Guidelines for the

Launching of the UNESCO/IITE Pilot Project

“Learning for the Future” (LFF)

- Information and Communication Technology (ICT)
- Education for Sustainable Development (ESD)
- New Humanism (NH)

UNESCO/IITE

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Acronyms

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Introduction

In recent years our way of working, our way of living, and our way of interacting have been dramatically transformed due to the digital revolution. Information and communication technology (ICT) is seriously and constantly impacting on our daily lives. Cellular telephones, computers, the Internet, Google, social networks such as Facebook, twitter, electronic games, etc. have, and continue to alter seriously and profoundly the entire spectrum of our daily lives—from work to recreation, from communication to management, and from research to consumerism. The effective use of ICT has become a new indicator of economic progress and shaping Knowledge Societies which have become the new benchmark for development and prosperity.

Yet, what has been the impact of ICT at school? How has it affected the learning process and the professional development of teachers? In reality, a substantial gap has been created, in many countries around the world, between the use of ICT in practically all spheres of day-to-day living and its use in the classroom. Hence, the UNESCO Institute for Information Technologies Education (IITE) is keen to launch a new and innovative Pilot Project which will enable schools not only to keep abreast of what is occurring in society, but to play a more pro-active role in preparing students and schools not only for the present but equally for the future. In this increasingly and ultra-rapidly becoming digitalized world, schools can no longer remain on the sidelines. Therefore, no more time can be spared for the effective integration of ICT in order to improve pedagogy and the quality of education, strengthen the professional development of teachers, enhance school infrastructures, improve school administration and develop networking between schools—both locally and globally.

"...information and communication technologies have the potential to increase knowledge and to contribute to building educated and engaged populations worldwide." (Open Educational Resources, UNESCO, p.15)

One might ask the question--why the term ‘learning for the future’ (LFF)? Until fairly recently, the future always seemed to be somewhat distant. However, due to massive technological and electronic advances the future has come much closer to us and is now practically on our doorstep. Hence, education has to keep pace with constant change and transformations or it risks falling far behind. Therefore, one can no longer promote quality education from a static perspective. One has to constantly take into account the needs of today and the fast approaching tomorrow--thus the term ‘learning for the future’ (LFF).

Access to education for all (EFA) remains the number one priority of UNESCO, but it must be accompanied by the provision of quality education (EFA Goal #6). Education has to respond to the new challenges and opportunities offered by the third millennium and it has to fully incorporate the four pillars of learning defined by the UNESCO International Commission on Education for the 21st Century i.e. learning to know, learning to do, learning to be and learning to live together!
ICT can make a major contribution to strengthen each of these much needed pillars of education for survival in this century and in this ever challenging decade. Hence, the Pilot Project will focus on three main features:

i) effective integration of ICT in teaching and learning

ii) reinforcement of education for sustainable development (ESD), and

iii) education for a new humanism.

It should be kept in mind that a number of countries have already taken extensive measures to incorporate ICT in their systems of education. Malaysia and its multi-million dollar SMART School concept is an interesting example. Unlike many other ICT initiatives, this one is a major Government led operation which aims to integrate ICT in both teaching and learning. In its first phase (1997-2002) a pilot group of 87 selected schools was made with emphasis on four main subjects. Schools received ICT tools, training opportunities for teachers, and new digital learning software. It was planned to extend the SMART School concept to all of Malaysia’s 9,000 schools in 2010.

Another striking example for integrating ICT in education is the case of the Republic of Korea. Through the implementation of three ICT Master Plans (1996-2010), substantial progress was achieved in bridging the digital divide amongst schools throughout the country. Enormous strides were made in all fields—teacher training, monitoring and evaluation, national standards for e-learning and ensuring a safe and sound cyberspace in the field of education. The Rep. of Korea is another showcase for ICT policy and implementation in education.

However, such approaches require massive investments which some countries find difficulties in doing so in this time of recession and financial insecurity. Furthermore, it is necessary to secure a well balanced approach to the integration of ICT in education and there is the need for further experimentation prior to taking such an initiative to scale.

“The only thing more expensive than education is ignorance.” Benjamin Franklin, philosopher and inventor

Therefore the UNESCO/IITE (UNESCO’s only Institute with a mandate in information technologies for education) has taken special care to design the LFF Pilot Project in a reasonable way but with optimum expected results. In order to facilitate and enhance the implementation of this bold and vital Pilot Project, the IITE is calling upon two of UNESCO’s major networks—the Associated Schools Project Network (ASPnet) and UNESCO Chair Holders to serve as the main vehicle and support for the intended Project.

Ever since its inception in 1953, ASPnet has advocated project based learning (pbl). Time and again the Network has proven its capacity to mobilize schools to: improve the content and relevance of education, develop new and interactive educational methodology, produce innovative educational resource materials and strengthen the humanistic and ethical dimensions of education. Many successful pilot projects have been conducted worldwide through ASPnet. Projects have addressed such
critical issues as a culture of peace, sustainable development, intercultural dialogue, and World Heritage education. ASPnet strives to respond to the needs and priorities of education and to prepare children and young people for their future roles and responsibilities in living and working in a world of globalization, rapid change and massive transformations.

As for the UNESCO UNITWIN (university education twinning networking)/UNESCO Chair Programme, this scheme was launched in 1992. It deals with training and research activities and covers all major fields of knowledge within UNESCO’s competence such as education, human rights, environment, communication, etc. UNESCO Chair Holders serve as think tanks and bridge builders between research and policy making and between academia, civil society, local communities and the productive sector. Today there are 715 UNESCO Chairs and 69 UNITWIN Networks in 131 countries and this year, 2012, marks its 20th Anniversary.

