

**Curriculum of the IITE International Master
Program/Advanced Training Course**

ICTs in Teacher Professional Development

**Project Proposal for its Development and
Implementation**

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Introduction: ICT in Teacher Professional Development

Project Proposal for the Development and Implementation of the International Master's Program by the [UNESCO Institute for Information Technologies in Education](#)

Central Mission

From the core mission to strengthen the capacity of educational workers in Russia and its member states, this project aims at assembling the key ICT awareness, skills, knowledge and attitudes, and bring them under an efficient top down delivery strategy in order to build upon existing institutes, certifications and experts in Russia, Europe and the US.

ICT Key Competences

This first sketch of the ICT Teachers' Master Course has been configured around the key ICT competences for teachers. Dependent on their actual levels of skills, the targeted teacher trainers will jump on the bandwagon of common road and the most ultra-new ICT technologies like: Search agents, data management systems, meta data, mobile computing, GPS applications, apps for tablets, social media and 3D worlds in virtual reality.

Advanced Curricular-, Instructional- and Assessment Methods

Educational ICT methods and new educational paradigms are in mutual concurrent evolution. Like the rise of constructivism and problem-based learning; it is hard to define to what extent it was provoked by software tools like LOGO, expert systems, modeling and simulations. Applying ICT methods and tools without the context of the traditional educational concerns has been labeled as "inadequate". That's why in this Master Course there is the attempt to interlink them both from the beginning.

Societal, Environmental, Human, Emancipatory and Sustainable Values

Advanced ICT-supported education without an implicit vision on the values of human societies, culture, tolerance and a responsible relationship with nature and the quality of life, is hard to imagine. This Master Course starts from the notion that learning is not the goal in life; like food or fashion, it should obey societal values and allow teachers and students to build upon identity, traditions and tolerance for "the others", be it our rural- or cosmopolite neighbors, other living creatures and finally the start conditions for our grand-grandchildren; Typically epitomized under the label "Cradle-to-Cradle".

The underlying premise of this Master Course for teacher-trainers, teachers, school leaders and administrators is that these professionals already have the competencies and the authority to learn in an authentic way: New skills and methods like ICT need to be assimilated rather than accretioned. It implies that the presented course structure will be tuned to the students on before. The course atmosphere should be one of mutual dignity and respect. The subsequent lecturers in the Master Course will be briefed to make a subtle bridge between the audience and his/her special topics. In other words: this Master Course is supposed to demonstrate from its early beginning that continuous life-long learning among teachers is not an hierarchic process; its value is in mutuality of complementary ideas: Ultimate teaching practices are those that comprise delicate blends of methods, styles and media mixes.

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Recent Trends and how to Proceed

Since the 2002 Report [“Information and Communication Technologies in Teacher Education; a Planning Guide”](#), substantial social-/economical developments around the ICT for Educational field evolved.

1. The web has transformed from a documentary into a social mechanism. Sharing expertise, schooling, web-based communities and virtual presence have become a commodity under the label “Social Media”. The [ICT Impact Report](#) (2006) listed that ICT helps schools to increase learning outcomes, both according to the statistics and in the opinions of teachers, parents and learners as well. It also registers that ICT has become a critical tool in the professionalization of teachers, especially in the learning among teachers.
2. Society and Enterprises are fully convinced that learning is endemic to innovation and future development. The web is the catalyst for making institutes and enterprises competitive and swifter in innovation. See the recent EU project on the [Social Impact of ICT](#) (2010).
3. ICT in education has become a crucial multiplier factor; Economies tend to reflect the level of strategic use of ICT. In other words: ICT in itself is a necessary- however not a sufficient factor for economical progress. The OECD report [“Education at a Glance”](#) asserts that even during the recent economical crises, educational efforts decide to a great deal economical prospects. It implies that ICT in Education is not just a commodity; it proves to be more and more a strategic element and needs to be tuned all the time. Even the essence of “learning as a transfer process” is likely to be revisited into a “developmental process” where learners contribute to creativity and problem solving at the same time.

In summary: The question if- and how- to promote the integration of ICT in Education, is not a trivial one. It needs a careful design and a smart implementation. The key factor is the continuous professionalization of teachers and teacher trainers. This proposed project proposal intends to optimize this process, building on the best available ongoing initiatives already in the field of institutions in Russia and its member states.

Competitive and Unique

The rationale behind this proposal is that the (re)training for teachers’ ICT didactic skills is hard to imagine without a competitive context where both schools and teacher training academia act in a world with many offering parties; both public and private ones. For IITE as UNESCO institute it will be of vital importance to make an offer that excels both in quality and efficiency. The institutes that will be recruited will base their appeal on loyalty with the UNESCO mission like [EFA](#), [EMDG](#) and [ITCiE](#). As formulated in her report *International Experiences with Technologies in Education* (2011) UNESCO formulated the next key areas: ICT in Education Highlights; Structure and Nature of the Education System; Increasing ICT Infrastructure and Support; Improving Student Learning through Technology-Enhanced Instruction; Use of ICT to Increase Teacher Capacity; and Continuous Improvement Efforts. Under the UNESCO auspices the underlying project proposal targets capacity building in ICT-skilled and ICT-minded teachers who will receive the title of Master of Science and who will develop as ambassador for integrating the best web-applications for educational purposes the coming years in Russia. If this formula succeeds it will be applied on larger teacher retraining projects in large parts of developing countries as well. In combination with the University of Twente

this project can be very cost-effective due to its large network in [Educational Science and Technology](#) since its three decades of training Master Degree students all over the world.

