII century when the famous scientist and politician B. Franklin and citizens of Philadelphia stood up against industrial pollution in their city. Later on, environmentalists' efforts ensured the creation of the National Parks, pollution reduction, and other eco-friendly actions. Followers of the movement fought for preservation and improvement of the environment using the political means.

Conservationists (W. Powell, G. Pinsho, B. Fernau and others) developed the pragmatism into the "long run pragmatism", by proclaiming the goal to keep (conserve) the natural resources for the generations to come. Their motto was "Maximum natural resources for more people and longer".

Biocentrism followers (R.U. Emerson, G. Catlin, F.L. Olmsted, G. Darrel, B. Grjemek, F. Mouet and others) proclaimed the principles of the unity of the world and the equality of rights of every living creature and the wild animals' right to live in their natural habitat; they were also against human egocentrism and its dominant right for the resources of the Earth.

Ecologists (A. Ist, O. Leopold, G. Marsh, and A. Ross) advocate the value of nature and vital ecosystems and living organisms. Followers of ecologism developed the ideology of the reorganization of the world, environmental alarmism (exaggerated alarm), and introduced the "green" policies and radical environmentalism (K.P. Linkola, A. Benua, E. Lehmann). A major contribution to the popularization, conceptual and practical development of the ecologism and eco-ethics was made by the Ukrainian environmental activist V.E. Boreiko, the chief editor of the «Гуманитарно-экологический журнал» (Humanitarian-ecological magazine, in Russian).

Ecocentrists laying their foundation on the ideas of G. Toro, M. Gandhi, and A. Schweitzer created the basis of the design, which is similar to ecologism but is quite more rational, scientifically and economically verified. It implies the following thoughts: the parity of people and nature, harmonious development of a human and nature is the highest value, the ecological imperative ("everything that does not break ecological equilibrium between nature and the society is right"), application-oriented scientific learning of the ecological being (Myasnikov, 2005).

Professor M. V. Gusev, the dean of the biological department of MSU, developed positions of **biocentrism**, as the most ethical philosophical concept. Biocentrism ideology, according to Gusev, states that every living thing has the right to exist, not just one kind; it is the bio community that should be the center of the judicial and ethical interest (Gusev,

1991). Modern people have no limits of asserting themselves in the world, by interfering with the laws of nature. It is essential to create legislation that will protect the rights of all living things – "Constitution of life". M.V. Gusev claimed anthropocentrism could be noticed even in the ecology itself that confronts people and the environment, highlighting that there are special laws for people. This is the result of a typical discrimination, like Nazism or racism, and it must be denounced the same way. He also thinks teaching humanitarian disciplines goes in the wrong direction, as its nature is anthropocentric. If one wants to understand the history, they should study the discoveries of such the scientists like Paster and Fleming as much as the military history, political events, and economy reforms. Biocentric approach to understanding the role and place of humans in the world can help to solve questions of environmental matter much better.

Russian cosmism was developed by N. Berdyaev, I.V. Kireevsky, V. Soloviev, N.F. Fedorov, P. Florensky and others, who represented the Russian intelligentsia. They considered Human to be a part of nature and the whole Universe; they wanted to develop a new moral for relationships based on those three levels. V.I. Vernadsky, the Great Russian thinker and scholar, created the scientific basis of global and cosmic interconnections of people and nature. His ideas of Man as a geological power forming "rational sphere of Earth"/noosphere, and his thoughts about the biosphere and global processes made a great impact on the progressive minds in the 1920s. Lectures of Vernadsky had impressed scholars and philosophers E. Leroi and P. P. Reinhardt de Chardin, who on its basis advanced the teaching about the noosphere and people, as a cosmic phenomenon.

The following concepts have ensured the environmentalization of the mass consciousness: Reverence for Life (A. Schweitzer), Ethics of the Earth (A. Leopold), Nature knows best (B. Commoner), co-creation of people and nature (V.B. Shogavah), co-evolution of the humankind and nature (N. Moiseyev).

In general, environmentalism, Russian cosmism, the teaching about noosphere and global ecological ethics have proved the necessity of the unity of Man and nature and started to form the idea of non-pragmatical value of nature. Nevertheless, **pragmatical arguments** maintained their leading role when it comes to environment-oriented decision-making in politics, economy and business. That is why the pragmatical basis for the necessity of ecologization of thinking and practical activity was made by the means of advancement of some other concepts.

Ethical egoism mostly was formulated by G. Selye, the Nobel Prize Winner and author of the theory of stress. He suggests people help nature for their prosperity and health sake, preserving the wild life as a valuable resource.

Ethical consumerism ensures self-limitation in consumption, promotes manufacturers who produce goods with minimum harm done to nature and waste recycling, "green certification," popularizes eco-friendly products and *ground food,* etc.

Rational management of natural resources is supposed to be done to ensure nature benefits from it first; only then, humans do, as they are just an element of nature. It is inevitable for people to conduct management of natural resources to satisfy their basic intellectual, economic and environmental needs. However, they are obliged to fulfill principles of reasonable limitation of the requirements, husbandry, and compensation of the intrusion into nature, recovery of the destroyed ecosystems and management of ecosystems for sustaining their productivity. Management of natural resources must be conducted on moral and ethical grounds. One is not to harm nature and defy the principles of humanism. (Shabanov, 2007)

The concept of sustainable development is aimed at ensuring rights of the future generation for the biosphere resources (such as: clean environment, biodiversity and intact wild ecosystems); we have no right for this minute profit gained through the destruction and

depletion of something that does not belong just to us but also to our successors. Rushed and ignorant management of natural resources, the proliferation of arms, consumer race, and uncontrolled pollution lead to the depletion of resources, destruction of the biosphere i.e. unsustainable development, which might end with a severe crisis of the anthroposphere, or even with its extinction. To avoid that and make the development of the humankind sustainable, it is crucial to take the education, upbringing, formation of ecological and humanistic culture to a completely new level (Education for sustainable development…, 2004; Education for sustainable development…, 2008).

3.2. *The concept of environmental literacy*

Separation of the ecology of culture and environmental literacy as independent concepts and scientific fields was initiated by the interdisciplinary research of environmental education and upbringing in 1980s-90s. During studies and debates, there arose a necessity of an integrative term and a new scientific discipline. In 1980, D. Lihachev proposed an idea of the "**ecology of culture**"; he implied transition of environmental concepts into cultural sphere. E.g., he said: "There is a very significant difference between the ecology of nature and ecology of culture. Environmental losses are recoverable to a certain extent. We can clean up the polluted rivers and seas; we can recover forests, livestock amount if the species are not extinct. However, cultural heritage is not like that. Its losses are unrecoverable because cultural heritage is always individual; it is always connected with the epoch, with the professionals. Every artifact if destroyed disappears forever or mutilates forever or becomes damaged forever" (Lihachev, 1980). So the term "ecology of culture", as D. Lihachev has understood from semantical point of view is not a synonym to the "environmental literacy"; it is of the same nature as "musical culture/literacy", "legal culture/literacy", "physical culture/literacy" are but it has rather ordinary than scientific definition.

Kulabukhov (2007), who conducted culturological and philosophical analysis, separated the central notional concept, according to which **ecology of culture** is understood as:

a) *cultural ecology* – the science that study bonds between the nature and the culture of a given region, nation, state, and between the nature and culture (Ch. Elton, L.N. Gumilev, G. Konvents, E. Pianka, F.V. Rasumovsky, D. Vincher, and others);

b) *environmental literacy* (or ecological culture) is a science that describes the relationship between the culture of a society and the environment (T.M. Dridze, V.P. Gaidenko, N.N. Kiselev, I.O. Nazarov, N.N. Moiseyev, U. Odum, M. Rats);

c) *ecological esthetics* is a field of science about the esthetical perception of the environment, e.g. information space (T. Albino, A. Germen, T. Jessoon, N.B. Mankovskaya, M. McCluen, A. Medous, A. Pechchei, and O.N. Yaitskiy).

d) We think that this list should include one more definition – *environmental morality*, one's beliefs, values, attitudes that prioritize environmental values when shaping opinions, making decisions and behavioral motivation, regardless of the formal moral, traditions and legislation.

According to the Russian tradition, the meaning of the concept "ecology of culture" was enriched by the social and environmental philosophy studies (V.V. Bakharev, V.I. Kurashov, L.I. Vasilenko), environmental pedagogy and psychology research (C.N. Glazichev, A.N. Kochergin, B.T. Lihachev, I.K. Liseev, N.M. Mamedov, N.E. Shurkov, I.D. Zverev), biological research (M.V. Gusev, C.I. Pegov) and works on ecological ethics (V.E. Boreiko, V.P. Gaidenko, U.U. Galkin,).

Kulabuhov also provides the definition of ecology of culture from the philosophical point of view: "Ecology of culture is a phenomenal universum, that can synthesize the process of humanization and environmentalization and ensure harmonious functioning of the "people – nature – society" system; this concept was determined in different forms of human activity since the dawn of time, uniting nature and culture, it enables preservation of the natural environment and cultural heritage" (Kulabuhov, 2007).

As for the term "**environmental literacy/ecological culture**", we should point out that it does not gain a solid definition and wide popularity in the world. In English *ecological culture* can be met only in the translated works of Russian authors but its meaning usually denotes sustainable and traditional agriculture (synonym to *permaculture*). Regarding ecologization of people's worldview, the following terms are commonly used: *sustainable development and ecological consciousness*, instead of *ecological culture* (Uhl, 2003).

In Russian literature, the expression "ecological culture" is used spontaneously, without a proper foundation and definition. Usually, this term implies that people have some environmental knowledge, environmental ethics, and the ecology of culture as it was defined above. That is why hereafter we provide our own definition, based on the anthropological understanding of culture that has already been brought up for discussion for pedagogical community (Yefremov, 2005b; Yefremov, 2007b).

The definition of **ecological culture** should be divided into two different levels, social and individual.

Ecological culture of society is the amount of material and spiritual achievements of society, which ensures harmonious coexistence of people and nature, and integrates enhancement of the environment and promotion of healthy lifestyle, recovery and rational management of natural recourses, sustainable development and environmental safety of the society. It prioritizes environmental values in the fields of morals and ethics, social and economic strategies and substantive legal framework.

By the spiritual achievements here, we imply knowledge (scientific, ordinary, religious etc.), traditions (sustained ideas, habits, customs that regulate activity and public relations), standards (laws, ethics) and attitudes (superstitions, myths, values orientation). Environment protecting laws and regulations are essential, as it highlights the top status of environmental topics and activities (state strategies, concepts, constitutional articles, laws etc.). However, as we already know, if there are no social traditions and morality, laws are nothing but words on paper. All these informational matters influence the attitudes to nature and the environmental actions.

As the material achievements of the ecological culture here, we imply all the accomplishments of physical and technical sphere which enhance sustainable existence, and preservation of the ecological balance. E.g., the society that has highly developed technologies of waste recycling, sewage treatment, greening and conservation of natural ecosystems, ecological safety and plenty of environmental colleges with sound budget can be named as the society with the high level of material ecological culture.

While being used in the literature or discussions, the term "ecological culture" is often understood in terms of its individual level. E.g. the "Framework of forming environmental culture of Saint-Petersburg" (2005) project considers the term as the "unity of personal, moral and political regulations, social and ethical values, requirements, rules, habits which ensure sustainable quality of the environment and ecological safety and rational management of natural resources". However, the final document considers the term "ecological culture" as achievements of the society and people in the fields of industry, materials and spirit, which are aimed at the conservation and advancement of the environment and values of

environmental orientations taken together. That is its social level (Framework of forming environmental culture of Saint-Petersburg, 2005). To put it simply, the definition is

Ecological culture of an individual is a system of knowledge and paradigms including environmental thinking, ecological competence and environmental ethics.

Here we should explain how we understand those interdependent and subordinate terms:

Environmental thinking is an ability to prove the use of an activity and estimate its results by not only the social and economic criteria but also but also considering environmental criteria, based on the known objective environmental laws.

Environmental competence is a conscious ability to form opinions independently, to make decisions and fulfilling environmental activity, which ensures constructive and sustainable coexistence of humans and nature.

Environmental ethics implies internal convictions, values, regulations that prioritize environmental values while forming opinions, decisions and motives of behavior regardless of the external moral, traditional and legal rules.

Highly developed ecological culture (of both individual and the society) prioritizes environmental values in the fields of morals and ethics, social and economic strategies and substantive legal framework. The society with the low level of ecological culture has another priority, ones of this moment benefits, consumer and disdainful attitude to nature, carelessness to the environmental values and problems.

Ecological culture exists within the following directions of activity (of both the individual, and the society):

- conservation and recovery of the wild nature,
- sustainable management of natural resources,
- sustainable development orientation,
- promotion of environmental safety,
- environmental care advancement,
- healthy lifestyle promotion,
- the development of ecological ethics,
- forming of ecological consciousness,
- harmonious coexistence of people and nature.

Therefore, we consider ecological culture as an integrated set of ecological consciousness and ecological activity. Along with it, ecological culture is merely one of the components of the greater humanitarian and ecological cultures of humans, which determines the path of the sustainable development of humankind.

3.3. *From the environmental education to the education for sustainable development*

Ecological culture is formed due to the following factors: propaganda, agitation, informing, PR, law enforcement practice, the legislative pressure of a reference group, family upbringing and self-education. However, the key factor is pedagogical work supported by the system of teaching. Modern ecological culture is aimed at the primary target – sustainability of the humankind and biosphere. So the system of education faces two supertasks: to teach people how to understand both the natural processes which make the foundation of the existence of the biosphere and the social and economic processes, as prosperity, sustainability and the survival itself depend on them. To solve these tasks

education should be based upon three components: humanitarian, ecological and economical ones, which make a single whole – Education for Sustainable Development. Without the unity of the three elements and without its aiming at the sustainability of the development, environmental education remains inefficient, fruitless or even brings a negative attitude to the biological knowledge and nature itself. That is why the strategies of the modern environmental psycho-pedagogy should be broadened: from the development of the environmental thinking to the mastering of philosophical principles of sustainable development of the human society and biosphere. The practice of the environmental education should be extended with the components of **ESD**.

The concept of the sustainable development in its modern sense was formulated in the Report of the World Commission on Environment and Development, Brundtland Commission, 1987. It was considered by the world community and was appointed as the most suitable development strategy for the humankind; it became the foundation of the Earth Charter, 1992, which now is the global environmental policy guide. WSSD 2002 took place in Johannesburg, South Africa, where environmental problems were proclaimed inseparable from other world challenges such as poverty, hunger, diseases, illiteracy, growing social inequality, etc. The decision came up that those challenges should be dealt with in complex by increasing the level of social, economic, and political development of the society and ensuring education to be aimed at it. Therefore, there was a necessity for the creation of new educational paradigm by strategies for sustainable development of the society, economy and environment.

ESD implies the transition from extremely specialized education in the fields of ecology, economy or geography to the society-oriented model of education. Its foundation is broad interdisciplinary knowledge, based on the integrated approach to the development of the economy and the environment. An important feature of ESD is integrated education; that embraces almost all fields of the science, humanitarian and technical subjects. (Sadovnichy, Kasimov, 2006)

In 2002, implementing the ideas of the Brundtland Report and the Earth Charter, the United Nations General Assembly announced The "United Nations Decade of Education for Sustainable Development" (2005–2014) promoting the role of education as the key factor for the transition to the sustainable development.

For justifying the process of ESD, UN Economic Commission for Europe (UNECE) Strategy for education for sustainable development (UNECE, 2005) was developed by the 56 states participants from Europe, Caucasus, and Central Asia. This highly important document was created as a result of the fifth Environment for Europe Ministerial Conference lead by Russia and Sweden in Kiev, May 2003. It was adopted by the meeting of the United Nations Economic Commission for Europe at the level of high-ranking officials from Environment and Education Ministries in March of 2005 in Vilnius, Lithuania. The ESD strategy goal is encouraging UNECE state members to develop and integrate ESD into their education systems within all the disciplines and the informal teaching and enlightenment. In addition, Vilnius framework of the 'strategy setting the steps and stages of its implementation at the regional and national level' was adopted. S. Kasimov, RAS academic had the honor of its announcement. First, member states were supposed to develop national strategies and plans of actions due to the implementation of ESD (Sadovnichiy, Kasimov, 2006).

The following key themes of the sustainable development were announced: poverty alleviation, citizenship, peace, ethics, responsibility in local and global context, democracy and governance, justice, safety, human rights, health, gender equality, cultural diversity, rural and urban development, economy, production and consumption patterns, corporate responsibility, environmental protection, natural resources management, and biological and landscape diversity. To consider so many different themes within the ESD framework a

comprehensive approach should be used (UNECE Strategy for Education for Sustainable Development, 2005, p.15).

In particular, paragraph 28 ESD demands a reorientation away from focusing entirely on providing knowledge towards dealing with problems and identifying possible solutions. Therefore, education should retain its traditional focus on individual subjects and at the same time open the door to multi- and interdisciplinary examination of real-life situations. This could have an impact on the structure of learning programs and on the teaching methods, demanding educators change from being solely transmitters and learners change from being only recipients. Instead, both should form a team (UNECE Strategy for Education for Sustainable Development, 2005, p.28).

Historical analysis of the development of the ecological education and culture, and of the ESD background enables to reveal several stages, which are connected with the elaboration of the whole natural science:

- *Natural-historical period* (XVIII – mid. XIX century), or pragmatical, practical, descriptive. The main output of the studying of natural science was the fact that people have been acquainted with the biodiversity and started to apply it in everyday life.
- *Naturalistic period* (late XIX – beginning of XX century) is characterized by religiously anthropocentric principles; it brings the idea of a **proactive** approach to nature studying and school education with elements of nature conservation.
- *Transformation of Nature period* (beginning – mid. XX century) implements utilitarian and practical ideas, aimed at the "fight" with nature, its remaking due to the social states interests. Students had a lot of field practice experience there.
- *Nature conservation period* (1950–1970) is marked by the domination of utilitarian attitudes to nature conservation while nature was still considered as a "resource". Students participated in the promotion of nature preserving in a big way. At that time, the concept of the sustainable use of natural resources that is close to the principles of sustainable development appeared and became the priority direction for the development of science and technologies, a quarter of a century before the principles of SD were formulated.
- *Formation of environmental education in the USSR period* (1970–1990) brought new policies such as: environmental responsibility (N.M. Mamedov); co-evolution worldview (N.N. Moiseyev); global ecology as the basis for management of natural resources (N.F. Reimers); Environmantally-friendly mindset which excludes the possibility of irreparable harm to nature (E.V. Girusov); ecological culture (I.D. Zverev, A.N. Zakhlebniy, I.T. Suravegina).
- *The ecological education implementation in Russia* (1990–2000) is characterized by the following factors: adoption and broadcasting of the coeducation principles of UNCED that was held in Rio de Janeiro, 1992; highly active scientific development and production of environmental centers, which promote eco principles; establishment of Special Protected Natural Areas, that also promoted environmental education; environmental legislative framework; introduction of the environmental subjects into the school curriculum; system of further environmental education.
- *Period of Education for Sustainable Development formation* (the 2000s). During The Decade of Education for Sustainable Development (DESD), when the ecological component became an inherent part of any education, Russia was facing certain crisis of ecologization. People were losing interest in the environment; ecological courses were either cut or formally taught; scientific development and environmental centers reduced their activity; due to the lack of financial and social support, many environmental government entities were dismissed or transformed (Ministry of ecology, Federal Agency for Forestry Affairs and others). Still there is the confrontation of authorities and business with the population regarding valuable natural objects conservation. Along with that, the development

of ecological culture has become an inherent attribute of pedagogical work with children, with the elements of intellectual, spiritual, musical and physical culture; nowadays they always are implemented in the curriculum. Environmental ideas are promoted mainly by the authorities. The transition to ESD is slow and to certain extent chaotic, because at the state level the ESD is not adopted, and the scientific verification is not correctly used.

This scheme is based on the works of Ermakov D.S. (2009), Zimina T.I. (2003), Sadovnichiy V.A., Kasimov N.S. (2006).

In macro – Russian methodology of environmental education and development of ecological culture, and later ESD has been studied and developed by A.N. Zakhlebny, N.N. Moiseyev, G.A. Yagodin, V.A. Yasvin, V.I. Panov, I.T. Suravegina, S.D. Deryabo, D.N. Kavtaradze, N.S. Kasimov, A.N. Kamnev, etc.

The rector of M.V. Lomonosov's MSU V.A. Sadovnichiy and the dean of geographical faculty N.C. Kasimov summarized the transformations that determine the transition from the traditional approach to ESD and introduced the goals, politics, practice and methodology of ESD (Sadovnichy, Kasimov, 2006).

Transition to ESD (Sadovnichy, Kasimov, 2006)

Traditional education	*ESD*
education as preparation for economic life	education as the basis for the sustainable society, economy and the environment
education as a product (qualification, etc.)	education as the process of competence creation
education as instruction	education as co-participation in the studying
specialization	interdisciplinary flexibility and broadness
external assessment	self-assessment
formal system of education	flexible system of learning
domination of formal education	life-long learning
study plan is the final scheme	study plan as an experience; situational/case education
fixed knowledge	changing knowledge
abstract knowledge	real knowledge
unified educational model	multiple educational models
passive education	proactive education
the lack of sustainable development concept	teaching ideas of development, adoption of sustainable development concept

Teaching staff and Russian educational system were making consistent effort to develop and implement the methodology of ESD. In particular, in the year 2002, Classical University Academic Association created Sustainable Development Research and Methodology Council, which was appointed responsible for introducing sustainable development principles into new educational standards and programs, and development of courses and manuals needed. Russian Academy of Natural Sciences has created a sub panel to study and monitor the sustainable development of Russia. M.V. Lomonosov MSU and D. Mendeleyev University of Chemical Technology of Russia are conducting an important job in implementing ideas of sustainable development. Concepts of sustainable development and the sustainable use of natural resources are introduced into the curriculum of environmental, economical, biological, judicial and other disciplines of educational institutions of different levels.

"The national strategy for Education for Sustainable Development in the Russian Federation" (2008) was developed in Russia within the framework of the global strategy for ESD. This national policy states that the central principle of ESD is the transition from mere knowledge and skills gaining (which are necessary to survive in modern society), to the creation of individuals ready to live in and adapt to rapidly changing environment, participate in planning of social development, and learn how to foresee the consequences of the steps taken, including measures related to the sphere of sustainability of natural ecosystems and social structures. This national strategy also formulates the ultimate goal of ESD, which is the formation of motivated citizens who want to preserve the nature, to keep it unharmed for the generations to come, and to create friendly social environment.

Decree of the President of the Russian Federation dated 2009 *Strategy of National Security of the Russian Federation to 2020*. It pays close attention to the issues of the integrative sustainable development of the country and strategic role of education.

Thus, a solid framework for ESD in Russia has been created. Nevertheless, communication with educators/teachers/methodologists often requires the elaboration of the principles of ESD, which is why we provide its definition.

ESD is aimed at the achieving sustainability of the human economy, society, environment and whole biosphere.

To achieve this, three integrated into ESD factors should be considered:

1. **development education** is the basis of sustainable use of natural resources and economic prosperity;
2. **peace education** is the foundation for political prosperity and social sustainability;
3. **environmental education** is the cornerstone for environmental safety, ecological well-being, and conservation of nature and sustainability of biosphere.

We want to highlight that the third point does not say "ecological education" but environmental one. This notion is wider; it integrates the following competences: ecological literacy, environment improvement, promotion of healthy lifestyle, conservation and recovery of nature and sustainable use of natural resources. Nevertheless, for Russians the term «энвайронментальный» (environmental) is quite hard to pronounce, it is clumsy, borrowed and does not sound well, that is why «экологический» (ecological) is wider spread. Sometimes synonymic constructions are used: «природоведческое и натуралистическое образование» natural or naturalistic education (or upbringing) (International Implementation, 2005; Adams, 2006)

The term *sustainable development* was criticized for not being correct in its form (the development process of any model a priori implements some instability) and nature (human development inevitably destroys biosphere). Along with that, it gets quite a solid logic in it: development can be unstable, with ups and downs, crises and even extinction or it can be stable/sustainable. In addition, the word *development* is traditionally used to denote the process of evolution, and the word *sustainable* denotes long, stable use of natural resources (particularly in the use of forests which goes with forest restoration works). Therefore, *sustainable development* has also the idea of "long term evolution", confronting predictions of close future end of humankind history.

ESD aims to develop the following student's critical skills (Tilbury, Wortman, 2004):

1. Imagining a better future. To know where to go to achieve the goal.
2. Critical thinking and reflection. To learn how to take everything we believe in critically, to recognize superstitions, to ask question and look for hypothesis out of the familiar concept.

3. Systemic thinking. To understand the complexity of connections and interaction of events and processes, search for and use of models to solve similar problems.
4. Partnership. To develop the communicative ability and cooperation.
5. Participation in decision-making process. To develop the ability of influencing decision-making to the benefit of the community interests.

Education for Sustainable Development and ecologization of consciousness ensures the future generations to be humane, tolerant; ESD also prevents them from ethnic and religious intolerance, which makes it highly relevant in the context of urbanization. However, the implementation of Education for Sustainable Development is usually conducted within the traditional education framework, which has its weaknesses (the major ones are the abstractedness and the lack of practical application).

Proactive and integrative environmental education and upbringing (PIEEU) integrates all the main achievements and basic concepts of ESD, but is implemented in the exceptional educational environment, ensuring the principles and methods that were considered.

3.4. *Teaching ecological consciousness taking into account age peculiarities*

The problem of the crisis of ecological consciousness in society can be solved by various methods of ecologization: education, as well as upbringing, enlightenment, promotion and PR. The mere knowledge of living nature does not form ecological knowledge yet. People meet the world of nature in the early childhood when mastering speech and thinking by the means of fairy tales, myths, games teaching examples where animals and plants participate. Little children love nature and show interest in it. However, with further personal development, the paradox comes to life: many teenagers and young people learn many things about biology and ecology at school but they start to show negative attitudes to the environment and their ecological culture level decreases.

The reason lies in the wrong strategy of ecologization, based on the principle: upbringing is meant for youngsters, while education is meant for seniors. The matter of fact is that one's need in teaching of environmental priorities does not diminish with age. Principles of humane and responsible attitude to nature should not be only taught in the childhood, but they should be consistently nurtured, changing psychological and pedagogical accents and enriching argumentation on every stage of the personality development. Environmental awareness is only a frame for ecologization of consciousness; it does not replace it. That is why the activity in the context of environmental psycho-pedagogy is supposed to influence all the components of people's worldview at every stage. Such components cover cognition and logic, standards and values, emotions and will, and practice.

Before going to school, children develop their intelligence and speech and at this time, environmental education is supposed to introduce them to concepts and ideas of the world of nature and to give them understanding of the principles of humane and responsible attitude to nature, as well as the importance of self-control, and health care skills. Moreover, all that should be founded on the authority and experience of adults. During this period, the foundation of worldview is subconsciously formed by new images, cases, and landscapes. Environmental education programs play a huge enlightening role at this age; children are supposed to master the fundamental rules of safe and harmonious cooperation with nature.