Both ASPnet and UNESCO Chair Holders have been playing pioneering roles to enhance the quality of education and this is the first major Pilot Project which brings the two Networks together. It is therefore hoped that in each of the participating countries, several UNESCO Chair Holders in such fields as ICT, teacher training, pedagogy, the content of education, learning methodology, etc. will be invited to take part in the Pilot Project in an advisory capacity.
Part 1. Overall considerations for the launching of the UNESCO/IITE LFF Pilot Project

Rationale

As the world is undergoing a major shift from an economy and a society based on mass production to one based on knowledge creation, education has to keep pace with this new tendency (Transforming Education: the Power of ICT Policies, p. 12). The UNESCO Institute for Information Technologies Education (IITE) has conducted a number of studies on this issue and published numerous reports and case studies. The time has therefore come to benefit from such research and data gathering and to explore further, through the launching of a concrete Pilot Project, how ICT can enhance the learning process, reinforce education for sustainable development, better prepare students for the world of work which awaits them, and provide them with a new code of ethics including responsible citizenship.

"ICT cover a broad range of technologies. While commonly associated with computers, the term also includes other informational media such as handheld devices like television, radio and even print…and communications technologies, such as telephones and networks. The power of the term ICT comes from the convergence of the ever-increasing information processing capabilities of computers and the information exchange capabilities of networks. It is the combined processing and networking power of contemporary ICT that has launched a global socio-economic paradigm shift…From an international perspective, it is the processing capability of computers that gives them—and us—the power to change our lives.” Transformation education: The Power of ICT Policies, UNESCO. Pp. 13-14

Valuable light was shed on the need to design and launch a new ASPnet ICT Pilot Project at the International Conference on “ICTs and Quality Education: UNESCO ASPnet on the Way towards a School of the Future” which was held in Kazan, Tatarstan from 26-27 April 2011. Emphasis was placed on the integration of ICT in schools and the capacity building of teachers in this respect. Due attention was drawn to the need to close the current digital gap between students, parents, teachers and civil society. The Kazan Conference underlined the need for new partnerships i.e. to set up effective mechanisms of cooperation between ASPnet teachers and UNESCO Chair Holders, as well as between schools and private ICT companies and ICT experts. With regard to the concept of ‘learning for the future’ (LFF), the joint role of ASPnet and UNESCO Chairs in integrating ICT as well as the principles, values and good practices in support of sustainable development was deemed to be particularly important.

Furthermore, at the recent 36th Session of the UNESCO General Conference held in Paris in October/November 2011, Member States once again spoke out loud and clearly. Access to quality education for all (EFA) remains the number one priority of the Organization. In the proposals and
priorities presented by the Education Sector, a call was also made for significant strides to be made in enhancing the role of ICT in improving quality education and lifelong learning. Special attention was given to the improvement of:

- pre-service and in-service teacher training,
- a more relevant curriculum responding to the needs of today and of tomorrow,
- the provision of entrepreneurial skills for young people,
- greater gender equality,
- the incorporation of values (e.g. peace, democracy, non-violence and responsible citizenship)
- the strengthening of partnerships at all levels with all stakeholders in education.

As for the Communication Sector, it too focused on the enhanced use of ICT and inter alia, called for the promotion of multilingualism in cyberspace and the harnessing of ICT to endow local communities to promote their heritage and cultural expressionism. Likewise, the 7th UNESCO Youth Forum, held just prior to the General Conference and which provided inputs to it, called for both ICT and sustainable development. In their Recommendations, young people declared:

“In response to employment challenges, we strongly encourage Member States to expand the scope of education by including entrepreneurial skills and training opportunities and intergenerational partnerships for youth aligned to rapidly changing labor market needs, particularly in non-traditional fields, such as e-leaning.”

“We call upon Member States to provide training and encourage youth-led initiatives promoting green societies, to engage youth in policy development and strategies on mitigation and adaptation, emphasizing the importance of green jobs, reducing fossil fuel dependency and disaster-risk management.”

“We strongly request to transform the United Nations Decade of Education for Sustainable Development into an institutionalized process beyond 2014, under the auspices of UNESCO.”


Thereby, the conceptualization of this proposed LFF Pilot Project has been made by taking due account of the Proposals of the Kazan ASPnet ICT International Conference, the recent (2011) decisions of the 36th Session of the UNESCO General Conference, the priorities of the UNESCO Education and Communication Sectors and those of the UNESCO Youth Forum.

**Objectives and goals**

The overriding objective of the LFF Pilot Project aims to **fully integrate the effective use of ICT in education, to renew pedagogy and enhance learning —now and for the future.**

The Project has been designed to achieve, inter alia, the following three goals:

**i)** To enable teachers and students to better comprehend the transformation of societies due to the impact of ICTs and future trends expected in this field
Some forty years ago it was declared, to the amazement of many, that due to technological advances and the development of the electronic microchip, society could entirely do away with the use of paper. However, society was just not yet ready for such a radical transformation and hence it would take time to become a paperless world. Four decades later and due to the digital revolution we are definitely on the track foreseen. Obviously some societies are more advanced down this path than others, but they are quickly paving the way and it seems that there is little turning back. In all realms of daily life, we are depending more and more on our computer screens than on our mail boxes. For simple jobs or advanced careers, employees are obliged, for the most part, to have a minimum of computer skills and often the more they have the more they are able to advance quickly. Communication has never been so instant and so far reaching. With our cellular telephones we can not only contact practically anyone anywhere in the world at any time, but we can take photographs, make videos, listen to our favorite music, access the weather forecast, do mathematical calculations and much more. In our small and light electronic reading book (e.g. Kindle, Sony portable reader system, etc.), we can easily carry small libraries with us. Even young children have not been spared. Instead of wanting typical dolls, trucks, balls to play with, they are also giving priority to electronic games and entertainment.