Overall Plan

The plan to implement the next step of schooling Primary and Secondary School teachers in the form of a Master Degree Course looks as a very good choice.

1. It reflects the recognition that the didactic integration of ICT is not a subsidiary or a cosmetic one. It articulates that its success relies both on talent, earlier professional expertise, creativity and the continuous greed to assimilate new web-applications into curricula, instruction and assessment methods.
2. It also reflects the connotation that becoming a “Master” in this field implies that you have the knowledge, mentality, intuition and the authority to be a leader in this field amongst your colleagues and that you can convince school leaders and policy makers on necessary new methods and its relation to the quality of learning as a whole.
3. The Master title also reflects the essence of becoming an autonomous “learning practitioner” who masters the validation of new ICT-based learning/teaching methods by critically registering learning effects. This evidence-based (fact-based) innovation attitude needs the so-called empirical approach where initial design idea, its implementation and the observation of final effects meet in the experimental cycle.

Seen the many earlier ICT – innovative projects, it becomes clear that this Master accredited project has not only the responsibility to build upon earlier results, but also to excel and consolidate these earlier efforts. First of all Russian English-speaking existing teacher trainers will work together with international experts. The final stage will be a three week summer course at Twente University where 20 first generation students will be hosted and trained in a high-density workshop after they have shown a sufficient level of theoretical anticipation via remote web-based learning on before. The overall plan proposes to work along four stages:

1. Bootstrapping at a small scale: Start with a course “ICT integration in Education” by involving teacher trainers who are both ICT minded and who do speak the English language as well. We expect most of them to already have a Master and even some of them a PhD degree. This group is supposed to work together with international experts and will propagate the core courses to their non-English speaking colleagues after the first year. Their project phase will be dedicated to this first-stage rollout process in Russian teacher training academies.
2. Second step is to let a wider group of 400 pre-service teacher students to be trained by the first cohort the first group of teacher trainers in order to prepare them to enter their first job after the traditional teacher graduation. At the end of this 2nd step the course implementation will be ready in the Russian language. At that moment the course has been tested twice and robust enough for the rollout at a large scale.
3. Third step is to integrate the evolved Russian ICT course in regular teacher training colleges at well-chosen academia along Russia and its member states.
4. Fourth step is to provide in-service training to Primary and Secondary school teachers in both urban and rural areas.

Essential for the success of the proposed water-fall model is that both the tutors, the tutees, the course moderators and the invited lecturers are carefully selected in order to benefit from the already established hierarchy in authority and reputation. For the longer-term evolution of this course initiative it is inevitable to build upon the existing institutional structures, certification grades and ongoing traditions of authority and team building in the schools themselves. For this reason the four stage development/dissemination strategy has been chosen. The essence is that the most active teacher trainers at the moment will be co-designers together with the international team of experts during the emergence and evolution of this Master course. To put it even clearer: the tutors/tutees at the four levels in the training cascade all need to experience “ownership” of their own professionalization process. For each of these four steps it is essential that all participants have Internet connection both at home and in their institutions.

Finally: The setup of this Master course should show a clear compatibility between the final ICT-supported learning of the students in the primary- and secondary schools and the promoted learning among the teachers that need to anticipate to that. In other words, the principle Pray as you Preach should be fostered typically: Teachers should be taught as they are supposed to teach their students.

Master Course Content (60 EC in total)

As global outline this Master Course is planned as a two-year (30% FTE nominal) part-time activity on the basis of supplementary to the ongoing job of the teacher trainer. During the first year the study load of the Core Courses will be 40%. During the two specialization courses in the first semester of the second year, the load will be 30%, while during the last half-year project stage the study load will be 20%. This last step can be that efficient as it rests upon the synergy with the ongoing job of teacher trainer. For the first cohort this project work will be spent to convey the first-year students in their Core Course phase.

Selection and Accreditation

ITTE assisted with the Twente coordinator advertises the course and invites teacher training colleges school federations to introduce good candidates for the first cohort. Criteria are to be proven from CV, portfolios and institutional recommendations:

1. Prior certification in domain, pedagogy and didactics
2. Status and ambition in innovation in ICT didactics
3. Mastery of academic English language
4. Disseminative authority / team leadership
5. Readiness to dedicate to actively undertaking this Master Course
6. Criteria due to spread in institutional membership

IITE with the selection committee will make the selection of the first cohort group of 20 students.

Orientation Stage

In a two-day orientation meeting at IITE the selected candidates will meet the kernel of the international teacher group. The web-based course-delivery system will be introduced and couples of two students will be formatted for the collaborative assignments during the Cores Courses.

Course Outline

First Year: (30 EC in total)

Core Courses (3 EC each; 1 European Equivalent Credit equals 28 hours)

1st Quarter

1. Educational Design: Learning, Instruction, Curricula and Assessment
2. Educational Technology: Media, Simulations and Gaming
3. Experimental Design: Theory-based Evidence and v.v.