At the early preschool age (6–9 years), adults should develop children's creative abilities, conceptual thinking, introduce them to biodiversity, abstract concepts, which describe nature patterns and interconnections between people and nature, set children's moral values and give them the initial experience of environment protection. Emotional and sense cognitive stimulus (interest, empathy) and the desire to keep up with the group become the

basis of teaching. Environmental values come into the world outlook during that period of the development. The role of eco-enlightenment rises: to feel the diversity and beauty of world children should get many emotions and information.

Junior school students (9–12 y.o.) need to develop their intelligence and not only get so much information about nature but also master systemic thinking based on the analysis of natural phenomena and patterns and ethics and laws. The internal motivation for education at this age is driving the interest in nature, desire for cognitive activity and enriching the picture of the world. That is why intellectual and environmental values can be set as a part of the integral worldview. Environmental education role goes up: children are supposed to master certain knowledge, to apply it in their studies and activities.

Being teenagers (12–15 y.o.), people experience the crisis of ecological consciousness. Interests are usually shifted from natural to social, from external to internal world. It is quite often for the alienation from children's values (including environmental care and adults' authority) to happen along with criticism, negativism, maximalism, environmental irresponsibility, emotionality. Orthodox opinions, judgments, moral principles are easily destroyed by the influence of one's personal thinking, reevaluation, friends' opinion, challenges of life. That is why teenagers need non-instructional upbringing which stimulates conscious choice of positive ideals and fosters spiritual values and emotional well-being of the personality. Work with teens should be founded on their desire for self-actualization, on the development of logical intelligence and practical skills, interest to society as they have the decreased interest to nature, rivalry and direction to the future. Morality should be verified by the social, economic and legislative arguments. The role of practice-oriented eco-education and upbringing rises; teens should reevaluate principles of morality and ethics and understand its rational basis.

If teenagers do not get environmental upbringing, and have only instruction and education, ecological consciousness cannot be formed properly.

At the senior school (15–18 y.o.), the crisis of ecological consciousness can develop even further. Several senior school students can achieve distinguished success in the context of environmental education but the rest lose interest in the world of nature. Here come pragmatism, egocentrism, pessimism, indifference, and passiveness; bad habits lead to the negation of values of health and environment. The transition from ideals of childhood and naturalism to adult life and urbanism takes place.

The following principles stimulate ecologization for senior school students: individual, particular approach, career prospects, aiming at college/university admission, persistence of involving them into activities, creation of adventure, overcoming difficulties, physical exercise (kids usually are afraid of it); teambuilding, creation of group subculture. The following possibilities of self-realization, demonstration of being mature positively affect the young people:

- managing, making decisions and choices;
- speaking out, proving one's position;
- achieving a valuable result (for kids the process is more important than the result);
- teaching, mentoring younger students;
- earning money and other forms of recognition.

All of that can be realized in the framework of practice-oriented education. The problem remains how a senior high school student should make time (free from school, sports, hobbies and time needed to get there) and get reference group support (arguments of prestige). At this age, the role of environmental agitation intensifies: young people should feel their involvement into environmental work, to make their choice of Eco values.

Being college/university students (17–25 y.o.) almost mature persons usually put aside their past negative ideals, they start to accept family, legislative, state values, they reorient to the professional career, healthy lifestyle and bringing up of the next generation. Students are involved in educational process; they adopt its rules and routine. The unique positive role is played by training, which gives the possibility to develop personal qualities. At this age the role of environmental education strengthens up, which raises young people's environmental awareness, helps them form a well-balanced picture of the world as well responsibility before nature, state, family.

Educators should keep in mind that the development of young people's consciousness is highly influenced by their friends, parents, leaders of public opinion, popular subculture idols, mass media and mass culture, consumer fashion that brings negative traditions and ideas. The educators' position should not counter them by the means of criticism and conflict (which results in harmful attitude to environmental values) but stimulate independent, conscious choice of environmental values based on the more profound world outlook.

3.5. *Environmental education in context of social and psychological atmosphere*

Ecological consciousness is generally formed by different social and psychological agents:

- Environmental education is provided by the systems of preschool, school, and high school, special, higher and further education.
- Environmental enlightenment, promotions and campaigns are conducted by prominent groups; they transfer opinion by the means of other educational events and leisure activities, mass media products and popular culture (books, movies, masterpieces, etc.).
- Environmental education programs are fulfilled by small groups: family, collectives of friends, classmates, colleges, team members, tourist unit members, etc. A small group has deep interpersonal contact, which ensures adoption of eco-friendly (or opposite – anti-green) values.

The same adult can perform different roles for the child: to be the agent of environmental education (e.g. as the teacher of biology class), enlightenment (e.g. as the performance manager), and upbringing (e.g. as an expedition co-partner).

Among the tasks of the environmental educator are: to stimulate students' intuition, to develop variable thinking, to bring discipline to their imagination, to teach how to see the goal, sense, direction, to form observation skills, independent thinking. The technique of successful environmental and enlightenment work with the students requires the development of script considering the dramaturgy, direction, and set design of the lesson and usage of problematic, paradoxical, emotional, and dynamic presentation of the material.

While forming the main body of the proactive and integrative environmental education and upbringing (PIEEU) one should not be limited by biological and ecological paradigm; one should make the following fields of knowledge as a basis for PIEEU instead:

- natural science knowledge (e.g. environment sciences, chemistry, geography, oceanology);
- anthropology (social ecology, ecology of individual and closed space ecology);
- social sciences and history (historical ecology, studying of crisis, the environment influence on the ethno genesis and culture genesis);
- tourism, regional natural history, amor patriae;
- medicine and biology, hygiene, valeology (except for alternative medicine and psychological cults);

- politics and law (environmental law);
- psychological (Eco psychology, traditional standards);
- ethnoculture, religion, myths, poetry (legends, tales, environmental fairy tales, green religious ideas, ethical traditions);
- literature and art, linguistics (analysis and emotional understanding of texts);
- public speaking (thematic debates, discussions, auditions, talk-shows);
- creative work and esthetics that are related to traditional art (thematic painting, collage, installation, etc.);
- screen-oriented art, movie making (shooting thematic films);
- folk art, folk crafts;
- computer and multimedia technologies;
- mass information, journalism (reports, coverage, articles, etc.);
- sports and adventures (negotiation of difficulties, orienteering);
- methodology, logic (environmental systems modeling);
- games, drama training (entertainment, performances);
- professionalism, crafts (creation of products of environmental value, volunteering);
- personal development (training of team skills and psychological development in wild nature conditions);
- life safety (first aid, robinsonade, life guarding);
- technology (management of natural resources technical tasks solving);
- everyday skills (learning these skills outdoors).

The following factors of environmental psychopedagogy are considered to be effective: the possibility of living out of home and studying out of school closed space; individual-oriented and practice-oriented approaches; informal partnership between educator and student; the opportunity to be a part of natural educational environment; demonstrativeness and emotionally colored information; new impressions, mobilizing adventures, the possibility of being actively involved, to show one's abilities, to actualize one's knowledge and skills.

These factors in the context of environmental education are considered unproductive: formal academic teaching approach; people remoteness from nature; panic and pessimism while covering ecological problems; infantile emotionality; irrationally made conclusions; excessive naturalism.

In environmental education, it is thought that empirical (practice-oriented) approach which differs from the traditional educational model ("studying – acting") by simultaneous processes of learning things and putting them to practice. Experiential model ("acting – studying – acting") encourages students to carry out some actions to solve the set task. By the means of observation and critical analysis of the action made, they gain experience, which drives them to learn more. Along with it, general information is made to be connected with real activities; it gets to be felt and involved into the sphere of personal experience. Experiential education can be successfully realized in the context of newness, beyond the conventional educational environment (e.g. living practice in training and production facilities, or at the specialized camp or expedition).

Practical eco pedagogical actions are related not only to the studying of nature, but they can be based on the whole range of possibilities and knowledge mentioned above.

Science and research work is a useful pedagogical tool. During this process students are supposed to learn not only basic knowledge but also how to conduct universal research project: to state the problem and goals, to look for decisions, to make hypothesis, to find methods of verification, to collect and critically understand published data, to plan and

conduct experiments, to observe, collect, compare and interpret data, to make explanations, to verify conclusions, to summarize information about the object and to present results. To consolidate the success, the results of the project should be demonstrated at the conference, examined and published.

The development of political, legislative literacy and citizenship maturity are of extremely high importance. The young people (as well as the rest of the population) hardly understand the real directions of environmental problem solving and the whole difficulty of systemic limitations to social and technical measures. Holding debates, where students can imagine themselves the government, to feel the complexity of law making and administrate business gives students better understanding of the situation. It is very useful to consider environmental problems at the teenage projects like "Debating", "Youth and Government", social games-discussions, school governance.

In general, proactive and integrative environmental education and upbringing (PIEEU) provides different possibilities of self-actualization for children and teenagers, particularly: unusual occupation; bright impressions and positive emotions; positive personal qualities and humanism; new valuable skills; greater erudition and intellectual independence; demonstration of one's cognitive, creative, physical abilities; new emotional and material stimulus; development of teamwork and leadership; gaining independence and responsibility; involvement in an important, serious and useful activity; motivation for further professional development; participation in current problems solving. Students increase their self-esteem and academic performance; they find positive direction in life and motivation for self-development.

3.6. *Implementation of pedagogical methods of PIEEU in education systems of various countries*

This chapter provides a brief review of the latest examples of the environmental pedagogics (proactive learning) implementation. We have chosen different fields and majors to demonstrate the flexibility and universal applicability of PIEEU.

U. Kartoglu and his colleges (Kartoglu et al., 2017) introduced methods of experiential, authentic education within the collaboration between WHO and Murdoch University (Perth, Australia) and University of Georgia (Athens, GA, USA) concerning the experts training for establishing and maintaining a "cold chain" for time and temperature sensitive pharmaceutical products (TTSPP). The authors report the high effectiveness of the experiential method for training experts of this field. Feedback from students collected at the end of the courses proves that students achieved a high level of expertise and gained all the necessary skills. WHO Global Learning Opportunities also has designed the unique technique of instruction, whereby students have a "wheels course" visiting all the elements/nodes of the "cold chain" on a bus (storehouses, logistics units, vaccination units, utilization stations and so on.) and an online course called "e-learning". The aim of this course (Experiential education handbook, 2017) is to train pharmacists-practitioners. Professors avoid traditional lectures and actively use group learning instead; students are encouraged to self-learn the basic concepts and then put them into practice. Practical orientation of this program is in the obligatory application of the newly gained skills and knowledge outside of the university.

H. Sungb with his colleges (Sungb et al., 2017) from National Taiwan University of Science and Technology and Chung Yuan Christian University use experiential education methods to teach the Analects of Confucius. Authors claim elementary school students have troubles implementing the learned by heart concepts of Confucious in real life, so they

developed digital game-based learning environment successfully tested on 5th-grade students of an elementary school in Taiwan. Control group learned the same material with a conventional technology-enhanced learning system. The experiment result was excellent. The test group students achieved better learning motivation and thorough understanding of the covered material.

International Management Institute, Delhi, India has been implementing Kolb's ideas (Kolb, 1984) to teach proactive Entrepreneurial Leadership for the last five years. A. Bhandarker and S. Kumar (A. Bhandarker et al., 2017), the professors of this experiential education program report an incredible increase of the students' searching activity and innovative designing. Authors claim this result is due to the pedagogical effectiveness of the proactive approaches for Business Education training.

J. Mavodza (Mavodza, 2017) from Zayed University, Abu Dhabi, United Arab Emirates solves the students' information literacy (IL) problem by the Kolb's theory (Kolb, 1984). The goal of the work is students' self-teaching to enhance their practice and prepare them for work after the graduation. Also, a detailed guidebook for librarians was developed to improve their services, how to provide students with the necessary materials to enhance their practical knowledge.

A. Saraswat and others from various hospitals of Columbus, OH, USA conducted an experiment to compare traditional methods of training with experiential education ones concerning the effectiveness of instruction low-frequency clinical events such as abdominal compartment syndrome (ACS). Authors report the significant advantages of the proactive education relative to the traditional methods.

A. Awaysheh (Awaysheh et al., 2017) from Indiana University, IN, USA concluded that experiential education is almost an ideal pedagogical method for teaching social entrepreneurship for MBA students. Also, authors emphasize the advantages of experiential education for an international learning environment.

An unusual experiment was made in Netherlands. Marieke C.E.Battjes-Friesa (Battjes-Friesa et al. 2017) have tried to improve the effectiveness of the Taste Lessons where children were were offered new vegetables to to introduce them to the diversity and advantages of plants (previously known and new to children). Unfortunately, the result comparison to the control group showed no significant increase in vegetable consumption by the Netherlands school students. Authors feel enthusiastic and believe this result indicates the necessity of the more thorough integration of Taste Lessons with the empirical learning methods.

Grigorev G.V. and Kamnev A.N., authors of this book (Grigorev, Kamnev, 2016), use proactive education to teach English as a second language particularly to teach phonetics. Children specialized recreation camps are the best place for this approach to succeed. Authors report balanced integration of empirical and traditional didactic methods ensures high results. Students have their searching activity and the ability to learn quickly enhanced.

As we see, PIEEU or to put it otherwise, environmental pedagogics proves to be successful for training experts of various fields from business to surgery. Moreover, these methods can be effectively used for teaching students different subjects, even educate them about the diverse taste of fruits and vegetables.

3.7. *Environmental literacy: Glossary of terms*

You can find below definitions formulated by the authors based on the studying of existing definitions and their proprietary formulation, with the emphasis that enable the differences between terms.

Proactive and integrative environmental education and upbringing (PIEEU) - is a complex goal-oriented process of human harmonious development based on the components of environmental education programs, natural science training, Education for Sustainable Development, methods of practice-oriented education, health promotion, life experience enhancement, and adventures.

Science Adventure program (SAP) of PIEEU is a system of actions and measures which harmoniously integrates components of environmental, physical, psychological, and creative action-based education, which can be performed in the context of children recreation/tent camps, expeditions, and centers of children further education.

Education for Sustainable Development consists of three directions: development education, peace education, and environmental education that is used to shape economic, social and environmental sustainability of the human society.

Nature-Aligned Pedagogics (in its modern scene) is training focused on scientific understanding of nature and society interconnections; on correlation of general laws of nature and people development; it develops person according to his/her sex, age, individual abilities and natural needs; it forms responsibility for his/her self-development and evolution of noosphere and biosphere.

Nature-oriented education and upbringing forms ethics, citizenship, legal knowledge to prevent people negative influence on the environment and to ensure environmental safety and compliance.

Environmental activity integrates – 1) activity of companies and individuals aiming at the development of the environment, 2) biological, social, legislative, political, economic, psychological and other interrelations of people and nature.

Environmental agitation is a process of providing good coverage of environmental information aiming at enabling green activists to do something, e.g. to create reservations or to run the environmental campaigns.

Environmental expertise is a conscious ability to form opinion independently, to make decisions and fulfilling environmental activity, which ensures constructive and sustainable coexistence of humans and nature.

Environmental competence is a regulatory requirement to the level of students' acquired knowledge and skills that target the development of environmental thinking and environmental competence.

Ecological culture of a society is the amount of material and spiritual achievements of society, which ensures harmonious coexistence of people and nature and integrates promotion of health of the environment and human lifestyle, recovery and rational management of natural recourses, sustainable development and environmental safety of the society. It prioritizes environmental values in the fields of morals and ethics, social and economic strategies and substantive legal framework. The ecological culture of an individual is a system of knowledge and paradigms including environmental thinking, ecological competence, and environmental ethics.

Environmental ethics implies internal convictions, values, regulations that prioritize environmental values while forming opinions, decisions and motivations of behavior without any dependencies of nature of the internal moral, traditional and legal rules.

Environmental propaganda is a form of communication, aimed at promoting particular environmental views and influencing human activity regarding their relations with nature, such as altering people to conserve natural complexes, behave quiet and observe environmental safety in the forest.

Environmental advertising provides information to people about the environmentally valuable resources and services (recreational, educational and so on.) to increase consumers' concern about the environmental problems and alter them to take it, e.g. to participate in excursions, to go to visitor centers, to buy books or souvenirs.

Green PR (public relations) is a communication between environmental agencies with population and companies. The goal is to increase awareness, improve the organization's reputation, gain consumers trust, stimulate cooperation, to raise funds and solve conflicts.

Environmental upbringing shapes personal environmental consciousness and ecological culture of society by the means of developing, realization, and emotional acquiring of environmental values.

Environmental thinking is an ability to prove the use of an activity and estimate its results by not only the social and economic criteria but also by the environmental reasons and known environmental objective laws.

Environmental education is aimed at acquiring of systemic knowledge and practical skills regarding ecology, which raise the level of ecological literacy, they ensure solving ecological problems and reduce harm to nature done by human industry.

Environmental Enlightenment focuses on coverage of environmental knowledge, information about the state of the environment to form basics of environmental literacy of the population and to increase the people's interest in ecology.

Environmental consciousness is the concept of specific psychological factors of the "people – nature" system within nature itself, attitudes towards it, and strategies and technologies of engagement with nature, which determines the environmental activity (Deryabo, Yasvin, 1995, 1996). The high level of environmental consciousness can be understood as the adoption of environmental knowledge as the basis of world outlook and practical activity of people. Environmental consciousness ensures behavior based on the eco-literacy and environmental thinking.

Ecology is a field of knowledge about interrelations of live organisms and the environment. Ecology as a science studies the structure, diversity, development, and interrelations of ecosystem components, and how an ecosystem function as a whole. Ecology, as a field, of mass interest also considers the relationship between human society and nature, problems of management of natural resources and nature conservation.

Experiential education is the pedagogical process based on the "Action – Learning – Action" model, during which the person at first gets his/her experience, then improves it, adopting knowledge and skills of the mentor/tutor, and further fixes experience using practice and adventures.

Environmental education is a process that allows individuals to acquire knowledge about the environment, which ensure harmonious coexistence of people and nature; it promotes healthy lifestyle, environment and nature conservation, rational and sustainable management of natural resources.

4. View of foreign colleagues on the active pedagogy development in Russia today

4.1. *Experiential Education in the New Russia*[*]

The impact of "Adventure Education" as a key tool for training young Russians in skills of democracy are examined in this report. Kunz and Putnam have been working with Russian educators since 1988 in supporting the growth of experiential education methods in Russia. Kunz was a visiting lecturer at Moscow State University, MSU, for two months in 1990. He has given lectures on experiential education to the Russian Ministry of Education, Labor and Internal Affairs.

> *If I am the Chief, you are the fool; if you are the chief, I am the fool.*
>
> Old Russian Proverb.

> *"Russia was the fist and the knout" (whip). The Tsars founded Russia, and the harshest and the cruelest were the best. Without Ivan the Terrible, without Peter the Great, without Nicholas I, there would be no Russia. The Russian people are the most submissive of all when they are sternly mastered, but they are incapable of ruling themselves. No sooner is the bridle loosened than they lapse into anarchy; they need a master, an unlimited master; they walk a straight path only when they feel an iron fist over their head. The knout, we owe it to the Tatars, and it is the best thing they left us."*
>
> Monologue of a Russian monarchist quoted by French Ambassador Maurice Paleologue (1912) (Radzinsky, 1992).

Russia has developed along different lines than the democratic West. It's rulers have been able to exercise more power over its citizens than has been allowed in Western society. Russia did not develop its political institutions to create balanced representation and power sharing with the head of state. Its history has been described as one of intimidation, force, terror, and absolute authority contained within one person who represented the monarchy or more recently, the party. Lenin decreed early in the Russian revolution that there could be no factionalism; there could only be one view, one party, with no room for dissenting opinions. Factionalism became punishable by expulsion. Lenin sought to stifle the very possibility of opposition in any form. When leaders, whether they were politicians, artists, or intellectuals, stepped out of the official line of thinking, they were prevented from working in their profession forced into exile, or imprisoned.

With such a past overshadowing an uncertain present, is it any wonder that Russia is fascinated with experiential education? Here is a process that presents Russians with the polar opposite to their historical notions of leadership – choice, discussion and action that lead to agreed-upon change. Adventure activities provide experiences that pull people together in the face of perceived danger and risk, and it does this in the context of *shared* leadership. This concept of experiential education using activities that engage and bring people together, instead of leaders who coerce, is very interesting to modern day Russians.

[*] Brian Kunz, Lindsay Putnam

They believe experiential education can allow students to learn in a more creative and constructive way.

Adventure education creates learning situations challenging a group of individuals to work together in creative and supportive ways as they solve some physical problem. The group is confronted with a problem complex enough to need a coordinated effort from the participants, and demanding enough to require all the resources of the individuals in the group. Individuals need to feel supported enough by the group to fully commit themselves to the problem, despite the personal risk. Adventure programs are organized in such a manner that the participants face unknown and, to a certain degree, frightening tasks. As a rule, the level of difficulty and risk seems very high to the participants, however it is structured by the facilitator so that everyone can achieve success at her/his own level. Completing the task requires making decisions, expressing one's ideas, mutual action, communication and trust in the group. Participants are inspired to act by a desire to help those they are with and, once the task is begun, by the danger of inaction. Successfully completing a number of tasks which are perceived by most as difficult and by some as impossible, the participants give up false notions about the limits of their possibilities. They develop feelings of confidence and esteem both as individuals and as a group. They have experimented with different decision-making and action methods and have experienced both the difficulties and benefits of working in a group. The growth of self-knowledge and the improvement of mutual relations in social environments have made adventure programs a powerful instrument in changing the behavior of diverse populations.

One example of an adventure program is the ropes course. A ropes course is a series of events built in trees or on poles with ropes or cable; these events are designed as problems for a group to solve or overcome, given coordinated effort and communication. The activities are physical in nature, the outcome for the group and the individuals is uncertain, and there is some perceived risk involved in attempting the challenge. This risk and uncertainty is the root of the concept of Adventure. Colin Mortlock, a leading British adventure educator, writes that in experiencing adventure, one finds oneself "in a situation which becomes firmly etched upon his/her mind – perhaps forever. S/he has feelings of satisfaction, if not elation, about the result." (Mortlock, 1973 in Hopkins and Putnam, 1993). Because of this emotional investment in the experience, an opportunity exists for the resulting learning to be considerably more profound and long lasting than in a traditional educational experience.

In July 1996, we constructed experiential ropes course elements at two different camps, Joshkar-Olya in central Russia and Camp Kavkaz in Anapa on the Black Sea. Four hundred and fifty children participated in experiential lessons on the ropes course, and thirty camp staff were trained in experiential methods and ropes course facilitation. In addition, we met with important Russian officials (including the Director of Public School #803, Victor Lekolov, Alexander Kamnev, Director of Aquarius Way, and the Vice President of the Psychological Institute of Russia, Victor Panov) who continue to support our work and are in positions which enable them to expand experiential education in Russia

The Russian counselors and instructors we trained at these two camps described the difference between adventure education and their traditional programs this way; "Adventure activities place more attention on the group, the activities create more unity among the participants, and the presentations are more interesting. Where Russian games and activities are fun, adventure activities are not only fun, they develop trust, friendship, self-motivation and communication." Adventure activities have been able to allow the children to have experiences of being a leader, which in the words of one Russian counselor "does wonderful things for a child."

The Russians are convinced that our work offers the child an alternative view to working in a group or on a project; the notion of shared leadership. Adventure activities

require coordinated group effort, leadership must somehow arise from the group in order to successfully complete the task. The complexity of the task underlines the importance of shared leadership in order to gain the most from the individuals present.

The Russian children we met this summer, as American children, are full of exuberance and energy. Their camp experience, however, is in several ways different than the typical American program. The Russian camp curriculums stress academic and cultural programs as well as physical exercise. The children participate in several instructional classes each day, including science, English, art and music. Noticeably absent are camp fires, tents, hiking trails, and canoes. There is no overnight wilderness trips, bushwhacking through unknown terrain with only map and compass, no rock climbing or ropes course elements. The camp administrators have perceived these activities as too risky; there is too much unknown, it could be dangerous, "we care for our children too much."

Our work began with the intention of focusing on communication and group decision making. But it quickly became obvious that what these children craved was adventure. The entire camp stood in line one day for hours to ride down a *Zip Wire* [1] that American children would have scoffed at; they begged to do the *All-Aboard* [2] and *Sink-the-Row Boat* [3] initiatives again and again; groups of children during free-time hung at our elbows while we built a Tyrolean Rope Traverse in the air across a swamp, wordlessly hoping that they might be invited to try it out. The world for these children is prescribed and predictable. Communist ideology was built upon strict adherence to the Party's view of reality. The communists did not leave room for individuals to self discover truths. Even at summer camp, a place usually synonymous with adventure for a number of American children, Russian activities are, while enjoyable, almost pabulum. It is a new concept for camp administrators and staff to see that Adventure activities, with their often high degree of perceived risk, can be safely managed and facilitated, leading groups and individuals to learning and personal growth. It is a concept eagerly embraced by adults and children alike.

We worked not only with children, but trained the camp counselors and instructors to apply Adventure methodology. The staff was as excited about the activities and ropes course elements as the children, but in working with them over a period of time, a different issue emerged – that of leadership and control, particularly between men and women. At both camps, the men initially dominated every aspect of the activities. Indeed, the only counselors at Joshkar-Olya who were selected by the director to participate in the staff training were men, with the exception of our interpreter.

At Camp Kafkaz, the staff training group was more mixed, but the value of the women participants was heavily discounted from the outset, even during the warm-up activities, such as *Group Juggle*, a coordinated ball toss, which had nothing to do with physical strength or agility, the men discounted the women's ability, to fully participate because the women were not strong enough. At the same time, those who were dominating the discussions were saying, "We had no leader ... everyone is equal ... everyone's ideas are heard." As we progressed to more active Initiatives, the split became even more defined. We worked to initiate some discussion about the full value of each participant. Little was said at that time, but the next day after doing the *Spider's Web* [4], in which the women were treated

[1] Zip wire: an event in which the participant slides down a cable from a height using a pulley.
[2] All Aboard: an exercise in which an entire group of 8–12 people must get up on a small wooden platform a few inches off the ground.
[3] Sink-the-Rowboat: filling a small boat or canoe with people, one at a time across a plank from the dock, until it eventually sinks; requires group coordination and careful movements to load the entire group!
[4] Spider Web: a web-like framework of rope set up between two trees or poles. The object is for the entire group to successfully pass each other through the holes in the "web" to get to the other side without touching the ropes; once a group member is passed through, he or she cannot come back to the other side to help.

as objects to be dealt with, instead of valued partners with the ability to effectively contribute to the solution, one woman finally spoke up. "You said yesterday that we are all equal in these activities, but we are not equal at all! The men put us all through the web according to how they wanted; we were not allowed to participate in any way!" The men's response was (while literally flexing their muscles) that the women were incapable of any active role because they were not strong enough. This comment stimulated some lively discussion with more participation from the women than we had previously seen, but the core group who had been taking the greatest leadership roles, were unconvinced that women had anything to offer in this arena. It became clear that what was needed was some experiential learning! The Russians needed an opportunity to physically experience the competency of the women and the men needed to fully buy into equality. We asked if they would like to do an activity the following day in which the women took the leading roles *and* the roles that required the most strength –"Yes!", came from the women; cautious glances were exchanged between the muscle-flexing men.