So how does ICTs affect education? Enormously! Firstly, children and young people have become known in many societies as today’s digital native students i.e. first generation of practitioners of electronic media and devices. For practically the first time in education, they are sometimes entering the classroom with more knowledge, expertise and experience than their teachers! Secondly, although ICT is rapidly penetrating all spheres of employment, management, science, leisure and recreation, it has still not been adequately addressed nor applied in elementary and secondary schools. Thirdly, time is of essence. Systems of education can no longer be deprived of this essential component of ICT. Hence, urgent measures are required to address this concern of crucial importance, not only for today but also, and as already emphasized, for tomorrow! Together, teachers and students have to become more aware of the impact of ICT on our societies, of their positive contributions as well as of some of the dangers and threats which they represent.

“Broadly speaking ICT can be used in education in two ways: as a subject (learning to use ICT) and as a tool (using ICT to learn). Using ICT to learn requires first learning to use ICT”. ICT in Education, p. 16

ii) To ensure an integrated and more effective use of ICTs in strengthening the four pillars of learning for the 21st Century and the overall school environment

It has been said time and again that students have to become the main actors of the learning process. Yet in most countries they remain to be receivers whilst the teacher is the prime actor and this tendency has to be reversed. This does not mean that the role of the teacher diminishes, on the contrary, it is enlarged. Teachers become crucial facilitators in providing a more interactive constructive and creative education. In this era of information and knowledge societies, it has become crucial to learn as early as possible how to access knowledge, beyond the limits of a school book, to organize and analyze knowledge and put it into practical use. Hence, a review of the curriculum should be undertaken in order to ascertain how ICT can develop the capacity of students to broaden their knowledge base and
transform them into more creative learners and critical thinkers with enhanced learning outcomes. An analysis should also be made of the overall school environment in order to ascertain how ICT can improve it—from school administration to management, from bridging closer links with parents and the community to networking with other schools, locally and globally.

iii) To develop new educational approaches and experiment and develop new learning materials, with the help of ICT, in support of a sustainable future and a “New Humanism”

Although the digital era offers boundless opportunities in so many fields e.g. from science to recreation and from space explorations to data gathering and analysis, relatively little attention has been paid to the role of ICT in contributing to a sustainable future and to peace building. Therefore education for sustainable development (ESD) has to be a main facet of the LFF Pilot Project and incorporated into the curriculum with emphasis on the halt to climate change, the rational use of energy, environmental protection, access to clean water and natural disaster risk prevention.

Technology alone cannot make a better world. It depends on what we decide to do with it which makes the difference for better or for worse and we cannot afford the latter. As everything becomes more electronic, more digital and more impersonal, the application of ICT has to absolutely pay due attention to strengthening the humanistic, ethical and peace building dimensions of education. That is why the recent appeal for a New Humanism for the 21st Century by Irina Bokova, Director-General of UNESCO, is so timely and pertinent to the Pilot Project. In her appeal she draws attention to the need to ensure quality education, to implement concrete peace oriented programmes resulting in tangible projects and tangible results, to disseminate information technology, to better grasp our environment by uniting to halt climate change, to protect biodiversity along with cultural diversity, and to accelerate the sharing of ideas. In fact, it is the combination of peace-building and sustainable development as well as respect for diversity intercultural dialogue and media literacy (awareness and consciousness, see ICT in Teacher Education, UNESCO/IITE, p. 83) which comprise the essence of a new humanism so badly needed as we forge ahead in the turbulence and insecurity of this third millennium.

“Humanity should govern the development of technology instead of technology governing the development of humanity.” Media Literacy and New Humanism, UNESCO/IITE, p. 21

Strengthening the four pillars of learning for the 21st Century through the effective use of ICT

Schools will collaborate together in designing new and innovative interdisciplinary approaches for the urgent renewal of education to meet the needs and priorities of the third Millennium. Such approaches should be designed to strengthen, on the one hand, the four pillars of learning for the 21st Century (as advocated by the UNESCO 1997 Delors Report) and on the other hand to contribute to updating the Report in the light of new ICT transformations which are being generated from local to global levels.

Focus for the Pilot Project will center on:
• **Learning to know:**

As knowledge societies become more and more crucial for economic, social, political and cultural advances, this pillar has become vital and can largely be enhanced with the effective use of ICT. As we know, learning no longer occurs only in the classroom and at school. Many new forms of learning such as distance learning and e-learning are now available and call for a new form of pedagogy (ICT in Teacher Education, p. 15). For years emphasis has been on interdisciplinarity and a holistic approach to learning. Yet the curriculum remains very compartmentalized with few linkages and interactions between subjects. Hence, the Pilot Project should focus its attention on the design of a new interdisciplinary and holistic approach which should take into account three main fields of crucial concern. Such an approach should help to fill the gap between what is happening in the world and what is being, or not being, taught in the classroom. The content of education also has to keep abreast of UNESCO and UN priorities so that young people are better prepared to address the issues and challenges that they will soon be called upon to solve which is an integral part of learning for the future and lifelong learning (III). The three main and interrelated areas of study suggested are:

i) **Learning about, understanding and applying ICT in contributing to:** development and knowledge societies (including latest trends such as cloud computing), improving the learning/teaching process (for both students and teachers), comprehending social networks (Facebook, Twitter), developing creativity and encouraging on-line and lifelong learning. The effective integration of ICT in education is also related to three of the Education for All (EFA) Goals: Goal #3 Acquiring learning needs and skills for all young people, Goal #5 eliminating gender disparity (it has been noted that in many countries there is a gender gap with regard to the use of ICT i.e. boys often outnumber girls) and Goal #6 ensuring quality education; and

ii) **Education for sustainable development (ESD)** is a top UNESCO and UN priority. It is directly related to the UN Millennium Development Goal (MDG) #7 to ensure environmental sustainability. As already mentioned ESD, and particularly the issue of climate change, is amongst UNESCO’s top priorities. UNESCO and UNEP recently published, in 2011, a joint publication, under the series “YouthXchange” entitled *Climate Change and Lifestyles Guidebook* intended for teachers, educators and youth leaders. The Pilot Project will have a unique opportunity to experiment and develop further this Guidebook. Good use can also be made of other ESD material produced by UNESCO. The timing of the Riga Workshop and the Pilot Project is conducive to observing both the 40th Anniversary of the first UN Conference on the Human Environment (Stockholm 1942) and the 20th Anniversary of the Rio Earth Summit (1992). The Pilot Project is also in a position to make some more valuable contributions to the International Decade of Education for Sustainable Development (DESD) as it comes to a close (2005-2014).