2nd Quarter

4. Meta-Cognitive Learning Support Tools
5. Observing Learning Processes: Dialogue Interpretation, Group Learning
6. Problem-Based Learning and Collaborative Learning-Support Systems

3rd Quarter

7. Mobile Learning and Virtual Reality
8. Social Media and E-Pedagogies for Flexible Online Learning
9. Human Resource Management and Development

Summer School in July/August

Teacher Training: Online and Synchronous Coaching. Theory and practice of Human Resource Development in order to include the main notions of lifelong learning, teacher career and school management for education.

Second Year: (30 EC in Total)

Specialization Courses (5 EC each)

Two courses that may compensate or complement students' interest/deficit like domain-didactics, special education, technological specialties. Topics may be chosen from internationally available web-based courses. Mentors will be recruited from the Twente staff members. The goal of these two courses is to make an optimal anticipation to the topic in the final project. Good examples for topics in the Specialization Courses are those in the [IITE's policy briefs](#).

Master Thesis Project (20 EC)

This project plan may be undertaken if all Core Courses have been finalized. The project planned can be undertaken from the start of the second year. Its goal is to start from a tentative interest and develop it into a formal literature-supported research question; preferably linked to the student's own teaching practice. Ideally the research question has both a theory-driven and a pragmatic-driven relevance that finally leads to a more successful school practice and ready for new-coming technological infrastructures like web-based performance support systems and media-rich classrooms with tablet PCs and smart phones. The final project is coached and supervised by at least one staff member associated with one of the contributive universities. During the final presentation of its results there will be a graduation committee of at least three members, inclusively the main supervisor.

Final Examination and Graduation

The Final Project will be broadcasted via the web so that colleagues at a distance may benefit from its outcomes and consult the Master candidate for further details. At the end of this plan, a number of potential co-institutes have been listed and potential guest lecturers as well.

Program and Curriculum

First Year: (30 EC in total) Ten first Year Core Courses

(3 EC each; 1 European Equivalent Credit equals 28 hours)

1. Pedagogy: Mental Attitude

ICT awareness, -skills and -attitudes have almost become synonymous to “advanced” learning: Communication in the sense of human cooperation needs not only mobile devices. It especially needs new “[Habits of Mind](#)” (by Arthur L. Costa) that penetrate the fields of Education more and more.

1. Persisting – Stick to it.
2. Communicating with clarity and precision – Be clear.
3. Managing impulsivity – Take your time.
4. Gathering data through all senses – Use your natural pathways.
5. Listening with understanding and empathy – Understand others.
6. Creating, imagining, innovating – Try a different way.
7. Thinking flexibly – Look at it another way.
8. Responding with wonderment and awe – have fun figuring it out.
9. Thinking about your thinking (metacognition) – Know your knowing.
10. Taking responsible risks – Venture out.
11. Striving for accuracy and precision – Find the best possible solution.
12. Finding humor – Laugh a little.
13. Questioning and problem posing – How do you know?
14. Thinking interdependently – Learning with others.
15. Applying past knowledge to new situations – Use what you learn.
16. Remaining open to continuous learning – Learning from experiences.

If we look to the pedagogical dimension in education, it is precisely this set of mentalities that are at stake. ICT in education is not solely focused on the process of intellectual learning; it should show its value in terms of pedagogy (mentality) as well. The intersection of the mentality, the instructional/curricular and the ICT tools culminates in the existential phases of problem-based learning.

2. Sustainability: Responsibility to next Generations

According to the “UNESCO ICT Competency Framework for Teachers” education in modern societies are increasingly based on information and knowledge. So teachers do not only need to anticipate to students’ ICT skills and problem solving capacity; teachers also need to prepare *students’ mentality* to integrate learning with the web in all facets of life, inclusively ideological issues like peace and environmental epitomized under the label of “Cradle to Cradle” (C2C); McDonough & Braungart, 2010.

3. Start from the Actual Situation

The situation nowadays is that students need to switch off their social network, their mobile phones and the game they were in. If we want teachers to benefit from the new ICT applications, then they should at least know the current tools that their students use. It does not imply that they need to integrate exactly those tools in their teaching. However if we look to the intensity that students use social media, it seems inevitable that their teachers need to know what those tools are about; it is a part of their students’ thinking and reasoning.

4. Accept the Spectrum of Available ICT Tools

There has been a time when computer programs were too generic for specific learning purposes: The word processor, the spreadsheet etc. If we look to the wide spectrum of Apps for your mobile phone of nowadays, it is clear that there is almost a full coverage of Apps for the subject domain of primary and secondary schools. See [“Thousands of apps. Endless potential”](#).

5. Link the Pragmatic to the Pedagogical Teacher Skills

Teachers need the skills to 1. Select suitable software, 2. Use ICT to communicate and 3. Collaborate. In terms of quality management; (s)he needs the skills to use ICT for leading student projects. In order to do so, teachers need to reorient in the fields of pedagogy and didactics: What qualities of learning can be discerned? How can learners be motivated in order to achieve even more? How to create a “safe” learning environment where students allow themselves to collaborate, even if the test is individual? Etc.

In summary: This Master Course needs to equip teachers both with ICT skills and a wider repertoire of educational measures in order to be autonomous change agents in various school contexts. Essential for this master course is the binding between pedagogical-, intellectual- and technological skills and ambitions. The awareness on the added value of ICT has been attained in most of the situations. What is needed now are skills and systematic methods for optimization.

