

OPEN LEARNING FOR IMPROVING SCHOOL EDUCATION, LIFELONG LEARNING AND SOCIETAL IMPACT

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Abstract: This paper presents the Open Learning theory with the aim at modernizing and opening up education for fitting to the given situation and for a long-term and sustainable improvement across all sectors in learning, education and training, all communities, educational and training systems and societies in Europe and worldwide.

Keywords: Open Learning, quality, innovations, learning history, quality development, school education, lifelong learning, digital age, E-Learning

1. WHY OPEN LEARNING?

In this paper, the theory and design of Open Learning will be introduced.

The Open Learning theory answers the question how to improve the quality in learning, education and training on the background of the given digital age and revolution and how to integrate learning innovation for modernizing education.

Open Learning is the theoretical and generic framework and long-term vision for the modernization of Learning, Education and Training (LET) and for the required changes in all educational sectors, from kindergarten to lifelong learning. Open Learning combines learning innovations and learning quality to achieve a balanced and appropriate solution adapted to the given learning objectives, needs and situations.

An innovative and structural change in particular within the school education is required due to the general and global challenges by the digital age.

2. CHALLENGES BY THE DIGITAL AGE

Learning innovations and learning quality are important and reflected topics for a very long time from the beginning of discussions and theories about learning processes: In Europe, Plato's Allegory of the Cave is one of the earliest examples. Their debate continued during the introduction of the first universities in the Middle Age and of the school systems in the 18th century. During the last years and the upcoming so called "digital age", many discussions took place (also in the fields of school and higher education, learning for work and at workplaces as well as non-formal and informal learning) due to the two main changes covering all sectors, branches and levels of the society: first, globalisation and second, establishment of the worldwide internet.

These two factors are leading to global markets, worldwide networking, communication and competition, as well as to the digitalisation of services and systems with the introduction of internet-based services, hardware and software within all parts of our lives. They were and

are still changing all societies and in particular the learning, education and training in schools, universities, at work and online.

The European Union has identified the challenges and opportunities by these global changes and published several communications and framework for the future European society and its learning, education and training: Based on the Lisbon Declaration, the former vision of the Information Society called i2020 and the established Bologna Process [1], the European Commission and Council have reviewed and analysed the impact of the globalisation, the internet and the information technologies in general leading to current new communications and policies: The Digital Age for Europe, EUROPE 2020 and Education and Training 2020 are reflecting these movements with special emphasis on the potentials for the European citizens and communities [2], [3] and [4]. Most recently the European Commission launched the communication on Opening Up Education for supporting the introduction and use of Technology-Enhanced Learning (TEL) and Open Educational Resources (OER) as well as the Grand Coalition initiative for competences and skills development through lifelong learning related to the world of work and all citizens in the European societies.

3. MYTHS OF LEARNING INNOVATIONS

In the international discussions about the future learning, education and training from theory, research and politics but also from press, individuals and social communities, the main focus is currently on the technological innovations and their opportunities. Theories and experts are claiming brand new and extraordinary chances, sometimes promising new learning eras and paradigmas: E. g., the theories of connectivism by Siemens [5] or of Social Learning by Hart [6]. Even the arrival of fundamental new ways of learning are promised under the label of learning 2.0 / 3.0 in analogy to the terms web 2.0 / 3.0 (cf. [7], [8], and for an overview [9]). Finally new concepts and descriptions of our world as a 'flat world' are leading to predictions that 'to learn how to learn' will become the most important asset for all workers due to all the changes and faster innovation (cf. [10]): It is claimed to be a new movement and progress however it is clear

and evident in pedagogy since several hundreds of years (if not longer) that 'to learn how to learn' is most important for learning processes and progress and for the development of personality and competences (cf. [11], [12], [13] and [14]).

From this perspective, it seems that learning innovations are the only path and road map for a better future education and training: The underlying (and often hidden) argument is that through them we are earning many new chances to learn, without them we are not fitting to the changing times of globalisation and worldwide internet as well as to the new digital generation, the so labelled "digital natives" (Prensky [15], cf. for a general criticism of this term [16]). We call this discussion the (learning) innovation strand.

On the other hand, there is a long-term discussion with huge tradition (since the beginning of our culture) about the learning quality (cf. for an overview [17]). We call this debate the (learning) history strand even if some of the topics like quality management for education and training are less than 100 years old.

Surprisingly, both discussion strands, the new innovation and the old history, are not interconnected and not reflecting each other. It seems that the supporters of learning innovations do not want to refer to theories of the past and that the authors of learning history do not want to recognise global changes vice versa. That leads us to an important question that requires urgently attention and an answer in our changing times: What is the relation between learning innovations and learning quality?