(*the term sustainable development was defined in the Brundtland Report as action that “meets the needs of the present without compromising the ability of futureof generations to meet their own needs”*)
iii) **A new humanism** is to be promoted based on ethics, excellence and expertise (the 3 E’s). Ethics entail a culture of peace, non-violent resolution of conflict, respect for diversity, human rights, good governance, responsible citizenship and media literacy. Excellence means bringing out the best in all learners, developing to the fullest their capacity ‘to learn to learn’, now and throughout their lives. Expertise involves new skills and competencies including the effective use of ICT required for the present and the future.

Depending on means and resources, these three main areas of studies could either be:

i) **integrated across the curriculum**;

ii) **integrated in a few selected subjects** (e.g. language, history, science, mathematics) and/or

iii) **through a newly developed interdisciplinary approach/course**.

**Learning to do**

Learning for the future calls for the acquisition of a wide range of life skills and competencies and ICT is at the centre of this requirement. Skills include:

1) **Extended and optimum use by students and teachers of ICT for learning, teaching and creativity:**

   a. Knowledge societies require knowledgeable young people and information seekers. Skills involving the conduct of research, the retrieval and analysis of information and data, making objective conclusions, critical thinking, building problem solving capacities and developing entrepreneurial skills are all essential elements for preparing for today and tomorrow;

   b. Learning has to be motivating and creative and the latter has to be given much more importance. The creative use of ICT is almost limitless—from conducting research to taking surveys, from creating web sites to the production of videos, from producing music to making artistic and aesthetic illustrations, the capacity of students to explore and to create can be greatly enhanced;

   c. Due to ICT, never has the world had such vast opportunities to communicate. Even in the remotest parts of the world, one comes across access to Internet and mobile phones. Yet, is full use being made of them? Are we communicating less than more? More superficially rather than with meaningful content? The electronic era has also brought brevity, text messages and images rather than the printed word. Communication skills i.e. the ability to write, to synthesize, to articulate one’s thoughts and ideas, with imagination and creativity, remain crucial for the 21st Century. Learning to share knowledge and experience, to network with other schools is also crucial for this Century. Furthermore, the use of social networks, such as Facebook, Twitter, etc which many young people are using today should be further addressed.
2) **Language learning skills** remain a priority not only in one’s language of instruction but in other languages as well. Studies have proven that multilingualism helps to improve one’s own mother tongue. With the help of multi-media language learning, including the use of skype and distance learning, young people’s capacity to enhance foreign language learning can be strengthened. Also, there is the need to promote the use of more languages in cyber space.

3) In a constantly changing world, influenced by **ICT, problem solving skills and sound management skills** remain important. On many occasions, people rely almost exclusively on ICT, taking it for granted and not questioning it. The use of ICT calls for constant monitoring and verification. Young people have to become more aware that ICT is a tool and not an end. The human factor remains essential. Open mindedness and the search and use of factual and objective information, which can often be retrieved with the help of ICT, can contribute to critical thinking.

- **Learning to be**

Education and values are closely related and ICT can and should be used to enhance the link between the two. Young people are in need of self confidence, more autonomy and independence in the learning process, assuming responsibility, leadership and learning from each other. Critical thinking and open mindedness are essential for this Century. As mentioned above, for any given problem, there are many facets and a number of solutions. Students have to learn to become more open minded, to search for maximum facts and information and to take decisions wisely, peacefully and in support of a sustainable future. Teamwork (e.g. teams of teachers, teams of students and teams of teachers and students) is another major component of the Pilot Project. In this era of high competition and even ruthlessness, students need to understand the importance of working together, of helping each other and reaching out to others who might be in need. Project work, advocated in ASPnet initiatives, requires teamwork, mutual respect, and solidarity and bringing out the best in each learner. In many computer science courses at the university (at least up to recently), the majority of students have been boys. Even with regard to children, boys often outnumber girls in the use of electronic games. As already mentioned, it has thereby become urgent to interest, initiate and empower girls in the use of ICT in their current as well as in their future studies.

In addition, young people have so much talent. Yet, they are not always in a position to develop it. Creativity has to become a much more essential part of learning for the future and the Pilot Project should take into account the promotion of the intangible heritage i.e. poetry, art work, videos, music, etc. through the effective use of ICT. In recent years, systems of education are placing increased emphasis on health and physical activities. Learning to be healthy, to eat nutritional food, to get enough exercise and to avoid doping has become a priority in a number of highly industrialized countries. School violence and bullying are also become unfortunately a major issue of concern, including cyber bulling. Concrete measures have to be taken to prevent and eradicate such practices in learning for the future.