1st Quarter

Learning, Instruction, Curricula and Assessment. 3EC

This course is based upon the premise that the best anticipation to learning is the design by the teacher. The teacher's domain knowledge is crucial, however, it needs to be complemented by methods for conveying the learner from beginner to early expert. So far, teachers are experts in narration; talking to large groups of students on how to understand a certain topic. We see more and more that teachers need to use media, instruction, curricula and advanced testing methods, in order to cope with a lack of time and a higher competition.



Figure 1 Educational Design on the Fly

The goal of this course is to bring teachers back on the issue of goal-directedness; the learner in the transition from incomplete to satisfactory knowledge and understanding. Relevant web-based material can be found under the next headings:

1. [Instructional Design & Learning Theory](#) by Brenda Mergel
2. [On the Science of Education Design Studies](#) by Richard J. Shavelson
3. [Educational Design and Networked Learning](#) by Peter Goodyear
4. [The Systematic Design of Instruction](#) by Dick & Carey
5. [Instructional Design for Multimedia](#): from the [Educational Media Handbook](#) ed. By Usha V. Reddi and Sanjaya Mishra
6. [Engineering Educational Design](#) by Christian Schunn, Univ. of Pittsburgh

This course will be assessed by asking you to write an essay on the various ways to anticipate to learning and teaching; What is the impact of a curriculum? And: What degrees of freedom are needed in order to allow teachers to tune to the real students at a certain moment?

Educational Technology: Media, Simulations and Gaming. 3 EC

Education is not only talking about technology: it also needs technologies like mobile-, virtual- and ubiquitous presence. Media are famous for its broadcasting effects: the radio, the TV, the telephone and now the large portals like Wikipedia and the searchable web. Newspapers face the challenge to survive among free information sources. 'Serious' gaming and simulations offer the suggestion that learning only flourishes if the player has the full mindset to concentrate on concepts that have been recognized by curriculum-and test designers before.



Figure 2 How can we Teachers support Students' Learning?

This course makes you aware of the endemic friction between playing and learning. Playing is associated with an open agenda while learning still targets the shortest road towards a high test score and the subsequent certificate.

1. [Using the Technology of Today, in the Classroom Today](#) by Eric Klopfer
2. [Digital Game-Based Learning](#) by Richard Van Eck
3. [Using Games and Simulations to Teach and Motivate Today's Students](#) by Karen Billings
4. [Integrating Educational Technology into Teaching](#) by Margaret Roblyer
5. [Designing Game-Based Learning Environments](#) by Kurt D. Squire
6. [Serious Games: Online Games for Learning](#). By Anne Derryberry

Educational technology is synonymous to “sophisticated teaching”, not necessarily equivalent to “successful teaching”. In many situations the technology is becoming a new problem rather than a solution. That’s why this course targets teachers to become innovators themselves, instead of only chosen what has been assembled by others.

Experimental Educational Design: Theory-based Evidence and v.v. 3EC

Technologies like media and simulation games open the floor to the more fundamental discussion on what type of learning is more valuable than others. Once the teacher has focused on symptoms of 'learning quality' it is a matter of observing learners and decide if it demonstrates a better learning or not.

The first skill and awareness in this course is the understanding of experimentation and critical observation of learning parameters.

Learning needs design. In most of the cases we call it "Instruction". However a large part of the teacher task is the pedagogy to guide students to into the appropriate learning attitude and discipline.



Figure 3 Classrooms Nowadays: Form follows Function

This course brings you in the position to mirror practical needs against [theoretical models](#) like [Situating Learning](#) or [Subsumption Theory](#). The goal is to allow you as teacher to make a good trade-off between your concrete classroom observations and the interpretation of available theories. The skill to make the right balance is important for you in order to keep improving your teaching; Especially when ICT is involved.

1. [Educational Design and Networked Learning](#) by Peter Goodyear
2. [Education as a Design Science](#) by Yishay Mor
3. [International Society for Design and Development in Education](#)
4. [Engineering Educational Design](#) by Christian Schunn

2nd Quarter

Meta-Cognitive Learning Support Tools 3EC

Since information tools like simulations and information mapping became available, there is a need to make learners aware of the structure in expertise: What are the key concepts in order to understand the essence of a topic? What type of relations are needed in order to reason about phenomena in the domain? How can we diagnose misconceptions? What models are needed before a learner is confronted with the full mechanisms? Etc. This course makes teachers alert to the cognitive learning tools and its underlying paradigms.

Interactivity for active learning

- Interactive stories for episodic memory
- Collaborative and cooperative lesson templates
- Merging objectivistic and constructivist learning modalities