4. IS LEARNING CHANGING?

Our answer is based on three hypotheses of the current learning situation (for their detailed discussion and arguments cf. [18]):

1. Learning history should not and cannot be ignored.
2. Learning innovations are mainly technology-driven.
3. Learning is not completely changing.

First of all, it has to be stated clearly that the worldwide changes by globalisation and internet for all through world wide web and social media and communities do not justify to withdraw or ignore all theories from the past. Modern innovation theories ignoring this treasure of expertise from the history are losing a well-proven underground for basing their argumentation (even if contradictory) that is providing a huge variety of different concepts (e.g. cf. for extremes the theories of cognitive development by Piaget [12] and the systems theories by Luhmann [19] and [20] and Maturana/Varela [21]).

Second, the currently claimed learning innovations based on the effects of new internet opportunities, services and social media are only dealing with technological changes and chances: Of course we can realize diverse learning scenarios and (digital) communities, services and systems today that were not available several years ago like

MOOCs, social communities, blogging (cf. [9], [6] and [22]). But technological inventions and changes are offering only new options and pre-conditions. They still require an appropriate learning design and setting with an attractive and motivating learning environment: For those (and other) reasons we call together with Daniel [22] MOOCs as the 'educational buzzword of 2012'. Therefore we direct our focus on the learning quality beyond MOOCs: Learning quality was, is and will be the key for learning success and outcomes (cf. [23]).

Finally learning is not completely different and changing only due to the globalisation, new technologies and network opportunities. The new technologies and global changes are providing challenges and chances to establish new ways to base, present and integrate learning processes within education and training and learning groups including new options for self-regulated learning. But these new modes and types of access and interactions in learning processes do not change completely the way how people learn. The style how to use, consume and reflect learning opportunities and materials may change through increasing speed and multi-tasking and lower attention but that is only increasing the requirements for learning designers, educators and teachers.

5. LEARNING QUALITY IS KEY

What is most important for the success of learning processes is the learning quality. Learning opportunities have to meet the need of the learners and to provide the appropriate quality to fulfil their requirements. That can sometimes mean a simple learning course with teacher-centered education and sometimes a complex sophisticated learning environment with learner-oriented group work enriched facilitated by an educator as moderator, tutor or enabler and with new learning technologies and innovations including social media and communities. That means that learning quality cannot pre-defined but have to be adapted to the given situation and learners. In this sense, learning history and learning innovations are two different approaches and points of view that are interdependent and cannot be reflected solely but have to be analysed in conjunction for achieving the best and appropriate learning opportunity and success. Next to them, standards are building the third source for planning and designing the best learning opportunity and quality (cf. [18] and [24]). This overall objective for the continuous improvement of learning quality can be called quality development: Quality development has to combine the relevant and appropriate approaches, concepts and elements from all three dimensions that are basing the learning quality: History (by learning theories and traditions), innovation (by new learning options) and standards (by consensus building on learning).

There could be three alternatives and options in theory: To focus only on the learning innovations only (1.), to focus only on the history of learning traditions and theory (2.) or to arrange the mix between both approaches (3.). As already explained above, it is not possible to argue that the only focus on learning innovations can succeed by

jumping out of nothing as it cannot be argued and proven how such a jump can take place by ignoring the learning experiences and theories. On the other hand, future learning opportunities have to reflect the changes in society and chances by innovations and would also fail by ignoring them. The following figure tries to represent this need to combine learning innovations and learning traditions and theories:

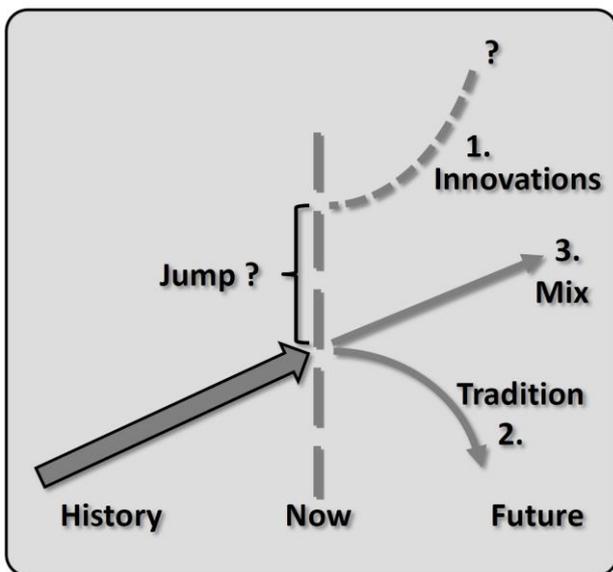


Image 1: Learning history and innovations

Therefore only the mix of learning innovations and history based on learning experiences and theories from the past is promising and convincing as. Thus, we can say and summarize: Quality development is the crucial task for learning, education and training.