- **Learning to live together**

This pillar can be considered to be at the heart of learning throughout the 21st Century. For those children and young people who are **digital native students** they are already quite aware of the enjoyment, recreational stimulus, social (and in recent cases political e.g. Arab Spring)) networking and
communication advantages of ICT. The potential of ICT in bringing the peoples of the world closer together in a spirit and climate of peace building, mutual respect, solidarity, sharing must be made clearer and put into greater practice. At the same time, children and young people are not always conscious of the unethical uses of ICT and this issue, as already mentioned, has to be addressed. There are many cases of piracy, hacking and the invasion of privacy. The Internet has and is often being used for unethical solicitation (violent behavior, pedophilia, prostitution, pornography). Students have to be made more aware and ready to avoid or counteract such threats and dangers. There is also often a gap between the “have’s” and the “have not’s” and this is also true with regard to ICT at all levels –school, community, nation, region and the world. Some schools are well equipped and well endowed and others, if not most, have a very limited ICT infrastructure. Hence, the Pilot Project should also encourage the sharing of resources, knowledge and experience at the local, national and regional levels.

Learning for the future (LFF) might entail additional pillars such as ‘learning to learn’, ‘learning to adapt to rapid change and transformations’ and as the UNESCO Director General suggested in 1997 when the Report of the Commission on Education for the 21st Century was first presented to him—‘learning to dare’. It will be for the Pilot Project to suggest new pillars and ICT related learning strategies required for the third Millennium.

Learning environment

The Pilot Project takes a holistic approach to the introduction and application of ICT. It examines and aims to integrate fully the use of ICT throughout the curriculum, in project work, in school administration, in explaining to families the objectives of the project and soliciting their participation. It seeks to make closer links with the community, particularly ICT companies and specialists and to build electronic bridges with the other participating schools.

Classroom learning will entail the use of computers and the Internet in order to benefit from electronic courseware, conduct research, seek and access relevant information, prepare and produce digital learning materials, videos and documentaries.

Learning materials

The vast majority of the electronic educational resources available today is in English and a special feature of the Pilot Project is to encourage the development of courseware in the languages of the participating countries. Hence, all countries will be called upon to develop electronic courseware for the selected subjects retained for the Project and/or for the interdisciplinary approach to be designed. However, as already mentioned, use should also be made of recent and pertinent materials such as the UNESCO/UNEP Climate Change and Lifestyles Guidebook. It can be experimented and adapted to local and national contexts. This booklet also contains five pages of relevant online learning materials.

A selection of Open Educational Resource (OER) materials can be made, with the help of http://www.unesco.org/webworld/en/oer, http://www.iite.unesco.org and http://www.unescobkk.org/education/ict. Access to the Global Courseware Digital Library (GCDL) will also be facilitated. Any new electronic educational resource materials produced within the framework of the Pilot Project will be protected under the creative commons (cc) licenses. Students will experiment with on-line learning with new available software and courseware.
Definition of Open Educational Resources (OER): digitalized materials offered freely and openly to educators, students and independent learners to use and reuse for teaching, learning and research. Open Educational Resources, UNESCO, p. 17.

Observance of International Days

Ever since the Network was set up, Associated Schools have been called upon to observe international days declared by the United Nations system. Throughout the course of the Pilot Project, schools should be encouraged to celebrate, through the conduct of concrete activities, relevant days, such as the newly proclaimed World Radio Day (13 February), International Mother Language Day (21 February), International Women’s Day (8 March), International Mother Earth Day (22 April), World Telecommunications and Information Society Day (7 May), World Environment Day (5 June), International Day of Peace (21 September) and Human Rights Day (10 December).

Evolving role of teachers and the development of their professional capacity

As already mentioned, this field of ICT is one in which students have sometimes more knowledge and experience than their teachers. One could therefore ask the question who is to teach whom? Hence there is an urgent need to provide sufficient training to teachers to enable them to stay ahead of their students and to benefit from ICT in their everyday classroom and once again across the curriculum—from history to mathematics, from science to art and from language to physics. Research has shown, time and again, that the success in the use of ICT depends largely on teachers.

Furthermore, teachers are called upon, more and more, to take into account interdisciplinarity and a holistic approach to learning. Students need to understand the linkages in learning. Teachers therefore should be given the opportunity to reflect on their respective disciplines, on how they interact with the other ones, on the role of ICT and how they can all work together in making the education which they are imparting more relevant and more pertinent to their students. Once again, education has to become more pro-active. It has to keep not only abreast of what is currently happening but it has to prepare young people for the future which is rapidly awaiting them.

In the UNESCO/IITE publication “Media Literacy and New Humanism” (pp. 108-109) its authors José Manuel Pérez Tornero and Tapio Varis refer to the new role of the teacher and indicate seven main facets to be urgently taken into account in the training of teachers. Their proposals are closely related to the aims of the LFF Pilot Project. They advocate that teachers will:

- design the contexts, situations and circumstances for teaching and learning processes with increasing support from ICT
- dedicate a good part of their time to updating and creating teaching materials which will be increasingly multimedia-based
• spend a good part of their time organizing and managing the school community’s flow of communication which will preferably be carried out using ICT and new media

• intensively work with ICT which will require them to maintain a good level of skills in this field

• increase their connections with other colleagues and experts that are not physically nearby and this will depend on their ability to create cooperative virtual networks

• relate to students who are increasingly skillful in handling ICT; this will require teachers not only to implement new educational practices and styles but also to address and understand the psycho-social influence that the new media have on their students

• have to acknowledge new relationships related to the distribution of duties, capacities and power that are created at the heart of the educational activity as a result of the transformation imposed by technology-enriched education.