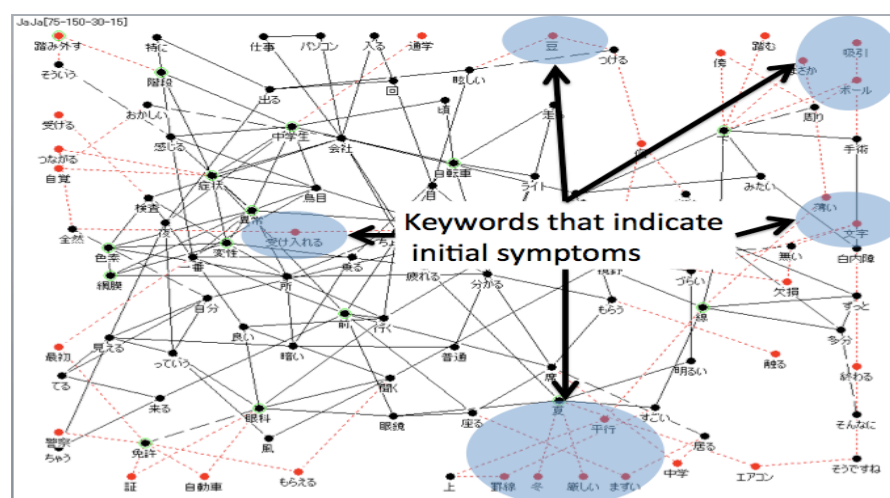


Figure 4 Conceptual Representations for Conscious Learning

Representation schematic formats for stages in learning

- Activating prior knowledge, naive ideas and misconceptions
- Eliciting analogies and metaphors
- Administering and prioritizing concept list
- Elaborating concept structures in schematic formats
- Saturating acquired knowledge

Exploring models and simulations

1. [Learning is Active and Interactive](#) by Peter Ewell
2. [Interactive Design](#) by David Fortin
3. [Interactivity & Simulations in e-Learning](#) by Ruth Thomas
4. [Learner-Interface Interaction for Technology-Enhanced Active Learning](#) by Neelu Sinha
5. [Encouraging Active Learning through Multimedia & Interactive Courseware](#) by Andy Ju An Wan
1. [Active Learning Centre: Utilization Patterns of an Interactive Educational World Wide Web Site](#) by Alexander Turchin

Observing Learning Processes: Dialogue Interpretation, Group Learning 3EC

Based upon Vygotsky's premise that cognition rests upon materialized experiences and communication, it is self-going that inter-student concertation is an essential element in learning practice. Teachers need the skills to interpret and diagnose group interactions in order to check if the group learning converges into mutual understanding and mastery; both at the individual- and the collective level (David Ewens, 2001).

The learning among teachers might become more important the coming years. [Observational learning](#) (Bandura, 1981) led our attention to the process of social learning. Its neurological underpinning became manifest only recently when the "mirror neurons" were discovered; Rizzolatti et al (2004).

Teachers need the skills to interpret collaborative learning interactions among students. However the needed changes in education need the learning among teachers in the first place.

EQAVET's way of working: community of practice



Figure 5 Community of Practice for the learning among Teachers

Communities of Practice (CoP) are the best model for sharing skills and experiences among teachers. Media like video conferencing allow teachers to contribute to colleagues' lessons remotely. The critical factor is the sense for lateral problem solving as defined by De Bono, 1970. The research into analyzing collaborative learning by argumentation can be found in the work on Visualizing Argumentation by Kirschner et al. (2003). The goal of this course is to provide teachers with the first principles of speech genres; Bakhtin, 1986.

2. [Introduction to Active/Cooperative Learning](#) by The Foundation Coalition
3. [Observation Of Peers In Learning To Write](#) by Gert Rijlaarsdam
4. [Robust Interactive Dialogue Interpretation](#) by Carolyn Penstein Rose
5. [The Interpretation of Dialogue](#) by Tullio Maranhão

Problem-Based Learning and Collaborative Learning-Support Systems 3EC

The most serious attempt to bring the student at the center of the learning process is Problem-Based Learning (PBL). With the advent of the web, PBL has been popularized. However it has shown that the essence of PBL is not so much in information access. The essence of PBL is the ownership of the learning process by the student. At the first sight the organization of PBL may look like the freedom to the learner. Quite soon it proves to be the extra needs for “thinking critically”, “decision making”, “problem solving” and especially the skill to cope with “existential conflicts”. Whereas traditional education would see these factors as “noise” and “distractors” the PBL advocates see them as the very essence of learning. The role of the teacher in PBL is more as a coach, mentor and monitor of group processes, rather than as a “docent”.

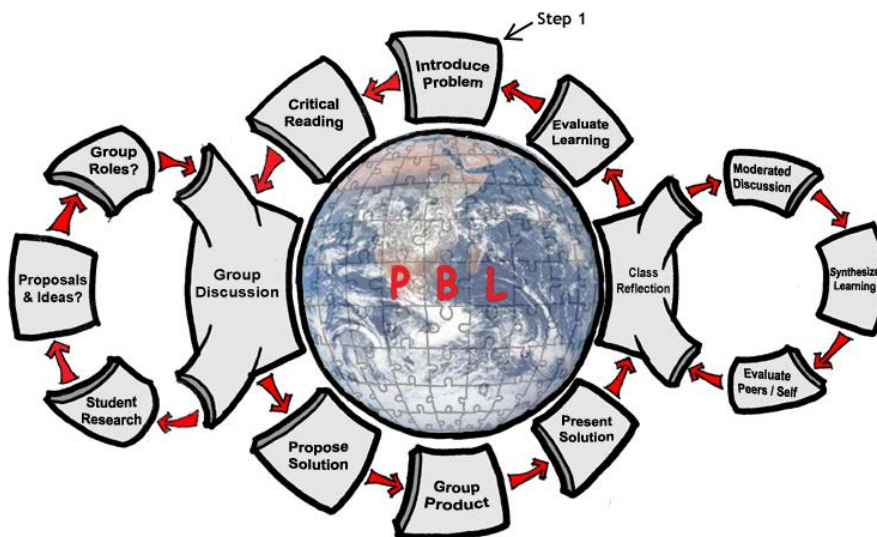


Figure 6 PBL resulting between Group Work and Class Reflections. By Eric Ingler, University of Cincinnati