The next day, we brought them together and asked them to do a *Trust Fall* activity[5] in which the women would catch the men; we were met with silence and dropped jaws from the men. There were many, both men and women, who were hesitant, but the women who had spoken up the day before, stepped forward and organized themselves as catchers. It was clear from their faces that this was a traumatic moment. Several of the women were tight-lipped with the men more so. No one stepped forward to be the faller. "You go first, Brian!," they insisted. We had gone through a few introductory trust activities leading to this point, but it was clear few minds had been altered. Lifetimes of thought patterns, the social constructs of previous generations, pre-assigned roles dictating leadership and the order of the sexes were all being challenged. No one was yet willing to metaphorically fall from the supportive vantage point; it was still too much of a fall from the security of the known, a fall into the uncertainty of a new future. The platform, jury-rigged from a dilapidated bench placed atop an uneven stone-wall, required several people to hold it in place. And it was quite high. This physically shaky set-up in itself added to the hesitancy. It is not normally my policy to participate early on in Trust Falls, because I would be removing the eye contact I have with the group before the group has developed it's own sense of empowerment, which can often result in the group being unsure what to do. But here it was time to make an exception. I fell and the women caught me, securely. There was genuine amazement from the Russians, both men and women.

Our male interpreter, who had spent more time with us discussing the philosophies and merits of Adventure education, volunteered to fall next. The women caught him easily, and one by one, the rest of the men stepped up, with varying degrees of trepidation, to put their fate in the hands of a group of women who they had, just a day before, not believed capable of either a physical or organizational role in any of the other activities we had done. The very last to fall was the body-builder who had spoken out the loudest against women's participation. ("Why should they do it, if we can do it better?") He was the most reluctant of the group, no jokes now, very tight-lipped. His expression never changed, even when he was caught and lowered. It would take more than this one activity for him to open up to another way of doing business. A couple of the other men, however, insisted on falling twice. Whether they enjoyed the adrenaline or they were inspired to reinforce for themselves this new aspect of trust, we do not know.

Something happened in that exercise for some of those participants. A new paradigm appeared, something that otherwise might never have occurred for them. We spent only one more half day at Camp Kavkaz, but the participation the next day was markedly different.

[5] Trust Fall: a team member falls backward intentionally from a height of 3–4 feet into the arms of the team.

Women were speaking in stronger voices in both the activities and the discussions. Offered the opportunity to insist on full-value participation, they had embraced it. Experiencing new possibilities, these women seemed determined that it continue. It is impossible to know how long the impact of this one short experience might well stay with them, but in the faces and the hugs of the women who came to say good-bye, there was a message: we had helped something important happen for them, and they did not mean to let go.

We witnessed another happy ending earlier at the Joshkar-Olya camp that also emphasized the concept that physical strength must never be a requirement for leadership or success in an adventure program. It occurred on the *Wall* [6], an element which typically draws on the strength and size of group members. Natasha, a 12 year old girl had been hurt during a tag game. Early in the program, she had been roughly bumped into and chose not to participate in any of the rest of the activities for the next hour and half that we worked with her group. Five days later, we had a chance to work with her group again on a *Wall* that the Russian carpenters at the camp had built for us according to my design. It was five meters high, considerably higher than traditional *Walls*, but with a major difference: the angle of climb was only 45 degrees. t was a modification of a design I developed for Dartmouth College groups that reduces the risk of a fall and places a higher reliance on teamwork and strategy for success. This *Wall* was even higher than the one I had built at Dartmouth, but I reduced the angle from 60 degrees to 45 degrees so that it could be offered to small children. As we watched the group organize themselves, they moved relatively quickly into the classic pyramid design. Natasha suddenly said, "I can go up first." With no hesitation, she scrambled up over the multiple tiers of bodies and easily pulled herself up over the rim. What had started as a bad experience for her turned into a personal triumph? She was the first person at the camp to go over the top.

Many Russians have told me that I can never know how important our work has been, because I am not Russian. But they have told me to tell our children and grandchildren about this time in Russia, and the contribution we have made to these great people.

Adventure activities provide the Russians with challenges in the face of perceived risk to their physical and emotional well-being. It disrupts their old paradigm of relying on strong leaders to move the group through challenges, and asks them to take a new look at their individual capabilities, creating a new sense of self-reliance and empowerment within the group. In the past, the Tsars and the Commissars were regarded by the Russian people as being their protectors, but adventure programming provides the Russians with a great sense of personal ability and accountability in the face of risk. They learn that, when they work effectively with others, they have the power to create solutions and effect change. And they can enjoy the process as well.

Experiential education is making an impact in Russia, influencing a new generation and providing young people with real democratic skills and understanding. The Russian people are at a crossroads, which many are calling a crisis point. The potential is huge; in order to realize it, the people must be shown how to empower themselves to make a difference at a grassroots level in their communities and among their children.

For us, introducing experiential education into a new culture was similar to learning a foreign language; we actually learned much more about our own views of experiential learning. This project has offered a context from which we could examine our capabilities and develop a deeper understanding of experiential education. As our Russian colleagues asked us for explanations that go deeper and that could be understood from their cultural point of view, we were forced to define more clearly for ourselves what experiential

[6] *Wall*: a classic group exercise whereby a group of 8-15 people attempt to get everyone over a 12-13 foot wooden wall without using any aids, e.g. ropes, holding onto the wall sides, clothing "ropes."

education means. When they asked us for curriculum, for goal-directed activities, and continued to press us into applying experiential education into areas we have not ventured before, we found we had expanded our knowledge and found new ways to apply the experiential process. The experience we had in Russia enriched both our professional and personal lives.

4.2. ***Experiential Education In Action Teaching Real Democracy***[*]

After a smooth connection and flight, counselor Natasha Otmakhova at Moscow's international airport, Sheremetevo 2, met me. She was holding a sign reading "Camp Forest Tale" so we immediately recognized each other for who we were, then maneuvered my things through the waiting hordes and settled down in the airport to wait for the four hours until Ken's flight would arrive. Already I was subject to a different sense of time and the boundless, seemingly indifferent Russian patience, and after hectic preparation and long travels, I only enjoyed it. So Natasha and I got to chat and get to know each other. I immediately switched her into Russian, and she seemed very relieved that we could communicate without her insecure English and claimed to be very impressed by my Russian. I myself was shocked by how fluently I found long-forgotten words, when the human need to communicate was my motivation. Eventually we settled into some sort of language blend: often me in Russian, she in English. After conversation and laughs and photos and achieving a comfortable feel for each other, we left our long-guarded seats to meet Ken. We settled in to another hour-long wait as we watched each passenger passing out of customs. He was the last, and I believe he found us by the sign, rather than we him, so tired were we of trying to guess who he was. Then our band was complete and the three of us, carrying two mountains worth of luggage made our way outside trying to bluff past the taxi-extortionists. We don't need a ride; we can manage this ourselves. Wrong.

Anyway, our 24-hour stay in Moscow included transporting luggage, finding the dormitory/hotel where we would stay, searching for a bite to eat, walking around some, sleeping, waking early to wander the Kremlin and the Arbat and see the Bolshoi Theatre, Red Square, and St. Basil's Gingerbread Cathedral. Then across Moscow to the train station with our luggage. There we boarded Marii El's own train line and settled into our seats for the 16-hour ride. Our couch-mate, Alexander turned out to be a very kind and shyly sociable man. He was very interested in Ken, who did not yet speak a word (or maybe 'apteka', so I found myself in the position of spontaneous translator for the first time. They were very patient with my attempts, though grueling in their demands of me to try to translate things way too difficult for me. Alexander also taught me my first lesson about Russian generosity. At one station I saw a glass candlestick paraded past our window by the swarming merchants. I immediately liked it but could not consider buying it for myself. But when it passed by the window again, he ran out and bought it for me. And there was absolutely nothing I could do, least of all pay him back. On the train Ken and I had our first opportunity to converse at length, probing each other's personality, values, style, and expectations. It was immediately clear that we would work well together and do our best to complement each other's strengths and weaknesses.

We arrived early the next morning to the train station nearest the camp, where we were met by the cute camp bus. It was raining determinedly already, as it would all morning. After the drive down the narrow birch-bordered road that leads to the camp, we passed through the former pioneer camp's storybook castle-like gate! We brought in our gear to a

[*] Sara Pankenier, Ken Haig

random unlocked room, but far too excited to go back to sleep, despite the early hour, we went for a watery tour of the camp's grounds. Both Ken and I were swept up in enthusiasm and were impressed and excited by everything: the birch forest, the lake, the pontoon surrounding the baby pool 'lyagushatnik,' the water-skippers or 'vodomerki,' the watery-faded colors of the playground equipment and benches, the cafeteria murals and storybook carved wood, and the distinctly Russian touches to the camp complex. Wow!

With my future roommate Katya Bylya and Grisha, Natasha took us on a tour of Yoshkar-Ola, the republic's capital city (one half-hour away). Its wide streets and symmetrical though not towering apartments definitely already gave the impression of a Soviet city (as did the huge Lenin next to the yellow theatre building with the patriotic Soviet crest, or 'gerb,' centered above its stately pillars). But we also saw the lone church in the city, now converted back from its sacrilegious role as a beer factory! Yoshkar-Ola, because of its many factories, was a closed city until only a few years ago; thus a foreigner is still a head-turning sight (and our proud hosts only enjoyed exacerbating the spectacle we 'zhivye amerikantzy' were causing. Adding ethnic dimension to the city, were the bilingual municipal signs, the park and monument to Marii poet Chavayin, and the dormitory-corner store for folk handicrafts from which we were immediately given typically Marii gifts. The pushily kind proprietor elaborately explained every thing you touched; from which natural materials it was handcrafted, for what purpose it is used, its symbolic significance, its medicinal properties, etc. Then, Natasha made her way home and Katya brought us to hers, where we were well fed, bestowed with still more gifts (books from her father's printing house), allowed to send email, then driven back to camp.

We spent the night in our rooms-to-be; I would live with Katya on the second floor, Ken with Roma just two doors down the hall. The next morning we had our first camp breakfast from those cafeteria cauldrons: sweetened with kid-tea, huge bowls of kasha with a slop of melted butter on top, and bread and butter on the side. With Katya, Ken and I met the super-sociable fledgling English student / husband of our more frightening camp director. (That is, Vasya, husband of the thin, often cold Yelena Vladimirovna, not the plump and kind, though sometimes moody Yelena Anatolyevna.) Then we became the spectacle before all the counselors for the term, as we all congregated to hear the day's business outlined. Ken went off with Natasha and Lyosha of the first otryad, I with Katya and the Roma of the fourth otryad. The women made beds (up to thirty beds each), as the men maybe helped carry the piles of sheets and towels or moved beds around. For the first time I was subjected to Katya's vicious perfectionism and harsh tone. Later we prepared for the counselors' show to be put on the following night. As a woman, I was made to dance as one of the seven dancing baby goats. Ken's hairy legs were to be metamorphosed mermaid legs as part of the "lake-gets-polluted" act. Then we were forced to come up with a rap to perform.

You know: girls dance, boys play sports, and Americans rap.

"Yo yo yo so you like to camp
In the forest you like to tramp
Up the mountains and through the hills
We use our ecology skills!
No trace behind anywhere we go
We even clean our mess in the snow
We're clean; we're green, to animals not mean
Please come join our ecology team!"

The next day, the camp was overrun with little Russian kids and our first term at Lesnaya Skazka began.

Our first term

June 22 to July 10 second term – on ecology/the environment [‘ekologicheskaya smena’]

In terms of our ropes courses, Ken's and my first team at Lesnaya Skazka was very much a time of adjustment. We gradually established ourselves and found our ropes course niche, and improved and increased our materials, resources, and support. It was also a term of adjustment in social terms. We gradually came to know the kids and counselors and show our own colors through personal interaction and struggling conversation, but, more importantly, our naturalness helped the Russians overcome the distance created by the awestruck reverence they had toward us, as the first Americans most had ever seen. Once the counselors accepted us as approachable, normal young people just like themselves, their attitude became more natural and casual. Then friendships began to grow. In the later sessions the kids would quickly take their cue from the counselors' casual, friendly acceptance of us; our slow overcoming of this distance needed only be accomplished once.

Through interaction and conversation with the children and counselors, I was always exercising and improving my fluency. There is nothing more rewarding than communicating with children in your non-native language. You are constantly aware that none of the friendly exchange of culture and understanding, nor close human contact, is possible without your step to learn the child's language. And the child is inspired to learn a foreign language when he/she for the first time truly understands the inconceivable fact that everyone in the world does not speak in his/her native tongue. And, to the child, the world seems smaller once he/she knows someone who lives on the other (once dark) side. Also, I have found that no one is more patient with a struggling speaker than a child; he/she will happily go to all ends to describe and mimic the animal, for example whose names you do not understand!

The first term we, like regular counselors, were very involved with the kids of our own group and the groups activities, compared with the next two terms, when our intensive ropes course schedule brought us into close contact with many, nearly all, the camp's kids. At the expense of time with the kids of our "own" group.

A major turning point occurred early on, when Ken and I decided that the position we had been given initially – as a voluntary activity during the 75-minute afternoon rotation – was not at all appropriate to the nature of our ropes courses. Instead of this short time period with an inconstant group of children of assorted ages, experience, and temperaments *with no real incentive to work together,* we needed lasting groups to come to us for a larger block of time. We successfully negotiated for the groups, or 'otryady,' to come to us for a two-hour block of time to do our activities.

Throughout our first term especially, my ability to communicate and explain our activities improved immensely; by the end of these first two weeks of teaching I felt fully confident in my Russian for the purposes of our ropes courses. In addition, Ken and I were perfecting our co-leadership and beginning to establish our united style. We also began to create an innovative "bag of tricks" with which we could engage the kids, maintain their focus, minimize distraction, troubleshoot, and react to a variety of situations. We had to mold our approach around culturally-based differences, like the short attention span and distractibility of the kids, their unfamiliarity with experiential education and the freedom to err and succeed allowed by the facilitative style of leadership, and the huge size of the groups with which we inevitably had to work.

Significant also was the cumulative impact of our interactions with the counselors who accompanied their groups to the ropes courses. Naturally, facilitative leadership was even more foreign to the counselors than to the kids; it is far more difficult for a counselor who has only experienced authoritarian leaders him/herself *not to interfere* than for the kids to seize the freedom the facilitator protects *to try something themselves.* In the beginning, we

constantly had to pull the counselor back when they tried to wield their authority over the children or contribute their "superior wisdom" to them also at our ropes courses. (We did not even recognize how surprisingly well we had taught the counselors to restrain their authority during our courses until the next two terms, when a bystander or counselor unused to us would commit the ultimate sin of experiential education: stealing the joy and fruits of the creative process by forcing his/her own idea on the group. Only noticing how much more rarely these intrusions now occurred did we realize how surprisingly respectful the counselors used to us had become of our facilitative approach.)

Slightly beyond the scope of our ropes courses, but very representative to the Russians of our contribution to the summer was the zip-line that we first constructed halfway through the first term. With the various assortment of ropes and carabineers we had brought, we created – through experiment and repeated readjustments – a functional and safe zip-line from the high river back across the dry river bed to the lower bank opposite. Since this activity was unfailingly popular and new to the kids, constructing the Zip-Line at least twice a term, including for the last-day-at-camp carnival. By the second term, we could construct it very quickly and build the high-bank platform arrangement in 90 minutes, provided there was sufficient help from bystander-children. But lack of help was seldom a problem. In fact, every term the Zip-Line would recruit for us, without any effort on our part, two or three tirelessly loyal helpers from among the camp's children. After Ken and I had helped the kids into the size-appropriate harness, tightened them in safely, hooked them to the carabineer suspended below the rolling pulley, and gave them a push from the high platform, our trustworthy helpers would receive the child at the other end, unhook him/her from the carabineer, and run the pulley set-up across the river bed back to us (happily even through mud or slime). We would always reward our helpers with 'free rides' across, marking their hands 'pomoshchnick' and signing underneath, for example.

Our own experiential epiphanies: always have a spare game in reserve, have a child-volunteer explain the rules you just outlined back to you; always sit them down to talk, plan, think; when preplanning does not seem to work, failing then rethinking does; remember to communicate between ourselves; prepare the leaders somewhat beforehand and make requests – ['sportivnaya odezhda']; get specifics on the group beforehand – number, age, maturity, cohesiveness; give leaders places and silent positions to keep them from interfering with the children's attempts – help kids climb down the log, be ready to help them haul up last bit of wall, for example; no running allowed near wall; the "one boy, on girl on the platform" rule is spectacular: of those who have successfully climbed the wall, only one boy and one girl can help pull from the platform others must descend.

Initial observations: experiential education is obviously extremely foreign here; the values behind it likewise, including the self-evaluation/discussion of feelings of a debrief; children have difficulty assuming collective authority and responsibility for themselves; the children are extremely distractible, have a low attention span, need a rapid pace of activities; perhaps because of the above, they seem younger than their age would have us guess; learned gender roles are extremely restrictive in our activities, especially when certain counselors are present; unfortunately, the children seem only motivated by competition, i.e. unused to any other motivation.

Our second term

July 14 to July 31 third term – on business ['smena biznesmenov']

By the time our second term at Lesnaya Skazka began, we were confident in ourselves and in riding the momentum with which we concluded the first term. We were also excited to implement the many ideas and improvements inspired by our experience during

our first term. We presented our demands and a rigorous hypothetical schedule for the term to our directors.

We wanted to meet with every group once, including the often-discounted group of orphans from Khanti-Mansisk, and with the older groups three times spaced throughout the term. With the older of five groups, we wanted to have the opportunity to structure a curriculum in which the increasing complexity of the activities gradually demanded more trust and cohesiveness from the members of the group. We did meet all of these scheduling goals during the term and recreated our position in the camp. Suddenly we were actively negotiating for specific groups, and added respect for our hard work and successful courses led to increased freedom in determining our schedule ourselves.

We also requested a time-slot during the counselors' day of preparing for the kids to hold a sort of work-shop/introduction to ropes courses for the counselors. There was a comfortable number of counselors who attended our workshop (12 or so). I briefly explained some of the thoughts philosophically central to experiential education, and most important for the counselors to understand so as to be able to contribute appropriately. After a few minutes of such discussion, we introduced and had them try the "spider's web" we had assembled, they were involved and enthusiastic, approaching the activity very seriously and focused. To our amazement, however, despite our explanation of experiential education just before, the camp psychologist took on a dominating, oppressive leadership role! During the debrief also, she could not relinquish her authority and made comments entirely inappropriate and discordant with the philosophy we had just explained. Old habits die-hard. Fortunately the summer would show that the children and some of the counselors were open minded and imaginative enough to come to understand the value of experiential education.

We also submitted an extensive list of requests for materials and construction. Of course we did not expect that the camp budget could handle all of our requests (as they did not), but we were rewarded for our specificity and persistence with four wooden platforms, a sufficient number of bricks and planks, a huge log trucked into our corner of the woods, and two pairs of ten-person trolleys, or 'shagalki.' With these materials also at our service, we could greatly expand our curriculum. Using these materials we created a varied, engaging curriculum. For example,

For the younger groups our one-day curriculum might include: the hula hoop pass, some of my friends, a ten-person trolley race, all-aboard black, and snail hug. (For the very youngest groups we might an animal-theme day: my favorite animal and name, some of my friends, frogs on a log, hog call, and send the whole group on the zip-line.)

For the older groups we created a strong curriculum, which we only had needed to modify slightly during the next two terms. Our three-day sequence might involve:

Day one: (I briefly explain ropes courses and our expectations), one of curious around-the-circle intros, warp speed, all aboard, egg drop in four smaller construction teams.

Day two: the neck game, teepee shuffle, alligator pit and spider's web in stations, human knot in time-sponge.

Day three: yurt circle, the wall, wind in the willows, Indian chief as time-sponge.

By the second term, we found ourselves well settled and established and teaching our ropes course was very gratifying. For me, communication went smoothly and comfortably. Our curriculum was strong and varied enough to engage all the children, and the progression of trust activities was effective. From low-risk mental collaboration and unified creativity, the group-uniting activities were the lessons of trust and inclusiveness are critical, and the risk, as well as the potential success, is the highest. By this time our bag of tricks was bulging by then from our cumulated ideas and observed successes, such as our laugh-generating group-dividing techniques that cleverly, unnoticeably balanced the genders. ('shishka, ne shishi' or bisecting the amoeba or following the neck game with division)

It was at the beginning of the second term when we first had a change to meet the orphanage kids from Khanti-Mansisk in our ropes courses. This began a strong connection that lasted thought the rest of the summer and culminated in an invitation to join them on sightseeing trip to Kosmodemyansk. Taken as a charity case for the whole summer from an orphanage in the very distant, remote Khanti-Mansissk, these kids, ranging from around six to sixteen years old had a reputation of being really rough kids, always fighting among themselves or otherwise making trouble. That is why it was so incredible to see them, in one of the most amazing moments of the summer unite and support each other to surmount the wall, and successfully, gently pass every remaining member through the spider's web. The strong bonds between those kids and the self-sacrificing, protective style of the older kids towards the younger were not only touching but a lesson to us all. That day I wrote, "What a memorable, valuable day… truly challenging but there is so much potential in these kids… their interactions are so inspiring." Their proud day with us was also the beginning of our relationship with them. We, the unreasonably popular guest Americans at the camp, were suddenly approachable to them and smiled and knew them by name. Even the toughest and oldest of the kids softened to our persistent greetings. Later we arranged to meet with the orphans again to do the neck game, trolley race, and egg-drop which were also a great success and inspiration for us. I hope our sessions contributed something valuable to them, because I do know these kids taught me a lot.

By this time our corner of the woods had really come alive with activities and children past and present. Our space began just beyond the basketball courts and clustered playground equipment and extended across a gently, gradually sloped area to the beginning of the birch woods. This peaceful space contained pine-bordered clearings of various sizes, a huge log perfect for assembling comfortably, the wall and its high platform, two wide-spaced trees where we would build the spider's web, a clearing along the lake where the alligator pit initiative took place (just out of sight for those at the other station, the spider's web), and the abandoned, sandy logging road and wooden gate where we would runt he trolley races, that 'druzhny konkurs.' Unfortunately visiting public or the campers themselves did not respectfully treat this space, as all camp spaces. Every day there was new garbage to collect, new glass shards to gingerly gather. Sometimes we would try to engage the children also, such as asking them to find and dispose of five pieces of garbage each as they were leaving our courses. But mostly we were the only ones concerned and would gather the glass and waste ourselves, horrified and frustrated by the lack of respect for the camp's ground and lack of concern for the camp's children.

We did have a chance to address this issue during another of our greater energy-investments during the second term, our afternoon English language courses. These were always a very calm, close gathering of English students of any age or ability. We always kept the classes approachable to even the youngest beginning students and tried to engage everyone with an appealing daily theme or activity. Around our theme we would all help to make a poster where we would each draw and label actions or things in English or Russian. Our activities included scavenger hunts, games, songs, presentations (such as a weather lesson concluding with presentations by volunteer meteorologists), and, best of all, a nature walk. We went for a mini-hike around the lake, pointing our natural objects, plants, or animals and teaching each other their names in English and Russian. Inevitably calmed by a natural setting, as children worldwide always seem to be, even the more rambunctious children joined us to listen to listen to the silence, then describe what natural sounds we did hear when we listened to the silence for a few moments. Perhaps best of all, though, was how unconsciously they, too, gathered garbage to put in my bag when they saw me and Ken doing so as we were appreciating our walk through the forest. They were both horrified and proud to feel how much garbage we had taken from the forest when we passed the heavy bag

around after our return. The sad comments they had made when they found garbage in the woods and the itchy fingers I saw gathering scraps of garbage around the camp buildings even after we parted gave us some measure of hope, although the camp adults do not themselves respect the woods or camp grounds.

Our own experiential epiphanies: two planks for the alligator pit is ideal; explain future stations to leaders during trolley race to distract them from interfering; the egg drop is a real winner, an all-women wall would be a possible way to combat the gender-domination; we need the leaders to understand facilitation; apprenticing and including the leaders is great; "I don't understand the urge to destroy… reckless vandalism" – Ken Haig.

Our third term

Aug 1 to Aug 18 fourth term – on wonder ['smena chudesa']

According to the original plan there was not to be a third term; we were to be at Camp Kavkaz on the Black Sea introducing experiential education through our ropes courses there. Only days before we were to leave Lesnaya Skazka, however, did our camp director hear that Camp Kafkaz would not be able to receive us because of low enrollments and lack of funds? We also heard that political unrest and poor communication were causes but these were not substantiated later. Lesnaya Skazka was happy to keep us for another term, and upon reflection, we decided that it could be very valuable to continue our work there, encouraged by the success and momentum behind us, and were not as thrilled about he prospects of finding some haphazard placement at a camp unprepared for us and having to build up and program from the very beginning again. So, suddenly we would stay another term. The possibilities for future progress were exciting.

We immediately made it a priority to involve counselors more closely in our ropes courses, so as to pass on our learning and expand the camp's future possibilities. By then we had observed that facilitative leadership seemed incomprehensible to Russian counselors. Even simply modeling expected behavior was rarely used; the authoritarian approach did not include it. *Do what I say, not what I do: I sit, you pick up the trash.* But we could all too easily see the failings of the authoritarian approach: hypocrisy of leaders, only apparent insincere submission, less group feeling, the sensitive child's feelings being hurt by a brutal, non-communicative tone, stifled creativity, and favoritism and on and on. I myself observed that if I, as a child, would not have been able to handle the tone used to so casually by the more authoritarian leaders. But, then again, these children were accustomed to it, as I was not.

At that point we may not yet have realized that w already had some apprentice ropes course instructors. The leaders that more loyally escorted their kids to our courses (almost unfailingly the female leaders; facilitative restraint seemed hard on the male leaders fiercely loyal to gender roles) had observed our activities and facilitative choices several times. Imagine how gratifying it was when the first of such loyal leaders piped in beside me during the debrief with questions she had remembered from past discussions. Contributions during the debriefs only continued and I made a habit of always asking the leader of any additional questions during the debrief, if none were spontaneously added. One day, after a session with the second oldest group, I had to compliment a leader for her ideal facilitative contributions during the spider's web. Indeed, she continued this style of contribution (positive feedback works), and one day I even say her subtly pull her co-leader back when the latter was about to make a suggestion to the kids on the all-aboard block! Another day, both leaders made a point of thanking us for the ropes courses, complimenting their group-building, group-cementing effects. This was the first expression to that effect, thought I daresay it was true for many other groups, too. Meanwhile, when Ken was alone at his station, his dependency on his helper's fluency provided many opportunities for these to try the reins. Several leaders

shone in this capacity, embellishing simple explanations with creative story-scenarios. One even made a creative suggestion to add to the initiative, reworked a tough spot, refused the kids a hint, this respecting the value of the kids' creative struggle, and conducted the debrief very well. Ken wrote, "her enthusiasm, humor, and leader/facilitator style made it great." Moments such as these were incredibly rewarding when compared to the bafflement and inability to comprehend facilitative leadership our activities had been met with most of the summer.