At the UNESCO/IITE International Conference on “ICT in Teacher Education: Policy, Open Educational Resources and Partnerships” held in St. Petersburg in November 2010, Bernard Cornu (the current Chair of the IITE Advisory Committee) presented a paper entitled “Digital Natives in a Knowledge Society: New Challenges for Education and for Teachers”. In his paper he drew attention to the following eight new challenges facing teachers which can be resumed as follows. Teachers have to:

i) Take into account the digital native generation...to be aware of their new abilities and to respect their new relationship to knowledge;

ii) Take into account the new forms of knowledge and competences and the missions of school. They must be aware that knowledge is not only a list of items in a curriculum: it has complex and transversal components. They must have the knowledge to address the main questions of the next century;

iii) Develop human networks for learning;

iv) Work in the framework of collective intelligence (i.e. processing and producing information) and prepare students for collective intelligence. This means that teachers themselves must act collectively, take part in collective missions, experience collective learning, collective intelligence, develop collaborative activities;

v) Be ‘e-teachers’. This means not only to be able to use digital technologies, tools and resources, but also to change the pedagogy, to integrate ICT as technologies and more important as tools for pedagogical enrichment;

vi) Be ‘blended teachers’ mixing digital activities and non-digital ones;

vii) Be ‘LLL teachers’. This means they have to prepare their pupils for lifelong learning, mainly by making them learn how to learn, to become life long learners...Teachers have to be lifelong learners;

viii) Be actors of the changing school in a learning society. They cannot just wait for the reforms elaborated by policy makers. They must contribute to decision making...
The Pilot Project might want to incorporate these eight challenges addressed to teachers and shed valuable light on how they can best be met.

It cannot be reiterated enough—teachers are the key to the successful integration of ICT into education (ICT in Teacher Education, p. 17). This is a vital component of the Pilot Project and special measures will have to be taken to ensure teacher training for the effective use of ICT and in developing new and relevant courseware. As stated above teachers first need to gain the knowledge and judgment to be able to select and evaluate ICT resources that are suitable for teaching and learning in their own subjects. They need to be able to use the Internet to search and select, with a critical eye, information and resources that are relevant for their subjects and their students (idem p. 18). Special training sessions are to be conducted for teachers so that they acquire the necessary skills and become more confident. The **UNESCO ICT-Competence Framework for Teachers (CFT)** could be particularly useful. Teacher training sessions could include, inter alia:

- The role of ICT in society, both today and tomorrow, and particularly in the fields of development, education, employment, media and values;
- On-line learning (if national software is not available, use could be made, as a guide, of the United Kingdom’s Teacher Training Agency (TTA) specifications as well as Intel Teach materials) enabling teachers to learn at their own pace, place and time including tracking of their learning and a self-assessment system which also maps the learning pathway for each teacher (to be completed in 9 – 12 months)
- How ICT can be effectively used in the classroom, in selected subjects, i.e. to enhance learning, information seeking and analysis, problem solving, creativity, etc.
- Skills and know-how for the development of digital interactive educational resource materials
- The design of a new interdisciplinary approach (course) bringing together ICT, education for sustainable development and a new humanism
- Monitoring, assessment and reporting on the Project
- Networking with partnered schools and teachers participating in the Pilot Project

**Eventual challenges to be faced**

This is a rather complex Project and certain pitfalls should be avoided from the start. Firstly, in view of the resources available the Project should not be too ambitious. Its objectives should be feasible and realistic. All participating schools should benefit from both a minimum ICT infrastructure (particularly access to Internet and connectivity) and have the capacity to strengthen their infrastructure. Each country has to provide appropriate training (and hopefully some compensation and/or recognition) for teachers for the effective use and development of courseware, software and on-line learning. The production of appropriate courseware requires time, resources, and expertise and has to be granted sufficient funding and support. Monitoring and assessment have to be an intrinsic part of the implementation of the Pilot Project and appropriate means and expertise will have to be mobilized to make this possible.
Part II. Organizational arrangements for the conduct of the UNESCO/IITE LFF Pilot Project

a) Selection of participating schools: Each country is to select one (or preferably three for monitoring/assessment purposes) secondary school/s taking part in the UNESCO ASPnet and in accordance with the following criteria:

- Previous successful experience gained in an ASPnet Pilot Project;
- Minimum ICT infrastructure and capacity to develop it;
- Deep commitment to achieving pilot project’s aims;
- Active participation of the entire school (i.e. principal, teaching staff, administrative personnel, technical staff, students, parents);
- Setting up of a Pilot Project Advisory Team, to be headed by the Principal and assisted by a senior teacher, in order to ensure full participation in the Project and to liaise with the ASPnet National Coordinator, other participating schools in the Pilot Project, and IITE.

b) Selection of participating teachers and students

Since the Pilot Project covers a 3-year period, and for monitoring and assessment purposes, it is suggested that selected 7th-9th grade teachers and students should represent the pilot group. The same students, and as many of the same teachers, should remain in the pilot group throughout the 3-year duration.

c) Required school ICT infrastructure:

- Depending on available resources, preferably one laptop computer per student, if not a low a ratio as possible e.g. one laptop for 5 or 10 students
- Access to Internet
- Access to digital courseware e.g. Open Educational Resources
- Capacity for video conferencing
- Mobile phones
- Cyber libraries

“Children in Miami’s toughest neighborhoods are getting rugged, inexpensive laptop computers similar to those distributed to schoolchildren in developing countries. The One Laptop Per Child Association in Miami gave more than 500 green and white laptops to students at Holmes Elementary School in Liberty City in order to boost the student’s interest in learning.” Naples Daily News, Jan 29 2012, page 14A
d) Participating countries:

- Baltic States (Estonia, Latvia and Lithuania), the CIS States (Armenia, Azerbaijan, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan and Uzbekistan) and the Russian Federation
- In each country the Ministry of Education and the National Commission for UNESCO is to be closely involved in the Pilot Project by selecting the participating school/s and providing it with the necessary support and recognition
- the ASPnet National Coordinator in each country is to play a particularly important role in coordinating the Pilot Project at the national level, securing support and partnerships, facilitating contacts with schools in other participating countries and ensuring liaison with the IITE (the Regional Coordinator of the Project)

e) Partnerships

As already stated above, a certain number of partnerships will be required in order to ensure the success of the Pilot Project. In each participating country there are UNESCO Chair Holders and at least one, and preferably several, in such fields as ICT, pedagogy and teacher training should be closely involved in the Project. ICT experts and companies e.g. Microsoft, Intel, Nokia, etc. should also be solicited since the Project requires optimum ICT infrastructures and expertise in using ICT effectively in support of the learning/teaching process. Non-governmental organizations (NGOs) can share valuable experience and Foundations can provide eventual support. The media (press, radio and television) should be invited to follow closely the Project’s implementation and report on results achieved particularly on its innovativeness and usefulness.