Relevant aspects for the success of PBL are

- The choice and formulation of the problem; Initially it is the teacher who is the originator. Gradually the groups of students are taking the role of problem finder and adopter.
- Analogue to the earlier-presented skill of “Dialog Interpretation” it is here the teacher’s role of “Dialog Facilitator”; students need to learn how PBL dialogues can be conveyed ideally.
- Methods for creative problem solving like De Bono’s “Thinking Hats”, Altshuller’s “Triz Method” are only a few that can be selected from.
- Peer evaluation is needed to let students learn from each other perspectives.

1. [Problem-based Learning, especially in the context of large classes](#) by McMaster University
2. [The PBL Bibliographies](#) by Illinois Mathematics and Science Academy

3rd Quarter

Mobile Learning and Virtual Reality 3EC

Mobile devices like smartphones, PDAs and tablets allow learners and teachers to access the web and online “Apps” (Applets) at various stages of the learning. When the continuous connectivity reaches a point of omni-presence (ubiquity), one may imagine that there is no difference between sitting behind the screen of a desk- or laptop or walking in the street of before the blackboard. Once the visual, auditive, haptic and kinematic senses get more realistic and immersive we may call this fictional “presence” as “virtual reality”. Ultimately there will be no difference between physically “being” in a real- and being in a virtual environment. What does it mean for real schools in five years from now?



Figure 7 Mobile Learning for Stationary Applications

Mobile Learning (mLearning) is not about mobile per se; Its essence is that once students sit down and wait, they can jump back to their homework. In the schools, mobile devices makes the teacher more versatile as (s)he does no longer need to roster the computer classroom; Students have their web access with them.

- 1 [Designing mLearning](#) by Judy Brown
- 2 [mLearning Trends](#) by Robert Gadd
- 3 [MobileActive.org: A global network of people using mobile technology for social impact](#) by MarkWeingarten

The goal of this course is to

- make the teachers knowledgeable on the newest trends and applications for smartphones, including how the various operating systems like Windows Mobile, BlackBerry, Symbian and Mac OS are different.
- Get basic experience with GPS applications in relation with Social Media apps
- Make teachers aware and critical on the ways mobile devices can be integrated in lesson plans

Human Resource Management and Development 3EC

HRM becomes as broader discipline all the time. It aims at regulating the workload and personnel in a working organization. It is essential that HRM is based upon the discipline needed for the prime jobs in the organization. However communicative functions are maybe even more important. The course is centered around the major needed understandings of

- 1 HRM's financial impact
- 2 Staffing concerns: Recruiting and the success of the employment
- 3 How to train and develop employees
- 4 How to integrate career progress and reward compensation
- 5 Labor management like juridical aspects
- 6 How to optimize safety and health

The learning of HRM competences relies upon realistic cases and rich descriptions of the organization. The relevance of HRM for education is clear for a number of reasons:

- As good teachers are quite decisive for the learning of youngsters
- As there is only a narrow bandwidth of rewards available to stimulate excellence and ultimate achievements



Figure 9 HRM as endemic to Learning and Teaching

If we consider education to be a learning organization, rather than a teaching organization only, then it is obvious that it needs to stimulate its workers and stimulate its mutual learning. The development of human resources has proved to be of impact on its corporate success. Policies need to be consolidated in documents that provide procedural guidance throughout careers.

This course aims at the further building and articulation of HRD/HRM structures in educational organizations. Both teachers, school administrators and school leaders are supposed to gain from these skills in terms of institutional effectiveness.

The relevance of Teacher Performance-Appraisal Systems has been recognized in higher education like in the [Ontario's TPA system](#) that has two components: one for "new teachers" and the other for "experienced" teachers.

- Golding, N. (2010) "Strategic Human Resource Management" in Beardwell, J. and Claydon, T. (2010) Human Resource Management A Contemporary Approach, FT Prentice Hall
- Price, A., 2007. Human Resource Management: in business context. 3rd ed. London. Cengage Learning.

4th Quarter inclusively the Summer School in July/August

Teacher Training: Online and Synchronous Coaching.

In-service training is getting more attention as after 4-5 years teachers tend to fixate. This is the moment that teacher proved to be able to survive and at the same time it is necessary to help him/her to develop new ambitions. This Master course targets the teachers who have a good reputation, but who also need to refresh their skills including handling the ICT tools. Important areas for (re)training are: Cyber Bullying in the School, Media and Information Literacy.

According to Jane Tallim, media literacy is:

.... the ability to sift through and analyze the messages that inform, entertain and sell to us every day. It's the ability to bring critical thinking skills to bear on all media— from music videos and Web environments to product placement in films and virtual displays on hockey boards. It's about asking pertinent questions about what's there, and noticing what's not there. And it's the instinct to question what lies behind media productions— the motives, the money, the values and the ownership— and to be aware of how these factors influence content.

Tallim, J. in the [Media Awareness Network](#).