The increasing involvement and support of the counselors was only strengthening our courses. Furthermore, our confidence and the lessons of our summer's experience must have made us more skilled as leaders – more perceptive and responsive to the subtle psychological happenings we observed. Perhaps also the respectful attitude of leaders and directors to the sometimes culturally shocking decisions we would make outside of the ropes courses (such as crossing gender barriers) allowed for an open mindedness in the children toward us as well. Or our little edge of the woods was really becoming *our place*, a haven for the ideals we had come to bring to life in the camp children…

We're not sure how, but somehow miracles happened by the end of the third term. The courses were running very well, though the kids of our third term were the most challenging bunch. (They were mostly kids from poor families in the country, used to a lot of freedom for misbehavior.) The curriculum was tried and true, though custom-altered to fit each group. Our communication among ourselves and with them, and rapport with their counselors was better than it had ever been. And the children, in our last week of ropes courses, during our most difficult activity, pulled off something I had never dared dream I would see: girls broke loose from the imprisonment of their gender roles, to take an equal place, a physical role in an arduous, collaborative initiative! After suffering all summer to observe the confining gender roles (and be frequently imprisoned myself), nothing could be more gratifying to see.

Uncomfortable with the idea of arguing against culture or ethnocentrically presenting my own cultural values as superior, I found that I often had to bear the gender roles. But when it was a question of my own choice or freedom to act, I did not hesitate to show my colors, to make my choices and values obvious; and thus to free some minds by my liberated example. These situations where I seized my freedom to act were bright moments in the summer; they included two leaders vs. campers soccer games. Initially many of the male counselors had been shocked to hear that I played soccer, but after getting know me, talking to me, and observing and growing to respect the little stands I would take as a woman, they were ready to accept me as an equal teammate. So I played, the only woman on a field of men and boys. The male counselors and I played against the best of the camp's soccer players. These were, of course all the boys since no girls were allowed to play soccer, only to dance or play pioneer ball was permitted. Sadly, however, I knew for a fact that every term there were a few little girls who held an unconventional secret: the played soccer damn well for practice playing soccer with the boys on the streets at home. I felt that I played for them when I was there, and for every one who wanted to learn or play, or do something even if there were alone at it. I was delighted to answer, "Are you going to the soccer game to cheer Ken on?" by saying, "No, I'm going to play." Or, when a cute, little girl from the group of orphans ran out to me on the field, mid-game to ask, "Are you also playing soccer?" I only nodded, enjoying her shock and jolted picture of the world. It was almost disturbing to me just how shocking it was, also to the boys against whom I played and certainly held my own. Also incredibly gratifying was to know that the respect and equality with which ken and the male counselors treated me was also being observed. These soccer games were incredible for me. I distinctly felt that I was playing for far more people than just myself; the loyalty of the

spectators and hearty congratulations for children and adults of both genders proved something.

Perhaps these little battles, some more visible that others, and the equality of treatment which I had earned by always insisting and showing that I also could carry bricks, boards, and platforms or tighten ropes, or speak for our team of one male and one female co-leaders. Such modeling, as well our clearly gender-balanced language, rules, and prodding encouragement, freed the girls to take responsibility for their won enthusiasm of the task and confidence in themselves. They built a mostly female pyramid, which successfully brought boys and girls over the wall! Group two, despite a typically male-centered start (at first the girls themselves forced the boys to take the supportive role dictated by gender) and frustration between new ideas (even interrupted by the separate interface of two adult males who seemed to feel their help was needed for success!), eventually crafted a pyramid of both genders, built upon the shoulders of the two prime motivators of the group, two girls. Group two brought every single person over the wall to a thunderously unanimous feeling of success in which their four facilitators, including their two counselors, could not help but join. What a way to end the summer!

Our own experiential epiphanies: an oral contract before we begin is very effective as preventative and disciplinary tool, especially referring back to it; the pattern of debrief and three-day progression works very well; for spider's web: demand total silence to begin each time, clap for each successful pass; for alligator pit: two boards makes both punishment and integrity possible, introducing initiatives far away is key; the rope on the wall as a ready-made aid is invaluable as a rallying force or earned aid.

4.3. ***First Steps***[*]

The program that allowed approximately 15 students from the Soviet Union (and later Russia) to take courses in Environmental Studies at Dartmouth arose thanks to Dennis Meadows, who was then at Dartmouth's Thayer School of Engineering. From 1984 through 1988 he was the U.S. Director of the US-USSR Environmental Exchange Program, and through his contacts in the Soviet Union he was able to get an agreement signed by N.S. Egorov, the First Vice-Minister of Higher and Specialized Education for the USSR, and James Freedman, the President of Dartmouth College, in October 1987. The primary thrust of that agreement was to set up the student exchange, by which Dartmouth would send students each spring to Moscow State University (Russian initials: MGU), while an equal number of students would come to Dartmouth in the summer.

The notion was to start the exchange the following year, in 1988, which left both sides little time to prepare for a program that broke new ground on both sides. At Dartmouth our foreign language programs, including the Russian Department, had a long tradition of sending students to countries where they would undertake advanced work on the language while also taking courses on literature or other cultural topics. Here the students would be doing course work (and field work) in a scientific field, for which few had any preparation. As for the Soviet Union, this turned out to be not a simple program involving one university, but three: MGU was the host school for the Dartmouth students, while the Russians who came to Dartmouth were students from that school, as well as from the Mendeleev Chemical-Technological Institute in Moscow and from Kazan State University.

In order to move the preparations along quickly three people from Dartmouth went to the Soviet Union in December 1987 to work out the details and to sign an implementation

[*] Barry Scherr

agreement: Dennis Meadows, James Hornig (a chemist and chair of the Environmental Studies Program) and Barry Scherr (chair of the Russian Department). Part of the trip involved meeting officials and students from all three schools involved, and so after a few days in Moscow we flew to Kazan, which had been a city virtually closed to foreigners until the then-recent advent of glasnost. The university was not only one of the oldest in Russia, but also one of the best. The mathematician Nikolai Lobachevsky was one of its early graduates and eventually served as rector of the university, while the chemist Alexander Butlerov also graduated from the school and spent the first half of his career there. While we were there I was interviewed by the local newspaper, *Evening Kazan*, and commented (no doubt like countless others before and after me) that some of its most famous students never graduated: Tolstoy dropped out, while Lenin was expelled. Kazan was at the forefront of introducing environmental studies into the university curriculum; Yuri Kotov, the head of what was then called a department for nature protection, had his faculty pursue an ambitious agenda in terms of both research and teaching, and in 1989 his department became the first "Ecology Faculty" in the Soviet Union.

As was evident once we had returned to Moscow, for those in the Soviet Union this program had a very high profile. The Minister of Higher and Secondary Education, Gennady Yagodin, had a particular interest in environmental issues, which for many years had not received the attention in the Soviet Union that they deserved. A key consequence of glasnost was the greater publicity given to environmental problems that had arisen over the years, ranging from air pollution in major cities, to the effects of building dams without sufficient planning, to the unregulated pouring of contaminants into major bodies of water. Many scientists had long been aware of these matters, but, in the absence of actual environmental studies programs, the research being carried out was often piecemeal and did not receive wide publicity. All of that was beginning to change rapidly, and Yagodin seemed interested in seeing that young scientists from around the country were being trained to work in this area. Hence the exchange was not just confined to MGU University, which already had long experience in working with foreign students, but included Kazan (thanks, one assumes, to Kotov's and the university's activism in ecology) as well as Yagodin's alma mater (and the place at which he had once served as rector), the Mendeleev Chemical-Technological Institute.

Thus in the Soviet Union those involved with the exchange included the equivalent of the U.S. Secretary of Education and leading figures at some of its major institutions of higher education. I think they were particularly interested in working with us because Dennis Meadows not only had his impressive title but also a growing reputation in the Soviet Union for his work. Perhaps for that reason our stay included a side trip to Pushchino, a town about 75 miles south of Moscow and the home of a huge research complex – some half-dozen or so institutes, most or all of which related to the biological sciences – under the sponsorship of the Soviet Academy of Sciences. There were a number of other indications that Yagodin and others saw this as a particularly important exchange. Here, I'll just mention one. Near the end of our stay we had a ceremony at which we signed an implementation agreement for going forward. (As I recall, we drafted the English version using what was, in 1988, an unusual item: a portable printer, about the size of a toaster, that Dennis Meadows had brought along.) The day after the signing I happened to visit a Moscow acquaintance whom I had known for some years; he mentioned seeing me the night before on television: apparently the event was considered sufficiently important that it received a brief spot on the national nightly news.

Back at Dartmouth, funding to support its participation in the exchange came from Stanton Davis '30, who along with his brother had expanded his father's grocery business into what had become the Shaw's chain of supermarkets. The Russian Department hastily

recruited the group of students that Dartmouth would be sending and found ourselves hoping that everything would work out: after all, the Russians would be sending us budding scientists who happened to know some English, while we would be sending over language and literature students. I was to accompany the students as the Dartmouth faculty adviser, and so the group went on to spend the 1988 spring term in Moscow. The program did include some work in the students' main area (an advanced Russian course as well as a course on post-Revolutionary Russian prose) along with a seminar on environmental issues in the Soviet Union. Things were a little complicated at the start, in that, despite efforts to get the message across clearly, some on the Soviet side did not fully realize that we were not in fact sending scientists. As a result some effort was required to make the lectures accessible to our students, but eventually that turned out to be a particularly interesting part of our stay – and indeed, it was the environmental portion of the program that made it unique.

Thanks to the high level of importance that was being assigned to the exchange we were able to house the students in the main building of MGU, and we had a distinguished group of people involved with the program, many of whom I had met during the trip in December. Valery Petrosian, a prominent chemist at MGU who went on some years later to become rector of the Open Ecological University, had overall charge of the course on the environment. Closely involved with it was Dmitri Kavtaradze, who then headed the Laboratory of Ecology and Nature Protection at Moscow State University, and Konstantin Burdin (the vice-chair in the Department of Physiology). Alexander Kamnev, then a research associate in the Biophysics Department, was recruited to work closely with our students and to accompany us on the field trip at the end of the program. Others on that field trip included Anatoly Pronin, vice chair of the Department of Cell Physiology and Immunity, and, most prominently, Vadim Tikhomirov, a corresponding member of the Academy of Sciences and chair of the Higher Plants Departments. It needs to be kept in mind that the divisions at Russian universities differed from those in the United States, with the larger divisions referred to as "faculties, " while each faculty had a number of small units: the Russian term is *kafedra*, which I am translating as department. The Biological Faculty at MGU, which was the division that officially hosted the program, was more than 2/3 the size of Dartmouth College, with over 200 people in the regular teaching ranks and some 24 departments: microbiology, biochemistry, higher plant life, lower plant life, zoology, genetics, biophysics, etc. It was, in a word, large.

The environmental studies seminar met in the Earth Sciences museum at MGU, which was housed on the 25th floor of the main building — and thus had a spectacular view of the rest of the campus and of the city. The course covered a wide range of topics, ranging from preservation of plant life in the USSR, to "Mathematical modeling and the Problem of the Interaction between People and the Biosphere." Ecological issues connected with agriculture, industrial pollution, controlling water quality, the Soviet Union's system of nature preserves, the legal status of nature protection in the Soviet Union comprise just a handful of the other lecture topics. The lecturers were all experts in their field, and many of them were quite prominent. In a way, given the preparation of our students who were faced with a whole new set of technical vocabulary at every talk, it would have probably been better to have fewer speakers, with each of them meeting with our students several times so that the students could have had a chance to absorb the material at a more reasonable pace. Still, by the end of the term they all felt they had learned a lot and expressed general satisfaction with the program.

The end of the course was supposed to involve two weeks of fieldwork on the *Okskii zapovednik* (the Oka Nature Preserve). That term was shortened to one week, so that we could get back to Moscow in time to attend a speech by President Ronald Reagan at MGU. The U.S. Embassy was hoping to have a group of young Americans attend the talk, and

while just a few years later there would be thousands of Americans working in Moscow, at the time our students represented perhaps he largest single group of young Americans outside the embassy itself. After the talk we all had a brief meeting with Reagan and were photographed shaking hands with him; it was this brief moment that received the greatest publicity back in the U.S. At the *Okskii zapovednik* the students lived in tents by the tiny settlement of Brykin Bor; which was in a protected area across the Pra River from the main preserve. The only access to the preserve was by boat, and each day the students crossed over to see one aspect or another of the work being done there. The territory covers something over 200 square miles, has been the site of efforts to protect or reintroduce a number of species (beaver, elk, bison, etc.) and, most strikingly, has a nursery where various rare species of cranes are hatched and raised until they can be reintroduced into the wild. For these reasons and many more, the students on the program had an experience that, at least until then, was unique for any Americans studying in Russia. During the trip we were joined by researchers from other institutions as well as by many of the Russian students who were to come to Dartmouth that summer.

The students returned to the United States in June, shortly before the Dartmouth graduation. Just a couple of weeks later the first group of Soviet students, accompanied by Konstantin Burdin, arrived in Hanover, to spend the term doing work on Environmental Studies. For the Russian students studying in the U.S. there were no doubt at least as many adjustments as there were for our students studying there: the American system of instruction differed markedly and moreover the Russian students had been recruited as scientists, so that just as our students struggled at times with the science, many of the Russians were equally challenged by English. That summer the ropes course, under the coordination of Brian Kunz, became a part of the activities for those students, and, thanks to the continuing interest of Alexander Kamnev and the camps that he went on to establish, contacts between Dartmouth's Outdoor Programs and Russia have continued. The Environmental Studies Exchange between Dartmouth and MGU came to an end a couple of years after the dissolution of the Soviet Union, when the changing situation made it too hard to sustain the program. However the opportunities opened up by the various contacts between Russians and people at Dartmouth have enabled a number of Dartmouth students to spend extended periods working or studying in Russia, so that the direct and indirect benefits of this unusual exchange have continued.

4.4. ***Roads to Discovery. 25 Years of Cross Cultural Collaboration***[*]

The time is July 1996. The place is Camp Kavkaz, a summer camp for children between the ages of eight and sixteen, in Anapa, Russia, on the Black Sea. Those involved in тные following vignette include about twenty Russian men and women, counselors at the camp, and Brian Kunz and Lindsay Putnam, experts in experiential education from the United States.

Over the past two days, tension has been rising about the issue of the relative roles and capabilities of men and women. On day one, the counselors had done a standard experiential activity called "Group Juggle," which involves tossing balls among the members in a coordinated manner. Although the activity does not require strength or agility, the men tended to discount the ability of the woman counselors to participate fully. At the same time, the men were proclaiming that "We have no leader. Everyone is equal here… "

[*] Ronald E. Koetzsch

On day two, the group did a problem-solving exercise called "The Spider's Web." This requires that all members pass through a rope web constructed between two trees. The women were treated merely as bodies to be passed through by the men and were not at all consulted or otherwise included. Finally, one woman protested, and the men replied that the women were not strong enough. Kunz and Putnam asked if, on the next day, the group would like to try an activity in which the women would take the leading role, a role that requires strength. The women replied with an enthusiastic "yes," while the men glanced anxiously at each other.

Now it is day three. The activity is the Trust Fall. In the Trust Fall, a double line of "catchers," facing each other, stands beneath a platform four or five feet above the ground. The "faller" stands on the edge of the platform and falls backward into the catchers' arms. A dilapidated bench has been placed on an uneven stone wall and, held in place by several people, provides a rather high and unsteady platform. The women counselor/catchers are ready, but none of the men is willing to be the test case. The call is "Brian, you go first." Kunz, no lightweight at 5'10" and 175 pounds, climbs onto the bench, turns around, stands up straight, and launches himself into the waiting arms of the women. They do, in fact, catch him, and then lower him gently to the ground. Exhibiting varying degrees of reluctance, trepidation, if not outright fear and a little bit of trust, the male counselors climb to the platform, for a moment at least put aside their preconceptions about the gentler sex, and launch themselves backwards into space.

On that day, seventeen years ago, the self-esteem and confidence of some, perhaps all, of those women, was radically changed. And likewise, in some or perhaps all of those men, the attitude towards women and their feminine capacities was radically changed. One cannot measure how these changes affected the quality of their subsequent lives, but no doubt the effect has been significant and positive.

The seed for this event and many more uncounted like it was planted in the summer of 1988, eight years earlier. During that time Dartmouth College and high officials from the USSSR explored the idea of a student exchange focusing on environmental issues. These issues were of particular concern to Gennadi Yagodin, Chairman of the USSR State Committee on Public Education. This was the time of Glasnost or "opening" and with it had come increased publicity and public awareness about environmental problems that had developed over the years. These included air pollution in major cities, the effects of insufficiently planned dams, and the unregulated discharge of contaminants into major bodies of water. In the Soviet Union those involved in planning and organizing the exchange included Yagodin, the equivalent of the U.S Secretary of Education, and leading figures at major institutions of higher education.

In the first stage of the exchange, a group of American students visited Russia. While in Moscow, the students were housed in the immense main building of prestigious Moscow State University (MGU). Because of the high level of importance assigned to the exchange, those hosting and teaching the students were highly distinguished educators and scientists. Valery Petrosian, a prominent chemist at MSU who later became rector of the Open Ecological University, had overall charge of the course on the environmental issues. Closely involved also were Dmitri Kavtaradze, then head of the Laboratory of Ecology and Nature Protection at MGU, and Konstantin Burdin, the vice-chair in the Department of Physiology. Alexander Kamnev, at the time a research associate in the Biophysics Department, was recruited to work closely with the students and to accompany them on the field trip at the end of the program.

The second part of the exchange was the visit of Russian students to Dartmouth College in the summer of 1988. The Russian group included males and females from three academic institutions. They were accompanied by Konstantin Burdin and Dmitri Kavtaradze.

Dennis Meadows, then a professor at Dartmouth's Thayer School of Engineering hosted the Russians at Dartmouth. From 1984 through 1988, Meadows had served as the U.S. Director of the US-USSR Environmental Exchange Program. This exchange successfully introduced experiential education to the Russian visitors.

The Russian students visited the College's Moosilauke Ravine Lodge. There they were met by Kunz, who invited them to join a group of Dartmouth students and staff spending the day doing a series of experiential activities designed to break the ice between people. Everyone enjoyed the session, and the Russians and Professor Meadows expressed their interest in doing more activities of that nature. Kunz then introduced them to experiential education through a low ropes and a high ropes course experience. During the low ropes, some social friction was observed between the Russian males and females, which led to an interesting discussion. This discussion culminated in the decision for the group to return in gender-based groups to complete the very challenging high ropes course. The female students and faculty came one day and the men completed the activities the next day. It was a very powerful experience for both groups.

Kunz explained to them the methods and aims of experiential adventure education. They include presenting individuals and groups with problems and challenges involving perceived risk; allowing them to meet those challenges and to solve those problems through a collaborative group effort; and thereby promoting self-esteem, confidence, trust in others, creativity, initiative, respect for the ability of every person, regardless of sex, age, ethnicity, and individual and group responsibility.

Two members of Russian faculty, Konstantin Burdin, and Dmitri Kavtaradze, were particularly interested in furthering experiential education in Russia. They explored the possibility of Kunz visiting Russia to share his knowledge. At the same time Russia had entered its period of glasnost – which in a few years would lead to the dissolution of the Soviet empire. But a long tradition of autocracy going back to Tsarist Russia and maintained by the seventy years of communist rule was still in place. The Russian character, fashioned by this tradition, can tend toward submissiveness, fatalism, deep mistrust, hesitancy to take initiative, and lack of creativity. There is also, as evident above, a strict separation of gender roles. Burdin and Kavtaradze saw experiential education as an antidote to the Russian style of leadership and decision making, as well a possible path to individual and group transformation.

The following summer, in 1989, Brian Kunz, traveled through Moscow on his way to central Asia to climb in the Pamir Mountains. During Kunz's stay in Moscow, he gave a lecture about experiential education to Burdin's colleagues from the Biology Department. Their first response was "This won't work with Russians, we are different." But after Brian led them through an improvised series of group exercises one of the researchers exclaimed, "I want to join your party!" The next day Kunz met with VladimerTropin, Pro-Rector of Moscow State University for International Affairs. Tropin invited Brian to share his knowledge of experiential education and provide practical lessons in schools and universities, as well as the Ministry level.

In 1990, with the cooperation of Dartmouth College, Kunz, the assistant director of the College's Outdoor Education Program, was able to spend two months in Russia. He was met by Yevgeny Gavrilenko, the researcher who had exclaimed the year before "I want to join your party." Gavrilenko arranged all of the talks and meetings during Kunz's two-month stay in Moscow. Kunz and Gavrilenko became close friends. Kunz gave many talks, workshops, and presentations at universities, colleges, and schools, and met with many High Soviet government and education officials. However a trip planned for the following year was cancelled—the Soviet Union was in the process of collapsing.

In 1992, there was a series of meetings in between Russian and American educators. This time Brian Kunz was accompanied by Daniel Garvey another senior experiential educator, former president of the Association for Experiential Education (AEE) and Roger Putnam, chairman of the National Association for Outdoor Education in Great Britain. The Russian side was represented by, Yuri Zabrodin, president of the Psychological Society of Russia, Vladimir Rubtsov, director of the Psychological Institute of the Russian Academy of Scienc and a number of other government and educational officials.

The following year, an unplanned series of events led to the establishment of an initiative in Barnaul, Siberia. Yevgeny Gavrilenko organizer of Kunz's 1900 visit, died in 1991 in a car accident. Gavrilenko's wife, Elena Pavlova then moved with her daughter to Barnaul to live with her husband's family. In 1993, a group of American and Canadian educators went to Russian and were active at MGU and other venues. Elena Pavlova and her mother-in-law, Valentina (a teacher) made arrangements for two educators, Bill Proudman, former President of the Association for Experiential Education, and Pam Shelly, public school principal from Portland Oregon to visit Siberia. They spent 4 weeks in Barnaul introducing experiential education to schools and other institutions. It was a successful visit. The initiative in Siberia continued for several years, led by a succession of other American educators.

During Kunz's and Putnam's 1996 visit to Russia, included the work at Camp Kavkaz. they also spent several weeks at a children's summer camp called Forest Tale in Yoshkar Ola in central Russia. There they built a ropes course, a zip line, and a climbing wall. The wall, rather than being a simple vertical one, was set at a 45 degree angle. This design, developed by Kunz, makes the wall exercises more accessible for younger groups. Russian summer camps are typically focused on academic and cultural activities rather than physical activity and contact with nature, so the activities offered by Kunz and Putnam were novel to say the least. Kunz and Putnam worked with 450 children and about thirty counselors, giving them a taste of interactions and decision making that emphasizes collaboration, trust, creative problem solving, and open communication. The response was very positive. Children stood in line for hours waiting to get a ride on the zip line.

One woman told Kunz that he could not possibly understand how valuable his work was for Russian people. She said that, suppressed for centuries by autocratic, patriarchal rule at every level of society, Russians are used to being told what to do and how to do it. Experiential education, she hoped, could give them confidence in their own ability to solve problems and to create a better life.

The following year Sara Pankenier and Ken Haig, students at Dartmouth and Harvard respectively, spent three months at Camp Forest Tale. Their early work with the Russian counselors and children required mutual adaptation. The Russians found the facilitator model of leadership unfamiliar and at first they were pretty much set in gender roles.

The Russian children were used to a more authoritarian style, and at first had difficulty taking responsibility in the initiative games. Used to competition as the motivation, they did not respond immediately to the need for cooperative action, but eventually adapted well. In addition, they were not accustomed to self-evaluation and expressing their feelings, and thus found the debriefing sessions unusual. But eventually everybody, even Russian counselors, became participants of the facilitative dialogue. Overall, the Americans were impressed by the generosity and hospitality of all the Russians, their interest in different approaches, and their rich culture.

Pankenier and Haig witnessed significant developments through their three-month experience. They ameliorated the gender issues through a variety of methods and achieved the full participation of women, even in very physical tasks, like the wall. Haig provided a new model of possible male behavior by helping to clean up the dishes after meals, and

Pankenier did the same for the female paradigm by playing (as the only female) in the counselor/student soccer game. By the third month, Pankenier and Haig were able to work successfully even with the more challenging groups of the final session, and had meaningful experiences working with orphan children, who had the reputation of being the most difficult children at the camp, but proved themselves very capable of cooperating across disparate age groups.

After a three-year hiatus, two other Americans, Nina Lany and Colleen O'Brien, spent the summer of 2000 at Camp Forest Tale. The wall, zip line, and ropes course had all disappeared and, in a sense, the two had to start from scratch, bringing activities that promoted communication, group problem solving, and collaboration. Yet the children and counselors responded. One evening at midnight, after a long tiring day, the counselors gathered and did an indoor version of "Mine Field." Some kept talking about the experience long into the night, acknowledging the need for cooperation and new leadership skills. Lany and O'Brien's concluded that a consistent presence each summer was necessary to keep the experiential approach alive in the camp.

Around the same time, a significant offshoot of the experiential education (EE) initiative in Russia was getting started – a program called "The Sea Teaches Everything." Russia is surrounded by thirteen bodies of water, and the sea has played a significant role in Russian history. The program was meant as a way of reawakening respect and love for the sea among Russian people. It was also meant to instill in the younger generation a sense of civic responsibility at a time when Russian society was going through monumental upheaval.

The original impulse came from Konstantin Burdin of MSU who was inspired by Kunz's visits in 1989 and 1990. Burdin turned the project over to his younger colleague Alexander Kamnev, a marine biologist. On a visit to the United States, Kamnev visited Seacamp, a marine biology camp for children in the Florida Keys. Kamnev took Seacamp as a model. In 1995, "The Sea Teaches Everything" was founded as a marine, ecological, scientific adventure program conducted entirely within the context of experiential education. Its stated goals were:

- To foster in the rising generation a sense of responsibility for their actions along with respect for society and nature
- To provide lifelong ecological education and early professional orientation for children
- To popularize contemporary science
- To develop a healthy lifestyle

The first program was held in 1996 on the Black Sea. The children – some as young as nine – and young people studied marine biology, learned how to scuba dive and to carry out undersea research activities, such as collecting and identifying seaweed. They also did the standard elements of adventure/experiential education – including the various initiative games, rappelling from a multistory building, and going down a zip line. The program has continued to prosper. In addition to the main camp on the Black Sea there are four satellite programs – in northwest Russia on the White Sea, Egypt, Bulgaria, and the Far East. In the first thirteen years of the program, about 42,000 children and young adults have participated. About 200 young adults were trained to be instructors.

Other milestone accomplishments by Dr. Kamnev and his colleagues over the past two decades include:

- The creation of five organizations each dedicated to the development of eksperiental'nyi (experiential) and environmental education in Russia, including "Routes of Discoveries," an international non-profit foundation to promote health and recreational opportunities for children (2003), and "Farwater," a joint stock company (also founded in

2003).

- The development of other, parallel programs such as "New Experience" (for university students), "The Forest is Full of Knowledge, Make it Yours" (a wilderness based experiential, environmental program), a "Language camp," and in the Far East are Vladivostok's "Okean" camp and Kamchatka's camp "Scarlet sails."
- The training of several thousand teachers in the field of active (experiential) environmental education – in addition to those in the sea programs).
- The building of a multi-stage stationary ropes course in Anapa, designed after the ropes courses at Dartmouth College.
- The writing and publication of articles, books, and tutorials on active pedagogy and experiential/environmental education in both scholarly and popular publications.
- The writing of an English-Russian, Russian-English Dictionary on environmental education.
- Active involvement in the international experiential education movement, attending conferences and teacher trainings, for example, in the United States and Canada.
- The introduction of experiential education into many public schools and orphanages as temporary participants in experiential education projects. Programs in experiential education were established in Moscow School #801 (Director, Victor N. Lokalov), and in Moscow, School #1323 (Director Olga Georgievna Donichenko).
- Creation of the Student Club "Fairway" or "Open Channel," 1995.
- Hosting visits from foreign counterparts, including experiential educators from the United States, Switzerland, France, Egypt, and Mexico.
- Receiving coverage from major television and radio outlets.