f) School/country twinning

In order to enhance the sharing and exchange of ideas, experience and resources, it is suggested that each participating country be twinned with another one, at least for a one-year trial period. For example, if ten countries participate in the project there could be five twinned partnerships. Twinned schools/countries could organize joint training workshops for teachers, share open educational resources (OER) and develop new joint digital courseware.

g) Regional coordination: the role of IITE (including a Help Desk and Pilot Project Web Portal)

The UNESCO Institute for Information Technologies Education (IITE), the initiator of the Pilot Project, will ensure the overall coordination and promotion of it. The IITE will seek support for it from participating Member States, UNESCO Headquarters and Field Offices and from the private sector. Expertise will be provided for assessment and monitoring as well as teacher training. Upon request, advisory missions will be made to participating countries. It will select and provide electronic courseware for participating schools. In view of the innovativeness, and to some extent, the complexity of the Pilot Project, the IITE will set up a Help Desk to facilitate and enhance participation. Questions and concerns can be addressed directly from teachers, by electronic mail, to the Help Desk for rapid replies, advice and guidance. A specially designed Pilot Project Web Portal will be set up by IITE and constantly updated. The Web Portal will post all relevant information concerning the Pilot Project including the Revised Guidelines, a bibliography of relevant OER, useful Web sites, profiles of all
participating schools, the diffusion of quarterly brief status reports from each participating country and from each twinned partnership (see above). The IITE will conduct regional training seminars and workshops and will publish and diffuse widely up-dates and the final results of the Pilot Project.

h) Monitoring, reporting and assessment

If this Project is to be taken to scale by integrating its results in the systems of education in the participating countries, it has to be monitored, reported on and assessed. However, assessment can prove to be expensive and hence new ways should be sought to make it possible within reasonable means. It is therefore proposed to involve in this endeavor a university or set up a research team headed, for example, by a UNESCO Chair Holder. Appropriate studies and evaluation instruments should be prepared prior to its launching. For example, an analysis should be made of the current state of the art concerning the introduction and application of ICT in lower secondary school education in each country.

Consequently, each participating school should prepare a School Profile indicating their present infrastructure and use of ICT. A pre-questionnaire for both teachers and students should be prepared inquiring about their current knowledge, attitudes and use of ICT as well as their knowledge, views and behavior with regard to sustainable development and the need for a new humanism. Two years later, a post-questionnaire should be given to the same teachers and students to determine the impact made, changes in knowledge, attitudes, skills, use of ICT, progress made, obstacles encountered and solutions sought.

A frequent flow of information on the implementation of the Pilot Project is necessary. Hence, schools will be invited to report briefly but regularly (once every three months) on progress achieved and eventual problems encountered. Reports should be sent to their respective ASPnet National Coordinators for transmission to IITE for analysis and posting on the Web Portal.

i) A three-year duration and a strong commitment

In view of the scope and ambition of this new IITE LFF Pilot Project, a three year period (2012-2014) is envisaged as it also coincides with the culmination of the International Decade on Education for Sustainable Development (2005-2014) for which innovative inputs can still be most useful.

The first year of the Pilot Project will be a year of exploration, the second year a year of experimentation and the third year a year of taking to scale i.e. integrating ICT throughout the school curricula and involving all of the students in an interdisciplinary “learning for the future” course. A detailed Preliminary Timetable is presented in Annex I.

Participation in the Project will require a serious and strong commitment on behalf of all participating UNESCO Member States, particularly from Ministries of Education and National Commissions for UNESCO. It is suggested that in each country a Pilot Project Coordinating and Advisory Committee be set in order to provide guidance, assistance, monitoring and assessment and will include:

- one or several UNESCO Chair Holders, in such fields, as pedagogy, evaluation, ICT, sociology, philosophy to serve as advisors and resource specialists
- experts from the Ministry of Education e.g. curriculum developers, ICT expert, teacher trainers, quality assurance specialists
• ASPnet National Coordinator and member/s from the National Commission for UNESCO
• ICT specialists

j) **Private Sector:** ICT companies e.g. Microsoft, Intel, Apple, Nokia, etc.

k) **Budget** (to be completed eventually by IITE)

l) **Expected Results**

The Pilot Project is expected to:

• Shed valuable light on the practical integration and application of ICT in support of quality education for the future with emphasis on the promotion of education for sustainable development and a new humanism in several main subjects, starting at the lower secondary school level, and through the design of a new interdisciplinary approach/course for learning for the future

• Enhance the capacity development of teachers to use effectively ICT to improve the learning and teaching process and the relevance of education whilst reinforcing its ethical mission

• Take to scale i.e. introduce the innovations developed to enable other schools to benefit from the achievements made

• Ensure the international diffusion of results obtained in all countries through the IITE “**Policy Briefs for Decision Makers**”
Summing up

This UNESCO IITE LFF Pilot Project is of the utmost importance. It attempts to realign and enhance education in the light of the application of the latest information and communication technologies (ICT) available. The Pilot Project is also part of the ongoing quest to better prepare young people for both the world of today and the future which awaits them tomorrow.

Like in all professions, including the teaching profession, rapid change is occurring. However, change, particularly in pedagogy, cannot occur in a vacuum. It has to be based on research findings, experimentation and assessment. This Pilot Project offers teachers, who are amongst the most important and valued members of society, a unique opportunity to become closely involved in these three essential components required for renewing education to meet the needs and priorities of the 21st Century.