Media education can be seen as the wide area of awareness, etiquette and the juridical system that help citizens to cope with new commodities like we meet on the web. Even more than with print media it is the question: Who are the sender and the receiver(s) of the information? What is needed to create the aimed effect in the receiver? What is the price of the empowerment? (The fact that anyone can send messages around to thousands for virtually no cost?)

UNESCO's mission in this area so far consists of fostering information and media literate societies by encouraging the development of national information and media literacy policies, including in education. A particular focus was announced to be on training teachers to sensitize them to the importance of information and media literacy in the education process, enable them to integrate information and media literacy into their teaching and provide them with appropriate pedagogical methods and curricula.

- Frau-Meigs, D. 2008. Media education: Crossing a mental rubicon." In Empowerment through media education: An intercultural dialogue, ed. Ulla Carlsson, Samy Tayie, Genevieve Jacquinet-Delaunay and Jose Manuel Perez Tornero, (pp. 169 – 180). Goteborg University, Sweden: The International Clearinghouse on Children, Youth and Media, Nordicom in cooperation with UNESCO, Dar Graphit and Mentor Association.

Theory and Practice of Human Resource Development

In order to include the main notions of lifelong learning, teacher career and school management for education, the summer school workshop includes both the Online and Synchronous Coaching course and the practical training for HRM. The key notion here is [Life-Long Learning](#) and the opportunities for [Web-Based Communities](#).

Second Year: (30 EC in Total)

Two Specialization Courses (5 EC each)

Two courses that may compensate or complement students' interest/deficit like domain-didactics, special education, technological specialties. Topics may be chosen from internationally available web-based courses. Mentors will be recruited from the Twente staff members. The goal of these two courses is to make an optimal anticipation to the topic in the final project. Good examples for topics in the Specialization Courses are those in the [IITE's policy briefs](#).

Exemplary Elective Courses

1. Digital Literacy in Education
 2. Cost-benefit Modeling for Open Learning
 3. Social Media for Learning by Means of ICT
 4. ICTs for New Engineering Education
- Etc.

Master Thesis Project (20 EC)

This project plan may be undertaken if all Core Courses have been finalized. The project planned can be undertaken from the start of the second year. Its goal is to start from a tentative interest and develop it into a formal literature-supported research question; preferably linked to the student's own teaching practice. Ideally the research question has both a theory-driven and a pragmatic-driven relevance that finally leads to a more successful school practice and ready for new-coming technological infrastructures like web-based performance support systems and media-rich classrooms with tablet PCs and smart phones. The final project is coached and supervised by at least one staff member associated with one of the contributive universities. During the final presentation of its results there will be a graduation committee of at least three members, inclusively the main supervisor.

Final Examination and Graduation

The Final Project presentations will be broadcasted via the web so that colleagues at a distance may benefit from its outcomes and consult the Master candidate for further details.

Validation by Triangulation

The Master Thesis supervisor will be seconded by an international expert who is responsible for one of the courses that were taken as model for this very Master Course.

Cross-Validating Master Courses in Educational ICT

Kaplan Univ. [MS in Education \(for Existing Teachers Grades K-12\)](#)

Anglia Ruskin Univ. [Learning Through Technology](#)

Utrecht of Univ. [Learning in Interaction](#)

Lingköping Univ. [Adult Learning and Global Change](#)

Leuphana Univ. [Educational Sciences](#)

Western England Coll. [Online Master of Education in Curriculum and Instruction](#)

Potential Contributing Institutes and Guest Teachers

Based upon the UNESCO Chairs in Education

1. UNESCO Chair of Herzen State Pedagogical University of Russia, Russian Federation; Mr. Gennady Bordovsky
2. UNESCO Chair on Distance Education in Engineering, State University of Aerospace Instrumentation, Russian Federation; Mr. Anatoly Ovodenko
3. Peoples' Friendship University of Russia, Russian Federation; Mr. Oleg Ignatiev
4. Moscow State University of Psychology and Education, Russian Federation; Ms. Galina Gabunia
5. UNESCO Chair in Informatics for the Humanities, Institute of Mathematics and Informatics Vilnius University, Lithuania; Ms. Nerute Kligiene
6. Ukraine Institute for Information Technologies in Education, National Technical University of Ukraine «Kiev Polytechnic Institute», Ukraine; Ms. Inna Maliukova
7. Belarussian Maksim Tank State Pedagogical University, Belarus; Mr. Peter Kukharchik
8. State University of Library Studies and Information Technologies, Bulgaria; Mr. Roumen Nikolov
9. Computers Center, Azerbaijan State Pedagogical University, Azerbaijan; Mr. Ilham Ahmedov
10. Bauman Moscow State Technical University (BMSTU) and Multivendor and Academic ICT Consortium, Russian Federation; Mr. Victor Timofeev

Based upon the UNESCO Institutes and Educational Centers

1. UNESCO International Institute for Educational Planning; IIEP, Paris (France) and Buenos Aires (Argentina)
2. UNESCO Institute for Lifelong Learning; UIL, Hamburg (Germany)
3. UNESCO International Institute for Capacity-Building in Africa; IICBA, Addis Ababa (Ethiopia)
4. UNESCO International Institute for Higher Education in Latin America and the Caribbean; IESALC, Caracas (Venezuela)
5. UNESCO International Centre for Technical and Vocational Education and Training; UNEVOC, Bonn (Germany)
6. UNESCO International Bureau of Education; IBE, Geneva, (Switzerland)
7. UNESCO European Centre for Higher Education; CEPES, Bucarest (Romania)