Creation of several websites, related to experiential and environmental education, including "camps.ru," "ecocamp.ru," "indiancamp.ru."

Since the inception of the Experiential Education in Russia project, which involved visits to Russia by experiential education instructors and leaders a quarter of a century ago, there have been periods of intense activity and periods when activities languished. This intermittent quality is due largely to the grass roots (and unpredictable) nature of the project's funding. The Association of Experiential Education has provided organizational support but no funding. Early on, a private family foundation gave a generous grant and other donors have helped along the way. The Russians have consistently covered the costs of American educators, once they were in Russia. But travel costs to Moscow and other expenses as well as the considerable outlay of time and energy have been the gladly undertaken burden of those who have gone. In 2011, the Kunz Fund for Experiential Education proposal was established to help support the project, and awaits formal approval from Dartmouth College.

Alexander Kamnev, Brian Kunz, and others involved in this work are currently looking to grow its scope and effectiveness in the future. They hope to expand the relationship between the experiential educational community in the United States and Canada and the small but growing community in Russia. This would involve collaborative projects, sharing of resources, and exchange programs of students and instructors.

In the past twenty five years, the efforts of American, Canadian, and British experiential educators, working together with their Russian colleagues, have affected the lives of thousands of children, young people, and adults. They have promoted individual and group initiative and creativity, environmental awareness, social responsibility, collaborative leadership, personal responsibility, and recognition of the equal value of all human beings, regardless of gender and other individual characteristics. At the same time, the personal and

professional lives of those who have shared experiential education and its ideals have been enriched. All have attested that their time in Russia has been a positive and life-changing experience. Much good has been done in this collaborative project for both sides. Much remains to be done.

The next steps include attendance by Russian and Dartmouth faculty and staff at the Association for Slavic, East European, & Eurasian Studies Annual Convention in Boston in November 2013. The publication of a book outlining the twenty-five-year history of the project and a series of articles and interviews in Russia and the United States are planned. At a time when American-Russian relations are at a low point historically, this project has the potential to improve understanding between these two powerful and influential nations, and, of no less importance, to free the Russian educational system, and through it, eventually, Russian society itself, from the oppressive practices of past regimes.

5. An example of proactive environmental education programs applied in Russian camps*

From time immemorial, the sea has attracted people with its boundless expanses, mysterious depths and innumerable resources. In Russia there has always been a special relationship with the sea; after all, Russia is surrounded by 13 water bodies. Words for the sea and marine voyages and exploration have always aroused respect. They were associated with something unknown and dangerous. And, naturally, with elements of romanticism. Naval service was regarded with respect, insofar as it was inseparable from ideas of honor, virtue, courage, and fidelity. For this reason, many young people dreamed about serving in the navy and working at sea.

But times changed. Perestroika and the social and economic instability associated with it, the demographic collapse, and deteriorating ecological conditions gave rise to a twisted attitude in all segments of the population. The romantic period ended and, for the majority, the sea became nothing but a place for vacationing or earning money. How to curb this tendency? How to attract young people's attention to the sea as to one of the largest but also most vulnerable Russian resources? How to instill in the rising generation responsibility for their actions?

Pondering over these questions, we understood that one of the possible paths to resolving them would be a thoughtful organization of leisure for children and young people during both school time and vacation periods. So, we decided to resort to the help of the sea, which, according to our intention, had to be transformed into a special educational environment, while scuba gear, sails, and motors had to be transformed into educational tools. Elements of the surrounding nature, such as the sea, beach, coastal mountains and forest, lake, sky became the subject of study, while young people studying to become psychologists, biologists, ecologists, and geographers became the teachers and trainers of scuba diving, sailing, hiking, rock climbing, and so on.

In the process of teaching, the "teacher" had to cultivate in the child a need to acquire indispensable knowledge. The teacher's task was made easier by the child's own desire, which was a result of their aspiration to get pleasure and experience a new sensation, for example, to descend to the sea floor with scuba gear or sail out into the sea.

Thus was born the marine ecological scientific adventure program *"The Sea Teaches Everything"*. Later other programs began to appear: *"Oceania", "Redskin Chief", "Brave*

* Kamnev A.N.

Heart", "Forest is full of Knowledge", "New Experience", "Lingvocamp", "Planeta Samodelkinich".

5.1. ***How It All Began***

It all began in 1988 when Konstantin S. Burdin, working within a framework of the governmental exchange program between Lomonosov Moscow State University and Dartmouth College (USA) on the subject of protecting the surrounding environment, met the representative of the association for experiential (empirical) education (from the English *experiential education* – education through the acquisition of one's own personal life experience) Brian Kunz.

As a result of this meeting, after a few years of fruitful collaboration between Russian and foreign educators, scientists, engineers, athletes, soldiers, and cosmonauts (K.S. Burdin, Y.Y. Gavrilenko, V.F. Domashev, Iu.M. Zabrodin, A.N. Kamnev, V.A. Konovalova, V.N. Kubasov, S.N. Kudriashov, V.V. Kuleshov, S.N. Maximov, G.N. Nefyodov, E.S. Pavlova, V.I. Panov, E.I. Peniaev, A.B. Rubin, V.V. Rubtsov, D. Garvey (USA), B. Kunz (USA), R. Putnam (UK), and others), including international meetings on various levels and learning about the activities of different areas of experiential education (ropes courses, marine adventure programs, rafting, schools for survival on uninhabited islands, and others), the project "The Rebirth of Experiential Education in Russia" (A.N. Kamnev) was born in 1992.

The goals of the project were creating the University of Experiential (empirical) Education, spreading the experience of the empirical approach to education, facilitating the development of new platforms for working with children and young people, ensuring the inclusion of the ecological compoment in the curriculum, involving the entire family in the teaching process, and promoting lifelong education. To achieve this idea, the International Gagarin Fund (V.I. Gagarin, Iu.V. Guliaev, V.F. Domashev, V.N. Kubasov, G.N. Nefyodov, I.F. Obraztsov, A.A. Serebrov, T. Stafford (USA) and others) was set up in 1993, as was the Ecological Movement "The Path of Aquarius" ["Put' Vodoleya"] (R.A. Bykov, V.A. Dzhanibekov, A.N. Kamnev, S.N. Kudriashov, and others). Active work with children and young people started.

In 1994, within the framework of the government program SABIT, we managed to familiarize ourselves with the activity of the world's only marine camp for children and young people (Newfound Harbor Marine Institute Seacamp Association) (Florida USA). In this educational institution, which was founded 40 years ago by Irene Hooper, children not only gain scuba diving skills, but also learn how to use their newly acquired skills to carry various kinds of deep-sea work, among them scientific investigation. It was in this realm that we were able to see a balanced combination of didactic and empirical approaches in the marine ecological education of young people we had been dreaming about. This was real marine education for children and young people.

On returning home in February 1995, A.N. Kamnev unexpectedly received an invitation to develop a similar marine ecological program for our Russian children from Liudmila Savel'evna Ledneva, the director of "Caucasus" [*Kavkaz*], the most famous children's recreational camp in Anapa. This model marine program was prepared and named "The Sea Teaches Everything – Leaisure and Learning with Pleasure" (A.N. Kamnev, M.A. Kamneva). It included elements like traditional civil education, as well as experiential education approaches new for our camps (later we called this approach an active experiential and practice-oriented ecological education).

In June 1996, the first children participated in this program. For the first time ever in Russian camps, children put on scuba gear and collected samples of seaweed, sailed out into

sea, built zip lines, and climbed down from multi-story buildings. Our American colleagues Brian Kunz and Lindsay Putnam conducted team-building exercises and ropes courses. The staff and students of Moscow State University (MSU) and the Psychological Institute RA, (which formed the base for Moscow City University of Psychology and Education), formed the core of educators and consultants working on the program. In this way our dream to include experiential education in the educational process was realized; the sea became an educational environment, and masks, flippers, scuba gear, and boats became psychological and teaching tools. "Caucasus" became a base camp for conducting the first Russian experiment of this kind and the marine ecological program "The Sea Teaches Everything" gradually began to spread in Russia.

5.2. *The Goals and Tasks of the Program "The Sea Teaches Everything"*

The fundamental goal of the program was to create a network of marine camps, which would not only function as recreational sports camps, but would also become authentic marine scientific research centers and technical facilities for children and young people. Moreover, these camps were to become centers of early career advice for the younger generation, responsible for popularization of contemporary studies of the sea and carrying out a single scientific program within a framework of national and international projects. For example, "Monitoring the Condition of the Marine Environment", "Marine Landscapes," "Marine Bioresources," "Marine sanctuaries and Reserves", "Exchanges of International Marine Practices", and others. Last but not least, these camps were to become schools for the preparation of marine specialists.

When developing the program "The Sea Teaches Everything" we tried to bear in mind the situation in the country and the needs of the younger generation and gave them the opportunity to take part in an important mission, work at sea. We thought that it was lack of work that caused many social problems, such as consumerist attitude and infantile behaviour.

The programs are divided into adventure, science or recreational to suit the child's age, however the underlying elements are the same for all the programs. These elements include work with scuba gear, sailing classes, sea trips of varied difficulty, boats, motors, and, naturally, getting to know sea life. On the one hand, all these activities encourage interest and a romantic mood and, on the other hand, foster a sense of responsibility and independence in children .

We developed the program with the following goals in mind: boosting the children's sense of responsibility for their actions towards society and nature; providing lifelong ecological education and early career advice; popularization of contemporary science and non-didactic prevention of bad lifestyle habits

5.3. *And Now the Program Itself*

The program "The Sea Teaches Everything" includes very different but mutually complementary activities ranging from tying boating knots to scientific laboratory investigations.

To future captains the program offers captain's courses, whose basic components are sea trips, boats, motors, and, of course, sails. Unfortunately, the sails are not scarlet like the

ones in Grin's book[7], but children hoist them with their own hands in order to catch their own wind.

Poets and romantics can choose night boat excursions under the low southern sky and above the fathomless blackness of the marine depths; campfires on the seashore.

Future scientists will learn about the Black Sea fishes and invertebrates, the community of sponges and seaweed, the life of the Black Sea shoals, sea ecology, beaches, and dunes, as well as subtle relationships, which connect all aquatic organisms in a single chain of life. These classes change the children's mindset and make them look upon millions of shellfish (large and tiny, light and dark, smooth and ridged) as inhabitants of our planet, with their own age, history, families, not as garbage.

The course "Marine Researcher" tells the children about nautical professions, underwater and above-water photography and videography, and the fundamentals of applied ecology. Children can also conduct independent research of their choosing under the scientific supervision of specialized biologists.

For marine researchers (would-be biologists, archeologists, oceanologists, geologists and so on) scuba diving is indispensable. Swimming and diving courses will teach the children how to use scuba gear. The courses are divided into different levels depending on the age and level of preparation of the children ("Diving 1, 2, 3 and 4").

Water, which gives us so much joy, is also fraught with great dangers. Therefore, in the "Rescue Courses," the children are taught how to perform first aid.

It's very important for all participants in the program to take part in trips of various levels of difficulty: a trip to a mountain lake located near the shore and the stationary camp; to a shallow coastal salt lake enclosed between headlands to practice sailing; and, finally, for "advanced" children, an overnight open sea sailing voyage on board authentic oceanic yacht.

Ropes courses are obligatory for everyone and include a variety of individual and team activities. Children learn to overcome various obstacles, such as nets, spider webs, "stretched" among the branches of trees of various heights. This course makes the children more resourceful, develops their ability to think and act quickly, helps the children bond together, teaches them to cope with feelings and emotions and enhances their self-control.

The program of Russian camps includes many other courses, for instance "Risky Path". These challenging courses are aimed at children who dream about becoming travellers. They will learn to overcome all sorts of difficulties which are inevitable on any trip, expedition or journey. They will get backpacking skills, which not only come in handy during expeditions, but will also enable them to take the right decisions in extreme conditions. They will learn to climb up a vertical wall without ropes and ladders, to get through a spider's web made of ropes, to work as a strong, friendly team, not as individuals. Highly-qualified trainers who work with the children have been invited not only from Russia but from other countries as well. That's why a foreign language, one of the components of the program, is a must. It is a means of communication with the teacher and is of great practical value.

The children get the skills corresponding to the level of their knowledge, their teachers are professionals with university degrees. Qualified instructors, who have gone through specialized first aid training courses and can administer first aid both on water and on land, are always to be found near the children. The ratio of children to teachers is usually 2:1.

But all of these courses do not replace more traditional activities children love, such as dancing, music, arts and crafts, pottery, drama, journalism, and so on. The children

[7] *Translator's Note*: The author here refers to Alexander Grin's 1923 novella Scarlet Sails [*Alye parusa*], which also inspired the Scarlet Sails event held every summer during St. Petersburg's White Nights festival.

participate in educational excursions, meet interesting people in the evenings, watch films, go to discos, sit near campfires, and listen to classical music on the sea shore.

All of the program's courses are divided into compulsory and specialized.

Compulsory courses are connected with various aspects of the study of the sea. Though their names and content are different, they all share a common goal of preparing children physically and mentally for a change of attitude toward the nature of their region on the whole and its fundamental parts, such as the forest, sea, mountains, of teaching the children to be creators and protectors, not consumers. Such courses include:

- the history of the region as a basis for understanding ecology;
- the fundamentals of classical ecology with elements of biogeography;
- the fundamentals of safety study, first aid, and rescue at sea;
- the fundamentals of survival in field conditions and extreme situations;
- general physical preparation and the acquisition of crucial skills for the explorer and traveler.

Specialized courses are:

- maritime professions: scuba diver, marine pilot, yachtsman, etc (depending on the type of camp);
- marine biology, geography, geology, astronomy, archeology, history;
- underwater and above-water photography and videography
- foreign languages as a means of communication with foreign colleagues on expeditions.

All these disciplines make the program interesting, varied, and informative and allow the children to acquire important practical skills and enrich their life experiences.

5.4. *What the Program "The Sea Teaches Everything" Has to Offer and What It Teaches the Younger Generation*

To schoolchildren, the program offers elements of scientific ecological research using real scientific equipment and writing their first research papers, as well as scuba diving (including for the collection of samples) and piloting a launch, sail boats, kayaks, and canoes, getting basic hiking and mountain climbing skills, horseback riding trips, learning about constellations and the basics of astronomy. Children and adolescents get an insight into disciplines that are crucial for a would-be explorer or traveler, and as a result change their attitude to school subjects and their significance and to the meaning of life as a whole.

Aspects of the program which attract children are romanticism, adventure, and the possibility to try out activities which used to be inaccessible. Moreover, natural elements, such as the water, sand, sea floor, coastal cliffs, night sky, trees and plants, and even physical exercise, feeling tired, emotional release, a great amount of new impressions, and absolutely new knowledge which they can share with peers and sometimes even show off , "extreme" activities which a lot of children need rapidly change the children. They become more mature. For some of them a new passion becomes a vocation and meaning of life. Children share their impressions and new knowledge with their friends, who then come to us to get the same experience. In their second year at the camp children can already have a go at something more challenging. They might go on a real scientific expedition, for example to the White Sea or the Mediterranean, to Kamchatka or Crimea. Looking at the program more closely, it is possible to understand that the program teaches schoolchildren:

- teamwork and a sense of responsibility. "The sea rises wave after wave, while [we stand] back to back" [8] – these are not empty words for those children who have encountered all the difficulties of working at sea, whether it is scuba diving (which really cannot be regarded as a sort of entertainment), tying boating knots or sailing;
- a new view on life that surrounds us. At times it is due to our limited understanding and ignorance that we, without thinking, destroy entire worlds;
- physical strength and endurance which enable you to lift scuba gear, climb a vertical cliff, or help a comrade;
- overcoming difficulties, which so often arise on our way; one's personal complexes, inabilities, dislike of someone or something (for example dislike of a certain subject like physics or chemistry, which is, however, essential for understanding the mechanics of scuba gear);
- a different attitude to knowledge. Children realize that they should acquire knowledge not only for the sake of a good report card or a gold medal [9], but in order to expand their horizons, discover things which used to be hidden from them and do things which seemed to be unattainable. We don't force children to do anything, we encourage their motivation instead;
- the history of the region and country, although this might seem strange at first glance. Studying nature and encountering the remains of plants or animals that have disappeared forever, you can't help thinking about how their destruction came about and how to avoid similar losses in the future. And this is a question both of politics and of economics, as well as being a social issue.

University students taking part in this program get the opportunity to participate in a real and very important mission, upbringing of the younger generation. Students of various faculties of Moscow State University and Moscow State University of Psychology and Education prepare for the summer work with children throughout the academic year. They go swimming and scuba diving, study motors, learn how to deal with sails, and go on hikes which enable them to practice hiking and climbing skills. Thus their leisure is filled with interesting and motivating activities. Moreover, throughout the year practically every student has the opportunity to learn as well as teach, ie. acquires skills both of subordination and of leadership.

Furthermore, the program, to some degree, helps solve a series of financial and social problems: young people have the opportunity to work and earn money applying their knowledge, experience, and acquired skills, not in shops, restaurants or cafes. In other words, the development of the active camp movement helps to achieve another important goal, create real jobs precisely for university students. University students who work as trainers and teachers and who are often only 3–4 years older than the children they teach, are given the opportunity:

- to acquire over the course of a year (and for many – over the course of many years) new knowledge and skills in the most varied areas: swimming, scuba diving, mountain climbing, and hiking;
- to considerably improve their physical fitness;
- to become more experienced and wiser specialists, hone their skills day after day in the course of the entire summer period by working with children
- to develop from young irresponsible students into mature adults fully aware of their responsibility for the life of the children they look after;

[8] *Translator's Note:* These are lines from the traditional song "Song About a Friend" [*Pesnia o druge*].
[9] *Translator's Note:* Gold medals are awarded in Russia (and formerly in the Soviet Union) for academic achievements on a national level.

- to make sure they are well suited for the job they have chosen and understand if teaching is their true calling.

To sum up, the program teaches children, teenagers and university students how to be protectors rather than vandals. Furthermore, the program teaches them to work in a team and to be responsible for their actions. Young people learn to overcome their personal complexes, inabilities, dislikes for someone or something. The program instills a healthy set of values and morals in the next generation and also helps them to become more eco-conscious. Furthermore, the program makes it possible:

- to solve the problem of filling the spare time of young people;
- to actively engage in the popularization of contemporary scientific and technical areas and disciplines (children discover disciplines they have never heard of, eg., biotechnology, genetic and photonic engineering and others);
- to spread purely academic knowledge, which children cannot get at school;
- to prepare young people for their future life and to give them early access to career advice;
- to teach them necessary life skills (from such areas as hiking, climbing, swimming, scuba diving, lifesaving, survival in extreme conditions), which they cannot acquire anywhere else;
- to solve social problems. Young people get the opportunity to work and earn money applying their knowledge, experience, and acquired skills, not in shops, restaurants and cafés. In this way, the development of the active camp movement helps to create real jobs for university students.

5.5. *A Good Team and Reliable Support are of Vital Importance*

Yes, a lot depends on the expertise of the team. For this reason, throughout the whole year great attention is paid to the professional training of instructors and teachers working with the children. The public organization "New Cultural and Economic Experience" is in charge of this training. In the framework of the activity of the student club of Moscow City University of Psychlogy and Education, under the leadership of experienced instructors (G.V. Anikin, K.V. Vorontsov, V.S. Kuzin, V.G. Papunov, F.V. Sapozhnikov, M.M. Suvorov, S.M. Chabykin), students of Moscow City University of Psychology and Education, Moscow State University and other higher education institutions practice working with scuba gear, mountain climbing, hiking, and seriously study the fundamentals of surviving in extreme conditions. Exams were more than once conducted by Daniel Mercier and his team (French champions of skin diving). Furthermore, the students receive basic psychological and medical training (N.A. Kuznetsova). In the spring and summer practically the entire team participates in a series of longer trips, during which knowledge acquired during the lessons is consolidated under field conditions. These include trips to the Volga, Tarusa, in the Caucausus Mountains, and work on the shores of the Black Sea, the White Sea, and the Sea of Japan. Usually during the course of the year more than 200 students go through the training course and then pass on their knowledge to the children in the summer. Many members of the staff, have been working on the program for several years, for example Natalya Altunina, Aleksey Boev, Aleksandr Vershinin, Anton and Marina Georgiev, Kirill and Natalya Yefremov, Tatyana Ershova, Elena Yefremova, Elizaveta Zelener, Anna Kamen', Taras Kononets, Natalya Kostycheva, Olga Nurimanova, Aleksei Pobozhakov, Filipp Sapozhnikov, Tatyana Iunina, Anna Chugunova, and many other members of the "old team" and Aleksey Vinogradov, Polina Ivanishcheva, Natalya

Evlashkina, Anastasia Zhornik, Olga Kamneva, Irina Krasova, Andrey Kolotvin, Elena Kopylova, Sergey Pantsyr', Maria Rudchenko, Valeria Strokan', Valentina Tuchnina, Natalya Shefova, and many many other members of the "new team".

The support group is just as important as the team, because these round-the-clock though brief dates would not exist, were it not for the strength and support (moral, material, physical, etc.) of many people. We are working and continue to develop thanks to the help of representatives of the Ministry of Education (E.Ia. Budko, L.M. Buzyreva, G.V. Kupriyanova, G.S. Sukhoveiko), representatives of the Federation Council of the Russian Federation (L.N. Boitsov, V.K. Bykov, E.L. Kerpel'man, S.N. Kudryashov, I.S. Morozova, A.S. Suvorova, V.A. Suvorova, A.A. Shchegortsova), the Administration of the Mayor of Moscow (V.V. Fadeev), Moscow City Psychological-Pedagogical University (V.V. Rubtsov, E.M. Borisova, M.Iu. Kondrat'ev, O.B. Krushel'nitskaya), the administrations of a series of faculties of Moscow State University (M.V. Gusev, I.P. Yermakov, O.S. Kriukova), the Institute of Oceanology named after P.P. Shirsova (M.E. Vinogradov, M. V. Flint), The Federal Drug Control Service of the Russian Federation (A.S. Mironov, N.S. Tikhonov), Sea Institute of Florida (Irene Hooper, E.A. Istomina), Dartmouth College (Brian Kunz), and, of course, the administrations of children's camps (L.S. Ledneva, A.V. Dzheus, O.P. Torgovkina, N.E. and N.N. Ivaniushkin).

5.6. *The Development of the Program "The Sea Teaches Everything"*

The experimental platform "Experiential Education as a Model of the Ecological one" (academic advisors: vice director of (IP RAE), V.I. Panov and the marine biologist and ecologist A.N. Kamnev), was launched in 1995 on the premises of Moscow School 803 (director V.N. Lokalov) with the support of the director of the Institute of Psychology at the Russian Academy of Education, academic V.V. Rubtsova and simultaneously with the development of the program "The Sea Teaches Everything". This made it possible to set up on the premises of the school first a marine study group, then navigational classes, which with time grew into the cadet boarding school (Fili-Davydkovo). Within the framework of the experimental platform, children swam in the pool, learned scuba diving, worked on rescue boats, and traveled to the Baltic Sea, where they lived on an educational sailing vessel, the barque "Kruzenshtern", visited military ships, and familiarized themselves with the life of the sea. Educators put into practice new experimental ecological courses and wrote teacher’s guides. It was there that the preparation for implementing work in the camp "Caucausus" [*Kavkaz*] took place.

In 1996, when the first season in the children’s camp "Caucausus" was over, the public organization "New Cultural and Economic Experience" (K.S. Burdin, V.F. Domashev, A.N. Kamnev, V.N. Lokalov, V.I. Panov, and others) was founded. Its main responsibilities were supervising the development of the program "The Sea Teaches Everything" and training university students who were going to work with children in the summer. After the first Psychological Pedagogical Institute (president V.V. Rubtsov) was opened in that same year, the decision was made to run the courses on the basis of this institution.

Since 1997 students of Moscow City Psychological Pedagogical Institute (later University) supported by famous Russian psychologists V.V. Rubtsov and E.M. Borisova, have been taking an active part in the preparation and implementation of the program. The student club of Moscow City University of Psychlogy and Education was formed around the course and program "The Sea Teaches Everything" soon after and it subsequently became the main facility for training personnel for working with children in children's camps.

Following "Caucausus", the children's camps "Forest Tale" [Lesnaya skazka] (Yoshkar-Ola), "Steppe Dew" [Stepnye rosy] (Kerch'), and a field camp on the Bolshoi Utrish "Eaglet" [Orlenok] became platforms for the demonstration and introduction of the program and its modules. To our delight, the program caught on and, moreover, continued to develop. Over the course of several years, it was officially granted its own session in the squad "Storm" at the All-Russian children's camp "Eaglet" by the Department of Youth Politics at the Ministry of Education.

In 2000 it was possible to demonstrate the program in Kamchatka and on the Primor'e at the All-Russian Children's Center "Ocean" [Okean]. This became possible thanks to two grants, received by "New Experiments" for disseminating the experience of the program in Russia: the first one from the Department of Youth Politics and the second one (international) from the Institute for Sustainable Societies (ROLL, USA). In 2001–2002 collaboration with the Far East continued. This time it was possible to demonstrate our program at a unique camp in Lazovsky Reserve (C.M. Chabykin). At the same time we learned about a unique school in Tekos, founded by M.P. Shchetinin and established business relations with it.

In Strasbourg in 2002, the Russian University Scuba Diving School for Children and Youth (CEDIP/CDRUS) was registered on the initiative of the Russian Center of the International Ocean Institute (IOI-Russia), the Institute of Oceanology named after P.P. Shirshova, and Lomonosov Moscow State University. The aim of this school was dissemination of the marine educational program. This school became member of the European Committee of Professional Diving Instructors (CEDIP) and received international status. At the present time the school has two affiliates. One is in Saransk and the other in Kandalaksha (White Sea).

In 2004–2006 the program "The Sea Teaches Everything" was realized in its full scope on the premises of the Ministry of Education camp "Smena" in the valley of the river Sukko (director N.E. Ivaniushkin). In the course of each camp session, an average of 100 children and no less than 50 educators took part in the program. The children not only got to know the life of the sea and its coastal zones and acquired new skills, but also expressed their impressions of the sea on a sheet of paper. In the fall, the children's drawings were exhibited at the international sea festival in Antibes (France). In 2005 the program became one of the fundamental elements of the All-Russian Festival "The Hope of Russia", which was organized by the Government of the Russian Federation. In 2006 a new element was included in the program: children themselves started to write screenplays and make films about the program and their place in it. This work was followed up by the first "Golden Pony" [*Zolotoy konek*] festival of children's short films in that same year. In this way, the first small network of youth scientific stations, where adolescents can participate together with adults in the year-round work of a unified program, eg. the monitoring of the surrounding environment, formed on the Russian Black Sea coast in the span of a few years. On the basis of these centers, the first international (Russia–USA) scientific collection of the Black Sea samples took place in August-September 2001, while the first youth scientific conference was held on the premises of the camp "Session" in 2006. It should also be mentioned that we hosted two children's sea festivals that were attended by the chairman of the Antibes festival, Daniel Mercier.