In the preparation of the Pilot Project Draft Guidelines, an effort has been made to take due account of the results of the latest studies and initiatives taken (see Annex II Bibliography) with regard to integrating the use of ICT in education and the need to make the curricula more relevant and pertinent by reinforcing education for sustainable development and introducing a new humanism.

The time has now come for policy makers, educators, ICT specialists and teachers to share their views on the preliminary proposals contained in the Draft Guidelines, to modify them, to put forward new suggestions and to finalize together the Guidelines for the launching and implementation of their joint LFF Pilot Project.

The UNESCO/IITE, Ministries of Education, National Commissions for UNESCO and ASPnet National Coordinators will all lend support in favor of the Pilot Project. However, the real success of the Pilot Project will depend largely on the classroom teachers—on their ICT abilities, their capacity to innovate and to strengthen the pillars of learning for the 21st Century and their vision concerning the needs of today, of the near future and beyond. They will form a virtual network enabling them to share and exchange their ideas, initiatives, results achieved, challenges encountered, solutions sought, concerns and expectations with teachers in all of the participating countries. Together they will become architects for a renewed pedagogy in support of building knowledge societies, ensuring a sustainable future and putting into practice a new humanism so that young people are in a better position to meet the needs and demands of the 21st Century.
Annex I

ASPnet LFF Pilot Project Preliminary Timetable

<table>
<thead>
<tr>
<th>Year of exploration</th>
<th>2012</th>
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<tbody>
<tr>
<td>January-February</td>
<td>Preparation of Draft Guidelines for Participation in the Pilot Project</td>
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<tr>
<td>28-29 March</td>
<td>Conduct of Workshop (Riga, Latvia) for the finalization of Guidelines and the launching of the Pilot Project</td>
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<tr>
<td>April-May</td>
<td>Preparation by each country of a brief study indicating the current state-of-the-art of the application of ICT in lower secondary school education</td>
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<tr>
<td></td>
<td>Preparation (in collaboration with IITE) of ICT Profiles for each participating school and the preparation of pre and post-questionnaires for both students and teachers</td>
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<tr>
<td></td>
<td>Selection of the Project Team and submit their profile to IITE</td>
</tr>
<tr>
<td>April-August</td>
<td>Preparations by participating schools for introducing/reinforcing the use of ICT in selected subjects (national language of instruction, English or Russian, mathematics and science) and the design of a new interdisciplinary approach/course entitled “Learning for the Future”</td>
</tr>
<tr>
<td></td>
<td>Provision of increased ICT infrastructure (computers, Internet, software, courseware, video conference facilities, etc) for participating schools</td>
</tr>
<tr>
<td>September-2013</td>
<td>Completion of above mentioned pre-questionnaire by selected 7th – 9th grade teachers and students and submission to ASPnet National Coordinators for transmission to IITE data bank</td>
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<tr>
<td></td>
<td>Introduction/reinforcement of the use of ICT in the above mentioned</td>
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<td></td>
<td>Twinning and cooperation with the UNESCO Chairs</td>
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<tr>
<td>September</td>
<td>the development of a new interdisciplinary portal “Learning for the future”</td>
</tr>
<tr>
<td>November</td>
<td>Preparation/submission (30 Nov.) of 1st Quarterly Progress Report on LFF Pilot Project to ASPnet National Coordinator for transmission to IITE</td>
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2013 Year of experimentation

Regional Training Seminar for School Principals and teachers and review of newly designed interdisciplinary approach/course prepared by the participating schools

13 February Participation of students and teachers in the observance of World Radio Day

January-October Introduction and experimentation of projects by selected schools and students, an
<table>
<thead>
<tr>
<th>Month</th>
<th>Activity</th>
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<tbody>
<tr>
<td>May</td>
<td>Preparation and submission of 2\textsuperscript{nd} Quarterly Progress Report on Pilot Project</td>
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<tr>
<td>June</td>
<td>2\textsuperscript{nd} Pilot Project Workshop in Moscow for analysis of progress achieved, challenges encountered and further planning</td>
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<tr>
<td>November</td>
<td>Presentation of Pilot Project and results obtained at 37\textsuperscript{th} Session of the UNESCO General Conference</td>
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<tr>
<td>December</td>
<td>Preparation/submission of 3\textsuperscript{rd} Quarterly Progress Report on Pilot Project</td>
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<tr>
<td><strong>2014</strong></td>
<td><strong>Year of taking to scale</strong></td>
</tr>
<tr>
<td>January</td>
<td>Continuation of ASPnet LFF Pilot Project</td>
</tr>
<tr>
<td>February</td>
<td>Student led observance of the World Radio Day (13) in collaboration with local radio stations</td>
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<tr>
<td>March</td>
<td>Completion of Pilot Project post-questionnaire by students and teachers</td>
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<tr>
<td>April</td>
<td>Preparation/submission of 4\textsuperscript{th} and final Quarterly Progress Report on Pilot Project</td>
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<tr>
<td>May-June</td>
<td>Analysis of Quarterly Reports and post-questionnaire by IITE</td>
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<tr>
<td>June</td>
<td>Workshop to review Pilot Project results and plan the extension of the Project throughout the systems of education of the participating countries</td>
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<tr>
<td>August</td>
<td>Presentation of Pilot Project main results at the International Conference to be held on the occasion of the completion of the International Decade of Education for Sustainable Development (DESD), Nagaya, Japan</td>
</tr>
<tr>
<td>September</td>
<td>Preparation and publication of results of Pilot Project in the UNESCO <strong>ASPnet Series of Good Practices in support of Quality Education</strong> and in the IITE <strong>Policy Briefs series</strong></td>
</tr>
<tr>
<td>December</td>
<td>Extension and taking to scale of Pilot Project in Participating Member States</td>
</tr>
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Annex II

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