Based upon International Experts in Educational Technology

1. [Ivan Kalas](#); Bratislava, Slovakia; Informatics Education.
2. [Grainne Conole](#); Leicester, GB; Designing for Learning.
3. [Gilly Salmon](#); Southern Queensland
4. [George Siemens](#); Athabasca University; Learning Analytics.
5. [Bob Appelman](#); Indiana Univ; USA. Creative Media Design.
6. [Maria Joao Loureiro](#); Aveiro; Portugal: Learning among Teachers in a Community of Practice.
7. [Dianne Laurillard](#); London, GB; Learning with Digital Technologies.
8. [Looi CheeKit](#); Singapore; Technology-Enabled Learning.
9. [Marta Szabo](#); Budapest; Media & Educational Informatics.

IITE Reports on Educational Technology

Policy Briefs

1. Cloud Computing in Education
2. Digital Literacy in Education
3. Mobile Learning for Quality Education and Social Inclusion
4. Cost-benefit Modeling for Open Learning
5. Social Media for Learning by Means of ICT
6. Open Educational Resources and Intellectual Property Rights
7. ICTs for New Engineering Education
8. Global Trends in the Development and Use of Open Educational Resources to Reform Educational Practices
9. ICTs and Indigenous People
10. ICT for Inclusion: Reaching More Students More Effectively

Analytical Surveys, Best Practices, Proceedings

11. Recognizing the Potential of ICT in Early Childhood Education
12. Media Literacy and New Humanism
13. ICT in Education for People with Disabilities
14. ICT in Teacher Education: Policy, OER and Partnership. Proceedings

ICTs in TVET

15. ICT Application in Technical and Vocational Education and Training. Specialized Training Course
16. ICT Application in TVET. Specialized Training Course.
17. The Use of ICTs in Technical and Vocational Education and Training.
18. Information and Communication Technologies in Technical and Vocational Education and Training.

ICTs in Special Needs Education

19. ICT in Education for People with Special Needs.
20. Information and Communication Technologies in Special Education.
21. Expert Meeting Information and Communication Technologies in Education for People with Special Needs.
22. Information and Communication Technology in Special Education.

ICTs in Distance Education

23. Development of Educational Personnel for Distance Education.
24. Testing Technologies in Distance Learning.
25. Information and Communication Technologies in Distance Education.
26. Information and Communication Technologies in Distance Education.
27. Development of Educational Personnel for Distance Education.
28. Information and Communication Technologies in Distance Education.
29. Expert Meeting Distance Education: Structure, Methodology, Staff Development and Legal Aspects and workshop Distance Education: Networking and Staff Development.

Internet in Education

30. Internet in Education. Programme of specialized training course
31. Internet in Education. Support Materials for Educators.
32. Current WWW Information Systems on Information Technologies in Education.
33. Meeting of Experts Education via the Internet and the Workshop Internet Usage in Education.

Multimedia in Education

34. Multimedia in Education. Programme of specialized training course
35. Multimedia in Education. Specialized Training Course.
36. Multimedia Encyclopedia Russia - USA: 20th Century. Feasibility study
37. Multimedia in Education. Specialized Training Course elaborated by the international working group headed by Prof. Andresen (Denmark) within the framework of the IITE Training Programme.

ICTs in Primary and Secondary Education

38. Informatics for Primary Education.
39. Information and Communication Technologies in Secondary Education.
40. ICTs for Secondary Education. Specialized Training Course
41. ICTs for Secondary Education. Specialized Training Course.
42. The ICT Usage in Secondary Education.
43. Information and Communication Technologies in Secondary Education.

Digital Libraries in Education

44. Digital Libraries in Education, Science and Culture.
45. Digital Libraries in Education. Specialized training course.
46. Digital Libraries in Education. Specialized training course.
47. Digital Libraries in Education. Programme of specialized training course
48. Digital Libraries in Education.

Indicators of ICT Usage in Education

49. Indicators of ICT Application in Secondary Education of South-East European Countries.
50. Basic ICT Usage Indicators in Secondary Education in the Baltic and CIS States.
51. Indicators of ICT Application in Secondary Education of South-East European Countries. Indicators of ICT Usage in Education. "ICTs in Education: State-of-the-Art, Needs and Perspectives"

ICTs in Subjects Teaching and Learning

52. ICTs in History Education in Countries of South-Eastern Europe. Analytical
53. Information and Communication Technologies in the Teaching and Learning of Foreign Languages:

Information Society

54. Basic ICT Literacy. Programme of basic training course
55. Basic ICT Literacy. Basic training course
56. Education, Art and ICTs: Integration for the Development of One's Personality.
57. International Experience of ICT Usage in Education.
58. Ethical, Psychological and Societal Problems of the Application of ICTs in Education.

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- UNESCO ICT Competency Framework for Teachers. Published in 2011 by the United Nations Educational, Scientific and Cultural Organization 7, place de Fontenoy, 75352 PARIS 07 SP. <http://unesdoc.unesco.org/images/0021/002134/213475e.pdf>
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