Furthermore, within the framework of the program, our young people sometimes travel to "Seacamp" in Florida. There they both study and exchange experience, as well as enjoy themselves on the coral reef, of course. In August 1998, we organized a teleconference between the crews of the still extant orbital station "Mir" (S.V. Avdeev, Iu.M. Baturin, G.I. Padalka) and the camp Seacamp at a time when there was a group of Russian children at the camp. In 2001 a video chat between "Eaglet" and Seacamp took place.

Within the framework of the program, we periodically publish educational materials on biology in journals. We try to give information about lives of marine creatures in an interesting way, illustrating the text with as many underwater photographs as possible. Alongside such popular scientific publications we prepare and publish an ecological English–Russian and Russian–English dictionary and reference book, which not only translates, but also deciphers newly encountered terminology.

It is in this manner that the program "The Sea Teaches Everything" gradually develops. All the events that h take place within the framework of the program also appear on our official sites http://camps.ru and http://ecocamps.ru

5.7. *From the Program "The Sea Teaches Everything" to the Creation of a System of Marine Education for Children and Young People*

Russia's need to create systems of marine education, including children's education, arose long ago. It is obvious that increasing levels of maritime activities, ranging from the growing oil and gas complex and transportation construction to aquaculture and sea recreation require a constantly increasing number of qualified marine specialists. Until now, the issue of training marine personnel was resolved in narrow bureaucratic context. Now however, ever more people have come to understand that the World Ocean is a single integral system and that the solutions to practical questions must have a strictly coordinated character, because otherwise we will be faced with degradation of natural marine systems and the loss of its properties useful for humans. The need to find new approaches in marine education, due to its systemic character, follows from this.

Our experience of training specialists for working in children's marine camps, as well as marine specialists in higher education institutions in Russia, has shown that marine education requires early career advice. This special characteristic applies not only to marine education. It is well known that early career advice is necessary in sports, science, and art. For this reason we believe that the "personnel base" of professional marine education is marine education for children and young people.

The structure of the proposed system of marine education for children and young people stipulates the inclusion of all groups and categories of children and young people, with a gradual transition from one educational level to the other. This makes it possible to implement marine education from the simplest popularization of knowledge about the ocean to regular participation in educational programs, the choice of a marine career, and getting a university degree (sometimes a double degree) in this field.

As a consequence of the contemporary dissociation of different types of practical marine activities, contemporary marine education for children and young people in Russia doesn't have an integral character or a uniform method and management. Today it comprises mainly the activity of children's marine clubs and navigational schools, which teach the basics of naval skills, while children's scuba diving clubs have an exclusively athletic focus. It is necessary to improve principles and approaches applied in marine education for children and young people. The main criteria for their selection should be broadening educational horizons of children and adolescents, as well as an orientation toward solving practical problems through the use of marine spaces.

Evidently, new approaches to marine education for children and young people must conform to a few common principles and goals:

1. Holistic approach that gives the child a comprehensive idea about the nature of the sea (its origins, the life of marine creatures, the use of its resources by man, and the need for its preservation) through a series of stimulating activities. The aim of the education is to give

young people early career advice, apart from giving them information on the subject in question;

2. Systematic approach, ie dividing the material into different parts and levels which are harmoniously integrated into the whole and follow the same concepts and the same methodology.

3. To create an educational environment that helps develop a child's self-awareness through their personal experiences, combining both theoretical knowledge and practical skills.

4. To train qualified educators, ecologists, geographers, and biologists, who have a basic knowledge of psychology and can work with various categories of children, adolescents and adults, ie. involving not only children, but also parents or entire families in the educational process.

5. To use advanced methods and new approaches to teaching in the most varied types of educational environment by using the principles of active learning and distance learning in the educational process.

6. Specialized camps internet coverage*

The impact of the Internet on the noosphere, the nature of human activities and our way of life is so great that it can be compared with the invention of writing or printing. Integrated into a network, "smart machines" brought about a real information revolution in the society. The Internet is now an environment that "gives birth" to new ideas, decisions, possibilities, and types of occupations no one could ever have imagined.

The heavyweights in this ocean of information are free encyclopedias (Wikipedia, Wikimapia), search engines (Google, Yandex, Yahoo etc.), social networking sights (MySpace, Facebook, Vkontakte, Odnoklassniki), and their "relatives, forums and blogs (Livejournal, Liveinternet, Twitter), which form the so-called "blogosphere". This new type of mass media provides targeted information sharing: operative, accurate, and very low-cost compared to the printed mass media or television and can reach a lot of people.

Nowadays, in the modern world, every real project, institution, organization have their virtual presence on the Internet. A children's camp is not an exception, a camp's web page is a great tool for effective PR, finding customers, selling tickets, keeping clients updated on camp life, creating children's "clubs", recruiting new employees, promoting programs, keeping clients coming back. Instead of answering phone calls or printing expensive booklets, which lead to forest liquidation one can just refer a customer to the camp page for inquiry.

We provide some recommendations for rational development of a children's camp webpage. First of all, it should provide the exact geographical camp location, information about accommodation, the session curriculum, a list of necessary things and prohibited objects (some camps have a restriction on the use of mobile phones and perfumery products), where to buy tickets, where to deliver and meet the children. The approximate price for tickets should be provided. Camp life photo coverage updates posted on the site should be a powerful illustration of the camp events, yet no intrusion on the campers' privacy should be allowed. Some services protect the photo page (and other personal information) with a password so only parents of the campers can access it.

It is not enough just to create a site and host it on the Internet. If you want your site to be presentable, to drive traffic to it and to get it found by search engines, you need to

* Kamnev A.N., Yefremov K.D., Grigorev G.V.

optimize it using SEO. It involves code optimization, using keywords, writing a special text for search engine robots, homepage design, site registration in various catalogs, getting indexed, promotion of the web page and so on.

To sum up, the children's camp web page should contain the following aspects:

1) where to buy the tickets, agencies and head office contact details;
2) head office location and working hours;
3) geographical location of the camp, with a map;
4) the list of the required documents, form samples;
5) discount information, papers required, list of the eligible people;
6) the mission of the camp, description of the activities;
7) accommodation;
8) food in the camp;
9) infrastructure (sports, educational, recreational, swimming and so on.);
10) rules and restriction of the camp;
11) transfer information (where to deliver the children, how they get transferred to the camp, where to meet them, things to bring to the camp);
12) medical service;
13) psychological support;
14) security and safety;
15) information about the camp's management;
16) how to prepare a child for the camp;
17) announcements, camp news;
18) job openings;
19) camp reunions;
20) feedback and awards;
21) links of partners' pages;
22) frequently asked questions;
23) context ads (help to reduce the SEO cost).

Along with the web page, thematic communities in the above-mentioned social networks should enhance the PR impact. Open forums require moderation because malware (viruses, worms, Trojans), advertisements (spam), fraudulent suggestions (scam) can affect it. Nowadays public forums should not be used, or personal access only should be provided for the campers. The open blogosphere access can play a negative role in the camp reputation rating; one can publish a negative, even false feedback and the search engines will take it into account and will show it to the Internet users. The collaboration with the mass media is even of greater importance, publications in printed or online mass media hold a high rating position in the search engines systems; negative publications can ruin the camp's reputation for a long time. Contact with the mass media journalists (especially local and specialized ones) should be established and from time to time they should be provided with some camp news, this will "weaken" the negative feedback.

Up to this moment the International Fund "Roads to discovery" and the regional public organization "New cultural and economic experience" have designed several web pages that facilitate the development of the camp movement and promote various projects.

6.1. ***Internet Camping Association / www.camps.ru***

This is All Russian digital periodical, registered in the Federal Press and Mass Communications Agency (certificate Эл 77-8094 dated July 15, 2003).

The goal of the project *– to promote camp movement, gather information concerning recreation, health promotion, supplementary education, and educational forms of leisure for children and adolescents.*

The tasks of the Internet Camping Association portal are:

- gathering information about specialized camps and other institutions which run entertainment, recreational, educational and health programs for children and teenagers;
- to create a database for children's camps, health and leisure centers, and educational organizations;
- post portal's news;
- gather information concerning federal policy and legislation for children's camps (various legal acts, precedents);
- to inform people about facilities and equipment for various specialized camps;
- to introduce readers to the recreational options for children (clubs, communities), supplementary education, educational tourism;
- to accumulate management and teaching experience concerning children camps.
- to promote science as an environmental education tool;
- to inform people about children psychology, ways of solving teenage psychological problems;
- to deal with the "troubled teens" issue and their possible rehabilitation in camps;
- to unite people who are interested in this topic, provide them with a place to publish their experience and views.

The portal posts various articles of experts and managers of summer recreational programs, campers' papers (their research projects results). Today this is one of the leading children's camps resources in Russia.

6.2. *An example of project site*

A good illustration of the project web page is the environmental scientific adventure marine program "Oceania" – **www.ecocamp.ru**

The goal of the site:

The site promotes "Oceanian", the environmental scientific adventure marine program of the fund "Roads to discovery."

Web page content:

The site gives information about summer, spring, autumn, and winter programs, about expeditions, including trips to the White, Red, Japan Seas, and other regions. The site also gives information about the school of leaders, job vacancies, and necessary information for the parents. The main feature of the site is photo coverage of the camp life, updated on a daily basis and a list of the campers' birthdays.

7. Regulatory framework of proactive environmental education*

Ecological education and upbringing carried out in children's camps, including implementation of scientific adventure programs of proactive environmental education, are based on the regulatory framework of the Russian Federation. Let us consider some regulating documents of this justification.

7.1. *Compliance with the Constitution of the Russian Federation*

- Art. 42: Everyone shall have the right to favorable environment, reliable information about its state and for a restitution of damage inflicted on his health and property by ecological transgressions.
- Art. 43: Everyone shall have the right to education. …The Russian Federation shall establish federal state educational standards and support various forms of education and self-education.
- Art. 58: Everyone shall be obliged to preserve nature and the environment, carefully treat the natural wealth.
- Art. 72: The joint jurisdiction of the Russian Federation and the subjects of the Russian Federation includes: ... specially protected natural territories; ... general issues of upbringing, education, science, culture, physical culture and sports;

These articles of the *Constitution of the Russian Federation* are the constitutional justification of strategy and practical implementation of proactive environmental education.

7.2. Compliance with the codes of the Russian Federation

Programs of proactive environmental education are implemented according to the requirements of the codes of the Russian Federation:

- Code Of Administrative Offences of the Russian Federation: several articles of chapter 8. «Administrative Offences Concerning Environment Protection and Wildlife Management»;
- Family Code of the Russian Federation: Chapter 11. «The Rights of Underage Children»);
- Forest Code of the Russian Federation: art. 40 and 41 about Use of Forests for Research and Education/Training and Recreational Activities;
- Water Code of the Russian Federation: art. 6. «Public water bodies»; art.11 «Providing water bodies for use by a water use agreement or permission to provide water body for use», which states that every citizen can have free access to public water bodies for everyday needs and certain water bodies can be used for recreational purposes (art. 49 and 50).

7.3. Compliance with presidential decrees of the Russian Federation

The necessity to develop environmental consciousness by developing the system of education for sustainable development follows from the *Concepts of transition of the Russian*

*Kamnev A.N., Yefremov K.D., Kiselyova I.S.

Federation to sustainable development (Decree No. 440 of the President of the Russian Federation dated April 01, 1996).

This document emphasizes that one of the key factors of providing environmental safety of the country is education based on the principles of understanding the need of protecting the biosphere and maintaining it in equilibrium. This document prioritizes development of ecological consciousness; it also ensures the formation of an efficient system of promotion of sustainable development ideas and creation of corresponding educational system and training.

Decree No. 236 of the President of the Russian Federation dated February 04, 1994 *About the state strategy of the Russian Federation for Environmental Protection and Sustainable development* considers ecological education and upbringing of the population as one of the major activities for the purpose of creation of the conditions allowing to exercise the constitutional right of citizens to life in a favorable environment.

The need for environmental education of the younger generation is proved indirectly by *The concept of population policy of the Russian Federation for the period through to 2015* (Decree No. 1351 of the President of the Russian Federation dated October 09, 2007). The document prioritizes the improvement of adolescents' health by enhancing preventive measures aimed at curbing alcohol and drug abuse, promoting sports and healthy lifestyle, which is closely connected with the issue of raising of ecological awareness in the younger generation.

The necessity of education for sustainable development is also stated in art 20 of *Strategy of the Homeland Security of the Russian Federation till 2020* (Decree No. 537 of the President of the Russian Federation dated May 12, 2009), which places a high priority on science, technology and education and defines them as an important direction in enhancing national security.

7.4. Compliance with the laws of the Russian Federation

The Federal Law No. 124-ФЗ of the Russian Federation About fundamental guarantees of the children's rights in the Russian Federation (dated July 24, 1998) (with amendments) defines the concept of children's recreation activities and health care as "the set of actions providing development of children creativeness, protection and promotion of their health, prevention of diseases, delivery of physical education, sport and tourism, formation of healthy lifestyle mindset, including appropriate diet and living in favorable environment under sanitary, hygienic, and epidemiological requirements". This document mentions the following types of organizations for children's recreation and health promotion: out-of-town health camp, tourist camp, ecological and biological camp, local history camp, other types of camps and other organizations regardless of legal forms and patterns of ownership whose core business is providing services for recreation and children's health promotion.

It should be mentioned that children's camps belong to recreational and children's health promoting organizations (not to educational institutions); this is stated by the Federal Law No. 170-ФЗ dated December 21, 2004, Concerning the Introduction of Amendments to the Federal Law Concerning the Fundamental Guarantees of the Rights of Children in the Russian Federation

The Federal law No. 7-FZ About environmental protection (dated 10.01.2002) defines legal framework of state policy in the sphere of environment protection, governs the relations in the field of interaction between society and nature, states the main ecological rights of citizens and also ways of their implementation and protection. This law confers powers to organize and develop ecological education system as well as to spread ecological

culture on public authorities (Art. 5). Chapter XIII "Basis of formation of environmental culture" of this law enacts the establishment of system of general and comprehensive environmental education, which integrates preschool, primary, secondary, special, vocational and higher education; the law also dictates environmental knowledge to be spread by environmental, sport and tourism organizations (Art. 71). Teaching the bases of environmental knowledge at further education institutions is stated by Art.72 as subjects related to environmental protection, safety, and sustainable use of natural resources. Public and educational institutions, according to Art. 74, conduct environmental education for the purpose of forming the environmental culture in society, encouraging conservative attitude to nature, sustainable use of natural resources.

The Federal law No. 33 dated March 14, 1995 Concerning special protected natural areas designates ecological and educational work as the primary objective of special protected natural areas; it creates legal framework for ecological education and training in wildlife areas, national and natural parks, and other SPNA (Art. 6, 7, 9, 12, 13, 15, 18, 28).

The Federal law No. 132-ФЗ dated November 24, 1996 About the foundation of tourism in the Russian Federation regulates tourism activity, including recreation and children's health improvement aspects. The Federal law No. 3266-1 dated July 10, 1992 About Education (with amendments) considers the following principles as the primary cornerstone of national policy in education: «the humanistic nature of education, a priority of universal human values, and human life and health, and free development of the personality; the cultivation of civic pride, diligence, respect for human rights, love for the environment, the Motherland, the family» (art. 2). Art. 12 of this law, orders children education system to integrate further education institutions, and also provides that "rights and responsibilities of the institutions of additional education ensured by the legislation of the Russian Federation, shall also apply to the public organizations (associations) whose Charters stipulate educational activities as their primary goal, although it concerns only the implementation of additional educational curriculum" (item 9). Art. 26 of the Law of the Russian Federation about education indicates that various additional educational programs can be performed in educational institutions of additional education.

7.5. *Compliance with the Resolutions of the Government of the Russian Federation*

After the adoption of the Resolution No. 752 of the Government of the Russian Federation dated December 7, 2006 the nomenclature (typology) of children further education institutions established according to the Order No. 233 of the Government of the Russian Federation dated March 07, 1995 Concerning the adoption of standard regulations for educational institution of children further education has been changed. Since that moment children's recreational and educational camps have been removed from the list of further education institutions. The implementation of additional ecological education is assigned to the following organizations:

- stations of young naturalists, children's ecological (ecological and biological) stations;
- centers of further education for children;
- children and teenagers tourism and excursions (young tourists) clubs;
- children's ecological (recreation, environmental, biological) centers;
- children's health and educational (specialized) centers.

The programs of proactive environmental education described in this book were organized during the period from 1996 to 2016; they have been implemented on the premises

of the Federal children's recreation and education center "Smena", the children's recreation camp "Kavkaz", and other children's centers.

The creators of scientific adventure programs were working in the framework of the following articles of the Resolution No. 233:

- A teacher manages the curriculum by themselves, although it should correspond with the curriculum recommended by the state education institutions. Teachers can develop their own programs, which should be approved by the meeting of the teachers' board of the organization. (item 26).
- Classes can be held in one of the subjects or they may be complex, integrated programs. … The size of the organization and the duration of classes are defined by the organization's charter. Classes can be conducted in groups or individually. … Before admission to sports, technical, tourism, choreographic courses a medical certificate about a child's state of health should be provided. … When establishing the timetable, the administration should try to create the most favorable conditions for the children, keeping in mind their age, the teachers' suggestions, the parents' requests (legitimate representatives/guardians) and the sanitary and hygienic standards. (item 27).

At the federal level, children's camps are under the authority of the Ministry of Health Care and Social Development of the Russian Federation. The order No. 148 of the Government of the Russian Federation (with the amendments of Order No. 343 of the Government of the Russian Federation dated April 22, 2009) About ensuring recreation, health improvement and employment of children throughout the period of 2008-2010 dated March 5, 2008 orders the Ministry of Health Care and Social Development of the Russian Federation to coordinate federal executive authorities, administrative authorities of subjects of the Russian Federation and local governments promoting recreation, health improvement and children employment in the territory of the Russian Federation.

Children's camps activity is also regulated by the Resolution No. 23 of the Chief state sanitary inspector of the Russian Federation dated April 01, 2008 About providing recreation, health promotion, and youth employment throughout the period of 2008-2010.

The Resolution No. 1106 of the Government of the Russian Federation dated December 29, 2009 About a funding order from the federal budget to the subjects of the Russian Federation for health promotion of the children who are in a complicated life situation regulates the participation of children who are in a difficult life situation in the scientific and adventure program.

The environmental doctrine of the Russian Federation (Order No. 1225-p of the Government of the Russian Federation dated August 31, 2002) corresponds with the following conceptual aspects of the proactive environmental education:

- promotion of the environmental culture of the population; advancement of education and professional skills and knowledge in the field of ecology; implementation of ongoing environmental education;
- coverage of environmental issues, sustainable environmental management, environmental protection and sustainable development in the curriculum;
- consolidation of the role of social and humanitarian aspects of environmental education.

Some local laws and bylaws, which do not contradict the federal legislation regulating work of childcare facilities of recreation and health improvement, are adopted in some regions of the Russian Federation.

7.6. ***Responsibility for criminal Offences and violation of the rights of the child***

The Convention of the UN on the rights of the child dated September 2, 1990, introduces legislation to the rights of children in a recreation camp. This international document received the status of the law of the Russian Federation according to the Order No. 848 of the Government of the Russian Federation dated August 23, 1993 *About implementation of the Convention of the UN on the rights of the child and the World Declaration on the Survival, Protection and Development of Children*.

According to the Convention on the Rights of the Child, the States Parties are obliged to:

- protect the child from arbitrary or unlawful interference with his or her privacy, family, or correspondence, nor to unlawful attacks on his or her honor and reputation (Art. 16);
- protect the child from all forms of physical or mental violence, injury or abuse, neglect or negligent treatment, maltreatment or exploitation, including sexual assault (Art. 19)
- the education of the child shall be directed to: (a) the development of the child's personality, talents and mental and physical abilities to their fullest potential; … (d) the preparation of the child for responsible life in a free society, in the spirit of understanding, peace, tolerance, equality of sexes, and friendship among all peoples, ethnic, national and religious groups and persons of indigenous origin; (e) the development of respect for the natural environment (Art. 29);
- shall respect and promote the right of the child to participate fully in cultural and artistic life and shall encourage the provision of appropriate and equal opportunities for cultural, artistic, recreational and leisure activity(Art. 31).

The rights of the child who broke the law (which quite often are not observed due to legal illiteracy of the parties) are stated in the Art. 37 of this convention according to which no child can be:

- subjected to torture or other cruel, inhuman or degrading treatment or punishment;
- deprived of his or her liberty unlawfully or arbitrarily;
- deprived of access to legal and other appropriate assistance.

If the child is accused of criminal offence, they shall have the following warranties:

- freedoms from coercion to witness statement or recognition of fault;
- full respect for their private life at all stages of the trial.

Responsibility for criminal offences concerning the child is stated in the *Criminal Code of the Russian Federation*. The following articles of the Criminal Code of the Russian Federation are relevant regarding summer camps:

Chapter 16. Crimes Against Human Life and Health.

- Art. 105. Murder.
- Art. 107. Homicide Committed in a State of Temporary Insanity.
- Art. 109. Infliction of Death by Negligence.
- Art. 110. Incitement to Suicide.
- Art. 111. Intentional Infliction of a Grave Injury.
- Art. 112. Intentional Infliction of Bodily Injury of Average Gravity.

- Art. 113. Infliction of Grave Injury or Injury of Average Gravity While in a State of Temporary Insanity.
- Art. 114. Infliction of Grave Injury or Injury of Average Gravity in Excess of the Requirements of Justifiable Defense or in Excess of the Measures Needed for the Detention of a Person Who Has Committed a Crime.
- Art. 115. Intentional Infliction of Light Injury.
- Art 116. Battery.
- Art. 117. Torture.
- Art. 118. Infliction of Grave Injury or Injury of Average Gravity by Negligence.
- Art. 119. The threat of Murder or Infliction of Grave Injury Health.
- Art. 121. Infection with a Venereal Disease.
- Art. 122. Infection with Human Immunodeficiency Virus (HIV).
- Art. 124. Failure to Render Aid to a Sick Person.
- Art. 125. Failure to Give Assistance to Persons in Mortal Danger.
- Chapter 17. Crimes Against Freedom, Honor and Dignity of the Person.
- Art. 127. Illegal Deprivation of Liberty (The objectivity of illegal deprivation of liberty of the person consists of holding the person in the particular place by locking, binding, etc. Unlawful deprivation of freedom can also be in the prohibition to leave the room under the threat of violence or causing other harm to the victim).
- Art. 129. Slander.
- Art. 130. Insult.
- Art. 136. Violation of the Equality of Human and Civil Rights and Freedoms.
- Art. 137. Invasion of Personal Privacy.
- Art. 138. Violation of the Secrecy of Correspondence, Telephone Conversations, Postal, Telegraphic and Other Messages.
- Art. 148. Obstruction of the Exercise of the Right of Liberty of Conscience and Religious Liberty.

Chapter 18. Crimes Against Sexual Inviolability and Sexual Freedom of the Person.

- Art. 134. Sexual Intercourse and Other Actions of Sexual Character with a Person Who Has Not Reached the Age of Sixteen Years.
- Art. 135. Depraved Actions.

Chapter 20.Crimes Against the Family Minors.

- Art. 150. Involvement of a Minor in the Commission of a Crime.
- Art. 151. Involvement of a Minor in the Commission of Antisocial Actions.
- Art. 156. Failure to Discharge the Duties of Bringing up a Minor (also see Art. 5.35 of the Administrative Code).

Section VIII. Crimes in the Sphere of Economics.

- Art. 158. Theft.
- Art. 159. Swindling.
- Art. 163. Extortion.
- Art. 167. Wilful Destruction or Damage of Property.
- Art. 168. Destruction or Damage of Property by Negligence.

Section IX. Crimes Against Public Security.

- Art. 213. Hooliganism.
- Art. 214. Vandalism.

- Art. 230. The inducement to Use Narcotic Drugs or Psychotropic Substances.
- Art. 236. Violation of Sanitary and Epidemiological Rules.
- Art. 237. Concealment of Information About Circumstances Endangering Human Life or Health.
- Art. 238. Production, Storage, Carriage or Sale of Goods and Products, Fulfillment of Works or Rendering of Services, Which Do Not Meet Safety Standards.
- Art. 242. Illegal Distribution of Pornographic Materials or Objects.
- Art. 242.1. Making and Circulating Materials or Articles with Pornographic Images of Minors.
- Art. 243. Destruction or Damage of Monuments of History and Culture.
- Art. 245. Cruelty to Animals.
- Art. 261. Destroying or Damaging Stands.
- Art. 262. Violation of the Regime Regarding Specially Protected Natural Territories and Natural Facilities.

Chapter 29. Crimes Against the Fundamentals of the Constitutional System and State Security.

- Art. 293. Neglect of Duty.
- Art. 330. Illegal Release from Criminal Liability.

It should be noted that, persons aged 16 years or older may be held criminally liable for all crimes, but the individuals who have reached the age of 14 shall be subject to criminal liability for murder (Article 105), intentional infliction of grave bodily injury causing an impairment of health (Article 111), intentional infliction of bodily injury of average gravity (Article 112), rape (Article 131), forcible sexual actions (Article 132), theft (Article 158), making a deliberately false report about an act of terrorism (Article 207), hooliganism under aggravating circumstances (the second part of Article 213), vandalism (Article 214), etc.

7.7. ***Smoking and alcohol intake ban***

Smoking and alcohol and drugs consumption are forbidden on the territory of children's recreation camps, according to the following documents.

The Federal law No. 87-FZ dated July 10, 2001 (November 08, 2007 edition) *About the restriction of smoking of tobacco* prohibits tobacco use in the organizations of health care, culture, and within educational institutions (Art. 6). Retail sale of tobacco products in the structures of health care and culture, in the sports organizations and within hundred meters of the territories of the educational organizations (Art. 3) is forbidden.

The Federal Law N 11- FZ dated March 7, 2005 *About the restrictions of retail sale and consumption (drinking) of beer and beer-based beverages* forbids retail sale and consumption of beer in the educational and medical institutions, and also to the minors (Art. 2, 3).

The Federal law No. 171- *FZ About state regulation of production and turnover of ethyl alcohol, alcoholic and alcohol-containing products dated November 22, 1995* (the edition of December 30, 2008) forbids the retail sale of alcoholic products in the educational and medical organizations, and also to the underaged (Art. 16).

The Administrative Code of the Russian Federation establishes liability for drinking of beer and drinks manufactured on its base containing ethyl alcohol over 0.5 per cent of the volume of finished products and also of alcoholic and spirituous products containing ethyl alcohol less than 12 per cent of the volume of finished products at children's, educational and

medical organizations, on all types of public transport (general use transport) of urban and suburban communication, at organizations of culture (except for organizations or places of public catering situated therein, including without formation of a juridical person), and at physical-training-and-health-improving and sports facilities (P.2, Art. 20.20 of the Code of the Russian Federation on Administrative Offences).

Liability is incurred for drinking of alcoholic and spirituous products containing ethyl alcohol 12 or more per cent of the volume of finished products in streets, at stadiums, in public gardens, in a transport vehicle of general use, at other public places (including those indicated in Item 1 of this Article), except for organizations of trade and public catering in which it is permitted to sell alcoholic products for consumption on the premises.

According to the Art. 20.22 of the Code of the Russian Federation on Administrative Offences the appearance of minors of an age of less than 16 years in a state of alcoholic intoxication, as well as their drinking of beer and drinks manufactured on its base, alcohol and alcohol-containing products, their taking drugs and psychotropic substances without doctor's orders, or other stupefying substances in streets, stadiums, in public gardens, parks, in a public transport vehicle and in other public places shall entail the imposition of an administrative fine on parents or on other legal representatives of the minors.

According to Art. 6.10. "Involvement of the underaged children into the consumption of alcohol based beverages or stupefying substances" are illegal actions (Art. 6.10 of the Code of the Russian Federation on Administrative Offences) regardless of the quantity consumed and the effect caused (light, medium, and heavy) by beer and beer-based drinks, alcoholic beverages, and the stupefying substances. The offence is considered to be committed the moment when the underaged has agreed to consume beer, alcoholic beverages or the stupefying substances.

All persons aged 18 and over (part 1 and 2 of the law), and parents or other legal representatives of minors, as well as individuals responsible for educating and upbringing of children (part 3 of the law) are liable to administrative proceedings according to Art. 6.10 of the Code of the Russian Federation on Administrative Offences.

Illicit drug trafficking and consumption of narcotics, psychotropic substances or their analogs are designated in Art. 6.8 and 6.9 of the Code of the Russian Federation on Administrative Offences; promotion of drugs, psychotropic substances or their precursors – in Art. 6.13 of the Code of the Russian Federation on Administrative Offences.

7.8. *Compliance with standards and sanitary regulations*

Providing services to children in health promotion camps is regulated by the National state standard of the Russian Federation GOST R 52887-2007 *Children services in organizations of recreation and health improvemen*t (Approved be the Order N 565-ст of Federal Agency for Technical Regulation and Metrology dated December 27, 2007).

In this standard (item 3.1) the concept "recreation of children and health improvement" is designated as: "Set of the actions providing the due recreation of children, the development of creative potential of children, protection and promotion of their health, prevention of children diseases, classes of physical education, sport and tourism, formation of skills of the healthy lifestyle, diet and life activity in favorable environment with compliance with the sanitary, hygienic and epidemiologic requirements." This definition corresponds with the goals and principles of proactive environmental education and science-adventure programs.

Organizations (institutions) of children recreation and health promotion (item 3.2) are defined as groups of various legal and organizational form and different types of ownership,

with the primary goal of providing recreation and health promotion services for children and are listed below: children's recreation camp (out-of-town children's recreation camp, camp of day and round-the-clock stay of children, and others), specialized (profile) camps (sports camp, military and sports camps, tourism camp, camps of labor and rest, ecological and biological camps, technical camps, local history camps and others), health improving centers, bases and complexes, organizations of social service or their structural subdivisions, etc.

Organizations of recreation and health improvement can be stationary (specially created for the purpose of ensuring rest of children and their development) or temporary (including mobile, tent, with the round-the-clock or day stay based on the educational, leisure, sports facilities, organizations of social service, local clubs, sanatorium, and resort organizations).

Children recreation services should be protected against harmful for health and dangerous philosophical and spiritual information and propaganda promoting ethnic, class, social intolerance, and consumption of alcohol and tobacco products, social, racial, national and religious inequality (item 4.2).

The main types of the services that are provided in children organizations of recreation and health improvement (item 5) are:

- the educational services aimed at the exercising children's intellect, expansion of their outlook, advancement of knowledge, acquiring new skills, development of their creative potential (item 5-в);
- leisure services providing cultural, tourism, local history events and activities, which ensure reasonable and useful use of free time of adolescents, their spiritual and philosophical development and cultural and social inclusion (item 5-е);
- physical culture and sports services which guarantee physical development, promotion of health, and the hardening of the children's organism (item 5-ж);

The organizational forms of educational services provided in children organizations of recreation and health improvement (item 5.3) are listed here:

- local history, young naturalist and ecology classes and activities (5.3.3)
- socially useful and pedagogically reasonable work of children corresponding to their age and the state of health (5.3.4)
- patriotic, moral and esthetics education of children, their intellectual development and progress of their creative capabilities. (5.3.5)
- school subjects extra training during the academic year (5.3.6)

The standard also mentions psychological services:

- educational scheduled maintenance with children (group or personal sessions) for prevention or elimination of the negative psychological factors which damage their mental health (5.4.1)

The implementation of pedagogical work and programs of proactive environmental education in children recreation and health improvement institutions is supported by the Methodological recommendations for managers of children summer recreation *Organization of health promotion in companies of children summer recreation* (approved by the Resolution No. 29 of the Ministry of Labour and Social Development of the Russian Federation dated April 10, 2000).

Environmental excursions, journeys, and expeditions belong to the sphere of ecotourism and are supposed to comply with GOST 28681.3-95 *Tourism and traveling services. Safety requirements* (approved by the Resolution No. 32 of Gosstandart of the

Russian Federation dated February 21, 1994), and also with GOST R 50690-2000 *Tourism services. General requirements*.

Diving classes are regulated by some standards:

- GOST R 52119-2003 *Diving technique. Terms and definitions*.
- *GOST R 52206-2004 Water rescue technique. Terms and definitions.*
- ISO Requirements for recreational scuba diving (24801–3:2007; 24802–1:2007; 24802–2:2007); EH 250:2000 *Breathing equipmen*t; EH 12628:1999 *Diving accessories* and others.
- *GOST R ISO 24801-1-2008 "Diving for active recreation and entertainment. The minimum safety requirements for diving training".*
- *RD 31.84.01-90 Standard occupational safety rules for diving operations.*

Pedagogical work in organizations of recreation and health improvement of children should correspond with the following sanitary regulations and standards:

1. SanPiN (Sanitary Regulations and Norms) 2.4.4.1204-03 Sanitary and Epidemiologic requirements for the arrangement, maintenance, and routine of out-of-town stationary offices of children recreation and health promotion.

2. SanPiN (Sanitary Regulations and Norms) 2.4.4.969-00 Hygienic requirements for the arrangement, maintenance, and routine of the day children recreation organizations where children stay during their vacations.

3. SanPiN (Sanitary Regulations and Norms) 42-125-4270-87 Arrangement, maintenance, and organization of activity of labor and recreation camps.

4. SanPiN (Sanitary Regulations and Norms) 2.4.4.2599-10 Hygienic requirements for the arrangement, maintenance, and routine of the day children recreation organizations where children stay during their vacations.

5. SanPiN (Sanitary Regulations and Norms) 2.4.4.2605-10 Sanitary and Epidemiologic requirements for the arrangement, maintenance, and routine of the children recreation camping organizations where children stay during their vacations.

6. Hygienic requirements to the conditions, maintenance, and the routine of summer tent camps of different types: Sanitary and Epidemiologic rules and standards. Programs, agreements, job descriptions and training for personnel are formed by the current legislation.

Thus, the implementation of proactive and integrative environmental education and upbringing in organizations of children recreation and health improvement is regulated by national standards, rules, and regulations and implemented in accordance with the legislation of the Russian Federation.

8. Terms used in active pedagogy

8.1. *English – Russian dictionary of terminology used in the text*

academic education\training	теоретическая подготовка
academic program	учебная программа
accomplishment of goals	достижение целей
action learning	обучение действием
active learning pedagogies	педагогика активного обучения
active lifestyle	активный образ жизни
active standards of life	активная позиция
activ theoretical approach	деятельностный подход
to actualize events	актуализировать явления
Administrative Offenses Concerning Environment Protection and Wildlife Management	Административные правонарушения в области охраны окружающей среды и природопользования
adolescent	подросток
adventural education	приключенческая педагогика
adventural pedagogies	приключенческая педагогика
adventural wave	приключенческая волна
Adventure-based Counseling (ABC)	психологическое консультирование, основанное на использовании приключений
adverse effect	негативное воздействие
advertise healthy habits	проповедование здорового образа жизни
aesthetics (plural)	эстетика
age-appropriate pedagogies	педагогика учитывающая возрастные особенности учащегося
alcohol-containing products	содержащие алкоголь продукты
all age education	образование для всех
all-encompassing personal development	всеобъемлющее личностное развитие
amor patriae/nurturing love for the Motherland	воспитание любви к Родине

anthropocentrism	антропоцентризм
anthropological approach	антропологический подход
artificial motivation	искусственный стимул
attitudes	установки; жизненная позиция; настрой
authenticity	аутентичность
bearers of knowledge and ethics	носители знаний и этического опыта
behavioral model	тип поведения
biocentric approach	биоцентрический подход
biocentrism	биоцентризм
biodiversity	биоразнообразие
biological and landscape diversity	биологическое и ландшафтное разнообразие
briefing	краткий инструктаж
calquing	калькирование
cardiovascular system	сердечно-сосудистая система
career development system	система повышения квалификации
careerist/high flyer	карьерист
caring for the environment / commitment to Environmental Protection	любовь к окружающей природе
case studies	тематические исследования
challenging action	смелый шаг
Chief (Main) State sanitary inspector	главный государственный санитарный врач
children supplementary (further) education centers	центры дополнительного образования для детей
children('s) camp	детский лагерь
children's health	здоровье детей
children's center	детский центр
children's holiday camp	детский загородный лагерь
citizenship	гражданская позиция, гражданственность
clean environment	чистая окружающая среда
climate change	климатические изменения
cognitive learning	когнитивное обучение

cognitive work/activity	познавательная деятельность
collaboration of children	сотрудничество детей
communication factors	коммуникационные показатели
competence	компетентность
complete Gestalt	замкнуть Гештальт
complex thinking	целостное понимание
compulsory education	широкое общее образование
computer addiction	компьютерная зависимость
conceptual and perceptual mapping	концептуальные карты и карты восприятия
concerning the Protection of the Environment	имеющий отношение к охране окружающей среды
consciousness/self-consciousness	самосознание
conservation	консервационизм
conservation and recovery of the wild nature	сохранение и восстановление дикой природы
consumer lifestyle	потребительский образ жизни
consumerism	консюмеризм
contribution to	вклад в
cooperative/collaborative learning	коллаборативное обучение
corporate responsibility	корпоративная ответственность
corresponding member	член-корреспондент
counselor	вожатый
criticality of thinking	критичность мышления
cruising for a bruising	искать приключения
cultural and historical traditions	культурно-исторические традиции
cultural diversity	культурное многообразие
cultural heritage	культурное наследие
cut down trees	валить деревья
day camp	лагерь с дневным пребыванием
debrief/report	осмысление результата
debriefing	дебрифинг
declarative (explicit) memory	декларативная память
deductive reasoning	дедуктивный подход

deliver real life experience to children	обогащать жизненный опыт детей реальными впечатлениями
delivery of physical education	укреплять физическое здоровье детей
democracy and governance	демократия и управление
depletion of resources	исчерпание ресурсов
destruction of the biosphere	разрушение биосферы
developing adventure	развивающее приключение
development of respect for the natural environment	воспитание уважения к окружающей природе
diad	диада/пара
discussions	дискуссии
diving operations	подводные работы
diving technique	техника водолазная
diving training	подготовка водолазов
do-not-care attitude	безразличное отношение
early career guidance for adolescents	ранняя профориентация детей
ecocentrism	экоцентризм
ecofriendly education	природосообразная педагогика
ecological balance/equilibrium	экологическое равновесие
ecological culture	экологическая культура
ecological transgressions	экологическое правонарушение
ecological/environmental consciousness	экологическое сознание
ecologization	экологизация
ecology	экология
economic prosperity	экономическое благосостояние
education	образование
education for development	образование для развития
Education for Sustainable Development (ESD)	ОУР (образование для устойчивого развития)
Education for Sustainable Development/nature-aligned pedagogics	природосообразное воспитание, образование в интересах устойчивого развития
education professional	профессиональный преподаватель
educational drive drive(sl)/aspiration to knowledge	стремление к знаниям
educational institution	учебное заведение

educator	педагог
egocentrism; self-absorption; ego trip; self-obsession	эгоцентризм
emotional intelligence	эмоциональный интеллект
empathy	эмпатия
empirical approach	эмпирический подход
employment of children	трудоустройство детей
comprehensive development of a child	многосторонне развивать ребенка
ensure healthy lifestyle	пропагандировать здоровый образ жизни
environmental activist	деятель охраны природы
environmental activity	экологическая деятельность
environmental advertising	экологическая реклама
environmental agitation	экологическая агитация
environmental alarmism	экологический алармизм
environmental care	бережное отношение к природе
environmental competence	экологическая компетенция
environmental education	экологическое образование, энвайронментальное образование
environmental education center	эколого-просветительские учреждения
environmental Enlightenment	экологическое просвещение
environmental ethics/philosophy	экологическая нравственность
environmental expertise	экологическая компетентность
environmental literacy, ecological literacy, Eco literacy	экологическая грамотность
environmental pollution	загрязнение окружающей среды
environmental propaganda	экологическая пропаганда
environmental protection	охрана окружающей среды
environmental safety	экологическая безопасность
environmental thinking	экологическое мышление
environmental upbringing	экологическое воспитание
environmentalism	энвайронментализм
environmentology	энвайронментология
environment-oriented	природоохранный

equipment and rigs for diving	снаряжение для подводного плавания, альпинизма
essence of adventure	сущность приключения
esthetics	эстетика
ethical consumerism	этический консюмеризм
ethical egoism	альтруистический эгоизм
ethical/moral	этический
ethics	этичность, этика
ethics education	этическое воспитание
ethnic and denominational harmony	этническое и конфессиональное согласие
eustress	эустресс
excursions and outdoor learning	экскурсии и внеклассное обучение
expenses of time	затраты времени
experience	опыт
experience knowledge	опытное знание
experience-oriented education	опыто-ориентированное (опытное) обучение.
experiential education (EE)	экспериентальное образование (ЭО)
experiential learning	эмпирическое обучение
explanatory and illustrative approach	объяснительно-иллюстративный подход
extermination of animals	истребление дичи
factors of safety and comfort	показатели безопасности и комфортности
federal state educational standards	федеральные государственные образовательные стандарты
feedback and support	обратная связь и поддержка
feeling of social identity	социальная принадлежность к обществу
Flexible Pedagogies	адаптивная педагогика
focus	концентрация
force field analysis	теория психологического поля
forest destruction/deforestation	сведение (вырубка) лесов
formal education	традиционное образование
forms of learning	процессы научения

formulate effective mechanisms	сформировать действенные механизмы
to foster upbringing of responsibility for personal deeds to nature	стимулировать воспитание ответственности за свои поступки перед природой
Full Value Contract (FVC)	Договор о Полноценности
frustrate	подрывать веру в свои силы
further education	дополнительное образование
further education of children	дополнительное образование для детей
gaining experience	приобретение опыта
gender equality	равноправие полов
gnosis	гнозис
goals and objectives	цели и задачи
God's Law	Закон Божий
good practice analyses	анализ передового опыта
green PR	экологический пиар (связи с общественностью)
greening, planting, making more Eco-friendly, landscape and shade gardening	озеленение
ground food	экологическая пища
group discussion (GD)	групповая дискуссия
growth of national economy	рост национальной экономики
guarantee social stability	обеспечить социальную стабильность
guidance paper	методическая разработка
harmonious development of a child's personality	гармоничное развитие личности ребенка
health	здравоохранение
health development pedagogies	оздоровительная педагогика
healthy way of life	здоровый образ жизни
high school	средняя школа
hooliganism	хулиганские действия
hot stove effect	эффект раскаленной печи (перен.)
human rights	права человека
humane	гуманный
humanities/social science approach	гуманитарный подход

ideology of consumption	идеология потребления
illicit drug trafficking	незаконная торговля наркотиками
immersion experience	опыт погружения в другую языковую и социокультурную среду
improve the quality of work	поднять качество работы
in order to realize the right to life	в целях реализации права на жизнь
increase the mobilization potential	повысить мобилизационный потенциал
individual development	развитие личности
individual searching activity	собственная (личная) поисковая активность
information and communications technology (ICT)	информационно-коммуникационные технологии
information revolution	информационная революция
information saturation\information overload	информационное пресыщение
initiative	инициативность/инициативный
in other words	иными словами
instill	воспитывать/прививать что-либо
instill patriotism amongst the students by teachers	воспитывать патриотизм у детей руками учителей
Institute for the Harmonious Human Development	институт гармоничного развития человека
intact wild ecosystems	сохранность диких экосистем
integrated	комплексный
intellectual education	умственное воспитание
interaction with civil society	взаимодействие с гражданским обществом
internal control	внутренний контроль
interpret	толковать
interrelation	взаимодействие
inter-subject communications	межпредметные связи
joiner's workshop	столярная мастерская
junior scientific assistant	адъюнкт
justice	справедливость
knowledge	знания
knowledge accumulation	накопление знаний

knowledge acquisition	приобретение знаний
knowledge and skills transfer	передача знаний и навыков
laboratory researches	лабораторные занятия
lack of control	отсутствие контроля
law enforcement practice	правоприменительная практика
leadership	инициативность
learned knowledge	полученные знания
learner	учащийся
learner-driven projects	**1.** подготовка проектов, выполняемых учащимися **2**. проекты, выполненные учащимися
learning environment	**1.** учебное пространство **2.** среда обучения; условия обучения (место, время, и средства обучения); обстановка учебной работы
legislative framework	законодательная база
leisure services	рекреационные услуги, услуги в сфере досуга
liability to crime	восприимчивость к криминальной культуре
life experience	жизненный опыт
life experience of a child	жизненный опыт ребенка
livelihood, activity	жизнедеятельность
local history	краеведение
locksmithery/workshop	слесарные работы/мастерская
maintain the website	поддерживать сайт в рабочем состоянии
management of natural resources	природопользование
mark	ставить отметку, оценивать
mass media	СМИ
master thesis/dissertation	магистерская диссертация
material revision	закрепление материала
meeting of learning needs	удовлетворение потребностей в обучении
member states	государства–участники
memorized example	заученный образец
mental	умственный

methodological recommendations	методологические рекомендации
Ministry of Education	Министерство образования
modeling	моделирование
morality	нравственность
multi- and inter-disciplinary examination	многосторонний и междисциплинарный анализ
multidimensional phenomenon	многоплановый феномен
multidimensional situation analysis	многомерное осмысление ситуации
national culture	народная культура
National Diffusion Network	Департамент распространения передового опыта
national spirit education	народное воспитание
natural phenomena	природные явления
natural resources management	управление природными ресурсами
natural scientifical	естественнонаучный
natural scientifical training	естественнонаучная подготовка
natural taste for adventure	естественная тяга к приключениям
nature and society interconnections	взаимосвязь естественных и социальных процессов
nature conservation	охрана природы
Nature-Aligned Pedagogics	природоохранное воспитание и образование
negotiation	переговоры
non-classical secondary school	реальное училище
non-instructional upbringing	неназидательное воспитание
non-matriculated student	вольный слушатель
neuropsychology	нейропсихология
objective	объективный
oceanology	океанология
ongoing ecological education	непрерывное экологическое образование
ongoing environmental education	непрерывное экологическое образование
open the door to	открыть возможности для
others' experience	чужой опыт
out-of-door	под открытым небом; вне помещения
Outward Bound movement	Движение «Аутворд Баунд»

overcoming difficulties	преодоление трудностей
overnight camp	лагерь круглосуточного пребывания
overriding	преодоление
participatory, process and solution-oriented educational methods	образовательные методы, ориентированные на конкретные процессы и нахождение решений
passive urban life	пассивное времяпровождение в городской среде
peace education	образования для мирного сосуществования
pedagogical chain	педагогическая цепочка
pedagogical process	педагогический процесс
pedagogy /pedagogics	педагогика
perception	восприятие
perceptional factors	перцептивные показатели
permissiveness	вседозволенность
personal responsibility	чувство личной ответственности
personal advancement	личностный рост
phenomenal universum	феноменальный универсум
philosophical inquiry	философское осмысление
Physical Culture and Sports (PCS)	физическая культура и спорт
physical education	физическое воспитание
physical exercise	физические нагрузки
plan of adventural wave	план приключенческой волны
planning	планирование
polyvariant educational model	многовариантные модели обучения
popularize modern science	популяризация современной науки
poverty alleviation	сокращение масштабов нищеты
practice-oriented	практико-ориентированный
pragmatical arguments	прагматические аргументы
praxis	праксис
predetermined result	намеченный результат
preschooler	дошкольник
prevention of diseases	предотвращение заболеваний
prevention of threats to national security	предотвращения угроз национальной безопасности

proactive and integrative environmental education and upbringing (PIEEU)	деятельное экологическое образование и воспитание
proactive education	деятельное образование
problem solving	решение проблем
procedural (implicit) memory	процедурная память
process of progressive gaining of life experience	процесс активного приобретения собственного жизненного опыта
production and consumption patterns	структуры производства и потребления
progressive pedagogics	прогрессивная педагогика
Project Adventure	проект приключений
promotion of environmental awareness	распространение экологической осведомленности
proxemic factors	проксемические показатели
psychological	психологический
psychological disorder	психическое расстройство
psychological qualities	психологические качества
psychology of negotiations	психология переговоров
psychology of team cooperation	психология сплочения
psychopedagogy	психопедагогика
psychotropic substances	психотропные вещества
public education	народное образование
public health, health service	здравоохранение
public opinion	общественное мнение
public speaking skills	навыки публичного выступления
radical environmentalism	экологический радикализм
Radical Pedagogics	радикальная педагогика
real-life situations	ситуации реальной жизни
real-life-experience/RLE	реальный жизненный опыт
recreation camp, health improvement camp	оздоровительный лагерь
recreational scuba diving	дайвинг для активного отдыха и развлечений
reflection of experience	рефлексия опыта
reproducing of data from books	воспроизведении информации из книг
requirements for	требования к

research	научно-исследовательский
responsibility in local and global context	ответственность в локальном и глобальном контексте
responsible and conscientious freedom of choice	ответственная и осознанная свобода выбора
right to a healthy way of life	право на здоровый образ жизни
right to accessible education	право на доступное образование
right to cultural development	право на культурное развитие
right to health	право на здоровье
right to housing	право на жилье
right to security	право на безопасность
right to work	право на труд
rights and duties	права и обязанности
role playing and simulations	ролевые и имитационные игры
rural and urban development	развитие сельских и городских районов
rural school	сельская школа
Russian cosmism	космизм
safety	безопасность
sanitary and hygienic standards	санитарные и гигиенические стандарты
scenarios	сценарий (развития)
school break/vacation; winter/summer break/holiday (AmE)	каникулярное время
school farm (AmE) / smallholding (BrE)	приусадебное хозяйство
school governance	школьное самоуправление
schooling	обучение в средней школе
science adventure program (SAP)	научно-приключенческая программа
science education	естественнонаучное образование
sedentary education	сидячее образование
self-actualization	самоактуализация
self-belief	вера в свои силы
self-development of life experience	самостоятельное расширение жизненного опыта
self-improvement	самосовершенствование
self-reliance	самостоятельность

self-sufficient	самостоятельный
semantic factors	семантические показатели
semantic work	семантический труд
senior high school student	старшеклассник
service providers	организации, предоставляющие услуги
sewage treatment	очистка промышленных и бытовых стоков
social and psychological skills	социально-психологические навыки
social games-discussions	социальные игры-дискуссии
social inclusion	приобщение к (включение в) социальной жизни
social inequality	социальное неравенство
social intelligence	социальный интеллект
spatial intelligence	инструментальный интеллект
specialized camp	профильный лагерь
government	органы государственной власти
straightforward	однозначный
structure of learning programs	структура учебных программ
student construction gang/brigade	студенческие строительные отряды
student reflection	рефлексия со стороны обучаемого
subpanel	секция
substantive legal framework	нормативно-правовая основа
succeed in life	делать карьеру
sufficient information coverage and monitoring	достаточная информационная поддержка и контроль
supporting-motor apparatus	опорно-двигательная система
surveys/examination	обследование
Sustainable Education (SE), Education for Sustainability (EfS), and Education for Sustainable Development (ESD)	образование в интересах устойчивого развития
sustainable development	устойчивое развитие
sustainable management of natural resources	неистощительное использование ресурсов живой природы
sustainable use of natural resources	устойчивое природопользование
system of values	система ценностей

tailored to the learner	адаптированных к потребностям учащихся
teach practical activity	обучение практической деятельности
teacher's handbook	пособие для учителя
teaching literacy	обучение грамотности
teaching methods	методы преподавания
teaching staff	педагогический корпус
team debating	обсуждение в большом круге
team members	члены команды/отряда
teamwork skills	способности работать в команде
tent camping	палаточный лагерь
the crisis of social and human values	кризис социальных ценностей
the world around us; outward things; the outside world; the world around	окружающий мир
theological education	религиозное образование
theoretical foundation	теоретическое обоснование
thinking capacity	мыслительные способности
thirst for knowledge	тяга к знаниям
time-consuming	требующий большого количества времени
to dismiss a group	распустить группу
tonus	тонус
tourism services	туристические услуги
Traditional Didactic Education (TDE)	традиционное дидактическое обучение (ТДО)
traditional focus on specific subjects	традиционный акцент на преподавание отдельных предметов
traditional method	традиционный метод
training agenda	расписание учебных занятий
treasured teaching device	ценный инструмент обучения и воспитания
trial and error method	метод проб и ошибок
uncomprehending	непонимающий /не могущий взять в толк
uncontrolled growth of population	неудержимый рост народонаселения
underaged	несовершеннолетний

UNECE Strategy for Education for Sustainable Development	Стратегия Европейской экономической комиссии ООН для образования в интересах устойчивого развития
usefulness to others	польза для окружающих
utilitarian and practical ideas	утилитарно-практический характер
value clarification	разъяснение ценностных категорий
value factors	ценностные показатели
vandalism	вандализм
variability of thinking	вариативность мышления
verbal intelligence	вербальный интеллект
visitor center	визит-центр
visual material	наглядное пособие
vocational education and training	профессиональное образование
vocational school	учебное заведение среднего специального образования, профессиональная ремесленная школа, профессиональная школа
waste recycling	вторичная переработка
wide range	широкий диапазон
work practice\field trip\production practice	производственная практика
workplace experience	изучение опыта приобретенного на производстве
World Declaration of the Survival, Protection and Development of Children	Всемирная декларация об обеспечении выживания, защиты и развития детей
world-view	мировоззрение
youth & children camp	лагерь для детей и подростков

8.2. *Russian – English dictionary of terminology used in the text*

адаптивная педагогика	Flexible Pedagogics
адаптированных к потребностям учащихся	tailored to the learner
Административные правонарушения в области охраны окружающей среды и природопользования	Administrative Offenses Concerning Environment Protection and Wildlife Management
адъюнкт	junior scientific assistant
активная позиция	active standards of life
активный образ жизни	active lifestyle
актуализировать явления	to actualize events
альтруистический эгоизм	ethical egoism
анализ передового опыта	good practice analyses
антропологический подход	anthropological approach
антропоцентризм	anthropocentrism
аутентичность	authenticity
безопасность	safety
безразличное отношение	do-not-care attitude
бережное отношение к природе	environmental care
биологическое и ландшафтное разнообразие	biological and landscape diversity
биоразнообразие	biodiversity
биоцентризм	biocentrism
биоцентрический подход	biocentric approach
в целях реализации права на жизнь	in order to realize the right to life
валить деревья	cut down trees
вандализм	vandalism
вариативность мышления	variability of thinking
вера в свои силы	self-belief
вербальный интеллект	verbal intelligence
веревочная преграда	rope course
вестник	herald
взаимодействие	interrelation

взаимодействие с гражданским обществом	interaction with civil society
взаимосвязь естественных и социальных процессов	nature and society interconnections
визит-центр	visitor center
вклад в	contribution to
внутренний контроль	internal control
вожатый	counselor
вольный слушатель	non-matriculated student
воспитание любви к Родине	amor patriae/nurturing love for the Motherland
воспитание ответственности за свои поступки перед природой	foster responsibility for personal deeds to nature
воспитание уважения к окружающей природе	development of respect for the natural environment
воспитывать патриотизм у детей руками учителей	instill patriotism amongst the students by teachers
воспитывать\прививать что-либо	instill
восприимчивость к криминальной культуре	liability to crime
восприятие	perception
воспроизведении информации из книг	reproducing of data from books
вседозволенность	permissiveness
Всемирная декларация об обеспечении выживания, защиты и развития детей	World Declaration of the Survival, Protection and Development of Children
всеобъемлющее личностное развитие	all-encompassing personal development
вторичная переработка	waste recycling
гармоничное развитие личности ребенка	harmonious development of a child's personality
главный государственный санитарный врач	Chief (Main) State sanitary inspector
гнозис	gnosis
государства-участники	member states
гражданская позиция, гражданственность	citizenship
групповая дискуссия	group discussion (GD)

гуманитарный подход	humanities/social science approach
гуманный	humane
дайвинг для активного отдыха и развлечений	recreational scuba diving
движение "Аутворд Баунд"	Outward Bound movement
дебрифинг	debriefing
дедуктивный подход	deductive reasoning
декларативная память	declarative (explicit) memory
делать карьеру	succeed in life
демократия и управление	democracy and governance
Департамент распространения передового опыта	National Diffusion Network
детский загородный лагерь	children's holiday camp
детский лагерь	children('s) camp
детский центр	children's center
деятель охраны природы	environmental activist
деятельное образование	proactive education
деятельное экологическое образование и воспитание	proactive and integrative environmental education and upbringing (PIEEU)
деятельностный подход	activ theoretical approach
диада/пара	diad
дискуссии	discussions
договор о Полноценности	Full Value Contract (FVC)
дополнительное образование	further education
дополнительное образование для детей	further education of children
достаточная информационная поддержка и контроль	sufficient information coverage and monitoring
достижение целей	accomplishment of goals
дошкольник	preschooler
естественная тяга к приключениям	natural taste for adventure
естественнонаучная подготовка	natural scientifical training
естественнонаучное образование	science education
естественнонаучный	natural scientifical
жизнедеятельность	livelihood, activity
жизненный опыт	life experience

жизненный опыт ребенка	life experience of a child
загрязнение окружающей среды	environmental pollution
Закон Божий	God's Law
законодательная база	legislative framework
закрепление материала	material revision
замкнуть гештальт	complete Gestalt
затраты времени	expenses of time
заученный образец	memorized example
здоровый образ жизни	healthy way of life
здоровье детей	children's health
здравоохранение	health
здравоохранение	public health, health service
знания	knowledge
идеология потребления	ideology of consumption
изучение опыта приобретенного на производстве	workplace experience
имеющий отношение к охране окружающей среды	concerning the Protection of the Environment
инициативность	initiative
инициативность	leadership
институт гармоничного развития человека	Institute for the Harmonious Human Development
инструментальный интеллект	spatial intelligence
информационная революция	information revolution
информационно-коммуникационные технологии	information and communications technology (ICT)
информационное пресыщение	information saturation\information overload
иными словами	in other words
искать приключения	cruising for a bruising
искусственный стимул	artificial motivation
истребление дичи	extermination of animals
исчерпание ресурсов	depletion of resources
калькирование	calquing
каникулярное время	school break/vacation; winter/summer break/holiday (AmE)
карьерист	careerist/high flyer

климатические изменения	climate change
когнитивное обучение	cognitive learning
коллаборативное обучение	cooperative/collaborative learning
коммуникационные показатели	communication factors
компетентность	competence
комплексный	integrated
компьютерная зависимость	computer addiction
консервационизм	conservation
консюмеризм	consumerism
концентрация	focus
концептуальные карты и карты восприятия	conceptual and perceptual mapping
корпоративная ответственность	corporate responsibility
космизм	Russian cosmism
краеведение	local history
краткий инструктаж	briefing
кризис социальных ценностей	the crisis of social and human values.
критичность мышления	criticality of thinking
культурно-исторические традиции	cultural and historical traditions
культурное многообразие	cultural diversity
культурное наследие	cultural heritage
лабораторные занятия	laboratory researches
лагерь для детей и подростков	youth & children camp
лагерь круглосуточного пребывания	overnight camp
лагерь с дневным пребыванием	day camp
личностный рост	personal advancement
любовь к окружающей природе	caring for the environment \ commitment to Environmental Protection
магистерская диссертация	master thesis/dissertation
межпредметные связи	inter-subject communications
метод проб и ошибок	trial and error method
методическая разработка	guidance paper
методологические рекомендации	methodological recommendations
методы преподавания	teaching methods
Министерство образования	Education Department

мировоззрение	world-view
многовариантные модели обучения	polyvariant educational model
многомерное осмысление ситуации	multidimensional situation analysis
многоплановый феномен	multidimensional phenomenon
многосторонне развивать ребенка	comprehensive development of a child
многосторонний и междисциплинарный анализ	multi- and inter-disciplinary examination
моделирование	modeling
мыслительные способности	thinking capacity
навыки публичного выступления	public speaking skills
наглядное пособие	visual material
накопление знаний	knowledge accumulation
намеченный результат	predetermined result
народная культура	national culture
народное воспитание	national spirit education
народное образование	public education
научно-исследовательский	research
научно-приключенческая программа	science adventure program (SAP)
негативное воздействие	adverse effect
незаконная торговля наркотиками	illicit drug trafficking
неистощительное использование ресурсов живой природы	sustainable management of natural resources
нейропсихология	neuropsychology
неназидательное воспитание	non-instructional upbringing
непонимающий/не могущий взять в толк	uncomprehending
непрерывное экологическое образование	ongoing ecological education
непрерывное экологическое образование	ongoing environmental education
несовершеннолетний	underaged
неудержимый рост народонаселения	uncontrolled growth of population
нормативно-правовая основа	substantive legal framework
носители знаний и этического опыта	bearers of knowledge and ethics

нравственность	morality
об охране окружающей среды	Concerning the Protection of the Environment
обеспечить социальную стабильность	guarantee social stability
обогащать жизненный опыт детей реальныи впечатлениями	deliver real life experience to children
образование	education
образование в интересах устойчивого развития (ОУР)	Sustainable Education (SE), Education for Sustainability (EfS), and Education for Sustainable Development (ESD)
образование для всех	all age education
образование для развития	education for development
образование для мирного сосуществования	peace education
образовательные методы, ориентированные на конкретные процессы и нахождение решений	participatory, process and solution-oriented educational methods
обратная связь и поддержка	feedback and support
обследование	surveys/ examination
обсуждение в большом круге	team debating
обучение в средней школе	schooling
обучение грамотности	teaching literacy
обучение действием	action learning
обучение практической деятельности	teach practical activity
общественное мнение	public opinion
объективный	objective
Объяснительно-иллюстративный подход	explanatory and illustrative approach
однозначный	straightforward
оздоровительная педагогика	health development pedagogies
оздоровительный лагерь	recreation camp, health improvement camp
озеленение	greening, planting, making more Eco-friendly, landscape and shade gardening
океанология	oceanology
окружающий мир	the world around us; outward things; the outside world; the world around

опорно-двигательная система	supporting-motor apparatus
опыт	experience
опыт погружения в другую языковую и социокультурную среду	immersion experience
опытное знание	experience knowledge
опыто-ориентированное (опытное) обучение.	experience-oriented education
организации предоставляющие услуги	service providers
органы государственной власти	government
осмысление результата	debrief/report
осознанный \предполагаемый риск	perceived risk
ответственная и осознанная свобода выбора	responsible and conscientious freedom of choice
ответственность в локальном и глобальном контексте	responsibility in local and global context
открыть возможности для	open the door to
отсутствие контроля	lack of control
ОУР (образование для устойчивого развития)	ESD (Education for Sustainable Development)
охрана окружающей среды	environmental protection
охрана природы	nature conservation
очистка промышленных и бытовых стоков	sewage treatment
палаточный лагерь	tent camping
пассивное времяпровождение в городской среде	passive urban life
педагог	educator
педагогика	pedagogy /pedagogics
педагогика активного обучения	active learning pedagogies
педагогика учитывающая возрастные особенности учащегося	age-appropriate pedagogies
педагогическая цепочка	pedagogical chain
педагогический корпус	teaching staff
педагогический процесс	pedagogical process
переговоры	negotiation
передача знаний и навыков	knowledge and skills transfer

перцептивные показатели	perceptional factors
план приключенческой волны	adventural wave plan
планирование	planning
повысить мобилизационный потенциал	increase the mobilization potential
под открытым небом; вне помещения	out-of-door
подводные работы	diving operations
подготовка водолазов	diving training
подготовка проектов, выполняемых учащимися	learner-driven projects
поддерживать сайт в рабочем состоянии	maintain the website
поднять качество работы	improve the quality of work
подросток	adolescent
подрывать веру в свои силы	frustrate
познавательная деятельность	cognitive work/activity
показатели безопасности и комфортности	factors of safety and comfort
полученные знания	learned knowledge
польза для окружающих	usefulness to others
популяризация современной науки	popularize modern science
пособие для учителя	teacher's handbook
постановка произношения	teaching pronunciation
потребительский образ жизни	consumer lifestyle
права и обязанности	rights and duties
права человека	human rights
право на безопасность	right to security
право на доступное образование	right to accessible education
право на жилье	right to housing
право на здоровый образ жизни	right to a healthy way of life
право на здоровье	right to health
право на культурное развитие	right to cultural development
право на труд	right to work
правоприменительная практика	law enforcement practice
прагматические аргументы	pragmatical arguments

праксис	praxis
практико-ориентированный	practice-oriented
предотвращение заболеваний	prevention of diseases
предотвращения угроз национальной безопасности	prevention of threats to national security
преодоление	**overriding**
преодоление трудностей	overcoming difficulties
приключенческая волна	adventural wave
приключенческая педагогика	**1.** adventural education **2.** adventural pedagogics
принадлежность к обществу	feeling of social unity
приобретение знаний	knowledge acquisition
приобретение опыта	gaining experience
приобщение к (включение в) социальной жизни	social inclusion
приподнятое состояние духа	elation
природные явления	natural phenomena
природоохранное воспитание и образование	Nature-Aligned Pedagogics
природоохранный	environment-oriented
природопользование	management of natural resources
природосообразная педагогика	ecofriendly education
природосообразное воспитание (образование в интересах устойчивого развития)	Education for Sustainable Development/nature-aligned pedagogics
приусадебное хозяйство	school farm (AmE) /smallholding (BrE)
проводить профилактику вредных привычек	advertise healthy habits
прогрессивная педагогика	progressive pedagogics
продукты содержащие алкоголь	alcohol-containing products
проект приключений	Project Adventure
проекты выполненные учащимися	learner-driven projects
производственная практика	work practice\field trip\production practice
проксемические показатели	proxemic factors
проповедовать здоровый образ жизни	ensure/advertise healthy lifestyle
профессиональное образование	vocational education and training

профессиональный преподаватель	education professional
профильный лагерь	specialized camp
процедурная память	procedural (implicit) memory
процесс активного приобретения собственного жизненного опыта	process of progressive gaining of life experience
процессы научения	forms of learning
психическое расстройство	psychological disorder
психологические качества	psychological qualities
психологический	psychological
психологическое консультирование основанное на использовании приключений	Adventure-based Counseling (ABC)
психология переговоров	psychology of negotiation
психология сплочения	psychology of team cooperation
психопедагогика	psychopedagogy
психотропные вещества	psychotropic substances
равноправие полов	gender equality
радикальная педагогика	Radical Pedagogics
развивающее приключение	developing adventure
развитие личности	individual development
развитие сельских и городских районов	rural and urban development
разрушение биосферы	destruction of the biosphere
разъяснение ценностных категорий	value clarification
ранняя профориентация детей	early career guidance for adolescents
расписание учебных занятий	training agenda
распространение экологической осведомленности	promotion of environmental awareness
распустить группу	to dismiss a group
реальное училище	non-classical secondary school
реальный жизненный опыт	real-life-experience/RLE
рекреационные услуги, услуги в сфере досуга	leisure services
религиозное образование	theological education
рефлексия со стороны обучаемого	student reflection
рефлексия опыта	reflection of experience

решение проблем	problem solving
ролевые и имитационные игры	role playing and simulations
рост национальной экономики	growth of national economy
самоактуализация	self-actualization
самосовершенствование	self-improvement
самосознание	consciousness/self-consciousness
самостоятельное расширение жизненного опыта	self-development of life experience
самостоятельность	self-reliance
самостоятельный	self-sufficient
санитарные и гигиенические стандарты	sanitary and hygienic standards
сведение (вырубка) лесов	forest destruction
секция	subpanel
сельская школа	rural school
семантические показатели	semantic factors
семантический труд	semantic work
сердечно-сосудистая система	cardiovascular system
сидячее образование	sedentary education
система повышения квалификации	career development system
система ценностей	system of values
ситуации реальной жизни	real-life situations
слесарные работы/ мастерская	locksmithery/workshop
смелый шаг	challenging action
СМИ	mass media
снаряжение для подводного плавания, альпинизма	equipment and rigs for diving
собственная (личная) поисковая активность	individual searching activity
сокращение масштабов нищеты	poverty alleviation
сотрудничество детей	collaboration of children
сохранение и восстановление дикой природы	conservation and recovery of the wild nature
сохранность диких экосистем	intact wild ecosystems
социально-психологические навыки	social and psychological skills

социальное неравенство	social inequality
социальные игры-дискуссии	social games-discussions
социальный интеллект	social intelligence
способности работать в команде	teamwork skills
справедливость	justice
справедливость	justice
среда обучения; условия обучения (место, время, и средства обучения); обстановка учебной работы	learning environment
средняя школа	high school
ставить отметку, оценивать	mark
старшеклассник	senior high school student
стимулировать воспитание ответственности за свои поступки перед природой	to foster upbringing of responsibility for personal deeds to nature
столярная мастерская	joiner's workshop
Стратегия Европейской экономической комиссии ООН для образования в интересах устойчивого развития	UNECE Strategy for Education for Sustainable Development
стремление к знаниям	educational drive(sl) /aspiration to knowledge
структура учебных программ	structure of learning programs
структуры производства и потребления	production and consumption patterns
студенческие строительные отряды	student construction gang/brigade
сущность приключения	essence of adventure
сформировать действенные механизмы	formulate effective mechanisms
сценарий (развития)	scenarios
ТДО (традиционное дидактическое обучение)	TDE (Traditional Didactic Education)
тематические исследования	case studies
теоретическая подготовка	academic education\training
теоретическое обоснование	theoretical foundation
теория психологического поля	force field analysis
техника водолазная	diving technique

тип поведения	behavioral model
толковать	interpret
тонус	tonus
традиционное образование	formal education
традиционный акцент на преподавание отдельных предметов	traditional focus on specific subjects
традиционный метод	traditional method
требования к	requirements for
требующий большого количества времени	time-consuming
трудоустройство детей	employment of children
туристические услуги	tourism services
тяга к знаниям	thirst for knowledge
удовлетворение потребностей в обучении	meeting of learning needs
укреплять физическое здоровье детей	delivery of physical education
умственное воспитание	intellectual education
умственный	mental
управление природными ресурсами	natural resources management
установки; жизненная позиция; настрой	attitudes
устойчивое природопользование	sustainable use of natural resources
устойчивое развитие	sustainable development
утилитарно-практический характер	utilitarian and practical ideas
учащийся	learner
учебная программа	academic program
учебное заведение	educational institution
учебное заведение среднего специального образования, профессиональная ремесленная школа, профессиональная школа	vocational school
учебное пространство	learning environment
федеральные государственные образовательные стандарты	federal state educational standards

феноменальный универсум	phenomenal universum,
физическая культура и спорт	Physical Culture and Sports (PCS)
физические нагрузки	physical exercise
физическое воспитание	physical education
философское осмысление	philosophical inquiry
хулиганские действия	hooliganism
цели и задачи	goals and objectives
целостное понимание	complex thinking
ценностные показатели	value factors
ценный инструмент обучения и воспитания	treasured teaching device
центры дополнительного образования для детей	children supplementary (further) education centers
чистая окружающая среда	clean environment
член-корреспондент	corresponding member
члены команды/отряда	team members
чувство личной ответственности	personal responsibility
чужой опыт	others' experience
широкий диапазон	wide range
широкое общее образование	compulsory education
школьное самоуправление	school governance
эгоцентризм	egocentrism; self-absorption; ego trip; self-obsession
экологизация	ecologization
экологическая агитация	environmental agitation
экологическая безопасность	environmental safety
экологическая грамотность	environmental literacy, ecological literacy, Eco literacy
экологическая деятельность	environmental activity
экологическая компетентность	environmental expertise
экологическая компетенция	environmental competence
экологическая культура	ecological culture
экологическая нравственность	environmental ethics/philosophy
экологическая пища	ground food
экологическая пропаганда	environmental propaganda
экологическая реклама	environmental advertising
экологический алармизм	environmental alarmism

экологический пиар (связи с общественностью)	green PR
экологический радикализм	radical environmentalism
экологическое воспитание	environmental upbringing
экологическое мышление	environmental thinking
экологическое образование, энвайронментальное образование	environmental education
экологическое правонарушение	ecological transgressions
экологическое просвещение	environmental Enlightenment
экологическое равновесие	ecological balance/equilibrium
экологическое сознание	ecological/environmental consciousness
экология	ecology
эколого-просветительские учреждения	environmental education center
экономическое благосостояние	economic prosperity
экоцентризм	ecocentrism
экскурсии и внеклассное обучение	excursions and outdoor learning
экспериентальное образование	experiential education
эмоциональный интеллект	emotional intelligence
эмпатия	empathy
эмпирический подход	empirical approach
эмпирическое обучение	experiential learning
энвайронментализм	environmentalism
энвайронментология	environmentology
ЭО (экспериентальное образование)	Experiential Education (EE)
эстетика	aesthetics (plural)
эстетика	esthetics
этический	ethical/moral
этический консюмеризм	ethical consumerism
этическое воспитание	ethics education
этичность, этика	ethics
этническое и конфессиональное согласие	ethnic and denominational harmony
эустресс	eustress
эффект раскаленной печи (перен.)	hot stove effect

Afterword

Dear reader!

You can see Brian Kunz's invitation to Lomonosov Moscow State University.

It was the first important step to development of Proactive and Integrative Environmental Education.

This allowed to gather of friends and like-minded people to do the best, you had read before.

President James O. Freedman *22 February 1990*
207 Parkhurst Hall
Dartmouth College
USA

Dear Mr. President!

In recent years an intensive program of student exchanges between Moscow State University and Dartmouth College has been established. During the 1988 summer term a group of Soviet students participating on this exchange had the opportunity to attend four sessions of the "Ropes Course" run by Brian Kunz (Assistant Director of Outdoor Programs at Dartmouth). There they became acquainted with a promising method of instruction in which students obtain experience in working and communicating in small groups; in the United States this method is referred to as "experiential education." In July of 1989 Brian Kunz came to Moscow State University for a short visit, during which he gave a lecture and taught a sample lesson. That same day he met with me for a discussion, during which we talked about the possibility of inviting him to Moscow.

Taking into account the significant achievements attained by the psychology-based methods of instruction that lie at the root of the "experiential education" courses, and also the positive results which have been attained by their use at the early stages of instruction at American universities, Moscow University considers it worthwhile to become more closely connected with the theoretical and practical aspects of experiential education.

In connection with this, the Rectorate of Moscow State University is inviting Mr. Brian Kunz to serve as a lecturer at the university for a period of two months, in May and June, 1990. The expenses connected with Mr. Kunz's stay at the university as a lecturer will be assumed by Moscow University. We are asking Mr. Kunz to give a series of lectures in May of 1990 on the theory and practice of experiential education for teachers, graduate students, and undergraduates in the humanities and natural science departments at Moscow State University, and also for employees of the State Committee on Education, the Ministry of Health, the Children's Fund, and other agencies. In June of 1990, during the summer practicum for students in Moscow State University's department of biology and geology, Mr. Kunz will be given the opportunity to conduct practical lessons at the Zvenigorod Biological Research Station of Moscow State University.

We view the invitation of Brian Kunz as an important step in bringing the forms and methods of instruction used in each country closer together. Mr. Brian Kunz will be given the opportunity to become acquainted with the current achievements of psychological investigations in the field of pedagogy, which are being conducted in both humanities and natural science departments at Moscow State University.

In concluding this official invitation we would once more like to express our conviction that contacts between Moscow University and Dartmouth College will foster progress in the field of education in both countries and promote mutual understanding between the peoples of the USSR and USA.

Sincerely yours,

V.I. Tropin
Pro-rector of Moscow State University for International Affairs

Thinking about the results of our work, different events, dates, meetings with wonderful people, using the fasilities of different children camps and centers, we would like to express our profound gratitude to all those people and organizations who have understood the necessity of the PIEEU development, who helped us to create the Russian pedagogical framework for it. The framework that provides the possibility to build a new environmentally thinking generation. They are:

M.V. Lomonosov's Moscow State University and Moscow State University of Psychology and Education provided the pedagogical stuff for the PIEEU programs; Newfound Harbor Marine Institute (NHMI) of Seacamp Association arranged the unique opportunity for dozens of experts from Russia and CIS to undertake an internship on their facilities.

Children recreation camp "Kavkaz", "Lesnaya Skazka", "Energetic", Federal children recreation and education center "Smena", "Okean", "Orlenok", and International Center "Artek" were the testing grounds for our PIEEU programs.

We dedicate the multi-authored monograph to our teachers and mentors, students and graduates, collegues and employees. To those who make the one collective effort for the greater good of our country and the whole Planet:

Lubov Yevseyevna Tikhomirova and *Iraida Sergeyevna Tikhomirova*, school teachers, who dedicated their lives and diligence to children instilling environmental thinking into them.

Irene Hooper and *Grace Upshaw* executive directors of "Seacamp Association" (USA) shared with us their experience in proactive marine education which was applied in children sea camps.

Elena Anatolyevna Istomina, the creator of the "Seacamp" (USA) based international program for environmental education children camps managers and teachers; we thank Elena Anatolyevna for introducing us to new experiences during her classes.

Ludmila Savelyevna Ledneva, the CEO of children recreation camp "Kavkaz" who welcomed the idea of creating the marine science adventure program "Sea teaches everything" with great enthusiasm and took the liberty to launch it in her camp for hundreds of thousands of children from all around Russia.

Nikolay Egorovich Ivanyushkin and *Natalya Nikolayevna Ivanyushkina*, the directors of Federal Children Recreational and Educational Center "Smena"; "Smena" is like a large town serving one purpose – to provide children with education and health promotion. They gave us the possibility to organize the unique, profound science adventural program in Russia. It is located in the extraordinary place, at the edge of "Bolshoy Utrish" special nature reserve. They had managed to host all the great personnel and equipment, providing us with the swimming pool, climbing wall, beach, and let us teach various subjects program.

Pavel Ivanovich Krasnorutsky and *Leonid Pavlovich Krasnorutsky*, the CEOs of Children Recreation Camp "Energetik" authorized the possibility to continue our work and create new models by applying proactive environmental education methods.

We appreciate the invaluable help of all the professionals, we were happy to cooperate, work, and study with them. They are:

- *Igor Pavlovich Yermakov,* doctor of biological science, professor, Deputy Dean of biological faculty of the dean of biological faculty of Lomonosov Moscow State University,chief of plant physiology department

- *Boris Borisovich Gusev* and *Alexander Vasilyevich Djeus* who held the CEO position of Russian Children Centre "Orlyonok"; they contributed a lot to our marine science adventural program of proactive environmental education.
- *Tatyana Yemelyanovna Zimina,* Children Sport and Health Camp "Kavkaz" deputy CEO gave a lot of effort towards the organization of the "Sea teaches everything" program; she defended her Ph.D. thesis dedicated to children environmental education in recreation camp.
- *Valery Timofeyevich Marzoyev* and *Eteri Vakhtangovna Marzoyeva*, leaders of Russian National Children Centre "Ocean" helped to introduce the "Sea teaches everything" program in the Sea of Japan of the Primorye Territory.
- *Olga Pavlovna Torgovkina*, ex-director of Children Recreation Camp "Lesnaya Skazka" helped to start the program "The forest is full of knowledge"; she is a leading administrator of Mari-El Republic President at the moment
- *Danièle Mercier* and *André Laban*, members of the Cousteau team, promoted children diving in Russia for many years.
- *Valery Grigoryevich Papunov*, the director of the operational center of International Institute of Ocean, has arranged many children marine expeditions and created the diving department of science adventure programs.
- *Vitaliy Vladimirovich Rubtsov*, a member of the Russian Academy of Education, rector of MSUPE (Moscow State University of Psychology and Education), and the director of Psychological Institute of Russian Academy of Education, supported the development of psychological and pedagogical aspects of proactive education.
- *Mikhail Yuriyevich Kondratyev*, the corresponding member of the Russian Academy of Education, the dean of MSUPE social psychologal school has provided valuable assistance in managing the programs.
- *Nikolay Nikolayevich Marfenin,* doctor of biological science, professor of biological faculty of Lomonosov Moscow State University.
- *Dmitriy Nikolayevich Kavtaradze,* doctor of biological science, professor of biological faculty of Lomonosov Moscow State University.
- *Valeriy Fyodorovich Domashev* and *Victor Georgiyevich Karelin* - engeneers-explorers dedicated their lives to development of Russian and Soviet Cosmonautic.
- Sergey Wasilyevich Avdeyev, the hero of Russia,a cosmonaut, ex-champion of the world being on the orbit
- *Heide Whelan,* a professor of Dartmouth college.
- *Richard Bakal*, a president of American charity fund, he helped to develop programs in Russia in financial way.

We also remember those who are no longer with us but dedicated a substantial portion of their lives to the development of environmental education in our children programs. They are: *Alexey Yuryevich Solovyov*, CEO of the "Shtormovoy" camp; *Evgeniy Evgenyevich Gavrilenko*, one of the creators of the science adventural program; *Mikhail Viktorovich,Gusev* the dean of MSU biological department and developer of our ecological programs; *Vadim Nikolayevich Tikhomirov* and *Konstantin Semyonovich Bourdin*, promoters of the ecological programs during their initial stages; *Natalya Igorevna Popova*, one of the chief leaders of the "Leisure and Learning with Pleasure" scientific department.

We would like to express our profound gratitude to all the people who have contributed to the implementation of our science adventure programs, – instructors, counselors, administrators, courses program developers, rope labyrinth constructors, microscope slides, diving equipment service engineers, purchasing managers, performers and

entertainers, yachtsmen and many, many others who did their best to ensure that the children got a unique life experience, gained immense knowledge and acquired new skills as they let children engage in "Leisure and Learning with Pleasure"!

Finally, we would like to thank our students, the most beautiful, cheerful and the kindest children – for filling our camps with life, interest, respect and hope. We also would like to express gratitude to the children's parents who care so much about their development; about new generation forms a new pillar of the society.

Alexander N. Kamnev

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