The question is now: How can quality development be addressed and improved in learning, education and training in our times of the digital age? The concept of Open Learning tries to provide a theoretical framework for the improvement of the learning quality through the integration of learning innovations leading to opening up the education.

6. THE THEORY OF OPEN LEARNING

Open Learning tries to provide an answer on the given challenges of globalization for the modernization of learning, education and training. Open Learning combines the two major dimensions to meet the current requirements and the right balance between learning innovations and tradition achieving high quality in learning:

1. Suitable and open learning styles and designs
2. Suitable and open learning scenarios and environment

Open Learning introduces the open movement into all educational sectors: Under the umbrella of the term "Open Education" many different approaches are currently summarized. The use of Open Educational Resources (OER) and the design of Open Educational Practices (OEP) are often promoted for all educational

sectors based on the definition by UNESCO [25]. As a theoretical and generic framework and long-term vision for the modernization of Learning, Education and Training (LET) and for the required changes in all educational sectors, from kindergarten to lifelong learning, Open Learning has always to be adapted to the specific situation, target group, learning objectives and needs.

Technology-enhanced learning can play a key role in the future improvement of learning quality in education, training and societies: Not only formal, but also non-formal and informal learning can be facilitated by technology-enhanced learning, e. g., through social learning for working smarter and social workplaces (cf. [6] and [26], for general criticism cf. [27]). In addition the support and tracking options offered by the used technologies can provide substantial basis for data collections, measurements and evaluations of all learning and working activities to assess changes in the performance and assigned competences.

7. OPEN LEARNING IN PRACTICE

In the following we will provide a first adaptation of Open Learning for the school education as well as an introduction into the key European Initiative Open Discovery Space.

Adaptation of Open Learning for school education

Open Learning can be adapted as Open School Learning for the school sector as the combination of:

1. Open Education (innovative education with technologies)
2. Creative Classrooms (collaboration with moderation)

Open School Learning introduces the concept of Open Education within schools by improving the variety of learning styles, amongst others through the use of e-Learning and Open Educational Resources. Open School Learning establishes the vision of Creative Classrooms where teachers are continuously changing their roles according to the scenarios and students are cooperating, amongst others through developing a network of communities across Europe.

Currently, one major project funded by the European Commission is focusing such a broad and sustainable introduction of Open School Learning and technology-enhanced and competence-based learning within school education across whole Europe.

Open Discovery Space for Open Learning in schools

Open Discovery Space (www.opendiscoveryspace.eu) with its focus on the school sector and teachers as main target group addresses more than 2,000 schools and offering training for over 10,000 teachers in all 27 EU member states: Open Discovery Space (ODS) introduces innovative learning designs and scenarios into K-12

schools through the support by technology enhanced learning and social communities.

Open Discovery Space (ODS) focuses on the required modernisation of school education, based on the combination of Open Education and Creative Classrooms through the concept of Open School Learning. Open School Learning introduces and uses innovative scenarios, open educational practices and resources and can be realized through de-centralized and technology-enhanced communities. ODS cooperates since 2012 in a first of its kind effort with all school stakeholders to create a pan-European e-learning environment to promote more flexible and creative ways of learning. The project follows a unique approach to learning at school: supporting the development of self-esteem, an increased "sense of belonging", and an improved perception of one's own capacity to solve problems. In this approach, ODS addresses teachers as main target group and develops regional hubs, instruments and online services, which facilitate and improve Open School Learning and contribute to the "construction of the surrounding community" [28].

The ODS project focuses the establishment of de-centralized regional communities through the introduction of technology-enhanced learning within the national European school systems including the provision of a portal for Open Educational Resources and the development of learning scenarios and services for the long-term improvement of school education by innovative pedagogical planning and learning. The Inspiring Science Education (www.inspiringscience.eu) project will benefit from these developments and transfer all achieved results in the fields of science education for further support and innovations for and by teachers.

7. THE FUTURE OF LEARNING

The introduction of Open Learning requires a complete change and paradigm shift of learning in the future: The paradigm shift from input to outcome orientation in learning is moving the focus from knowledge (as learning input), which can more and more quickly become outdated, to competences (as learning outcomes), including abilities to transfer and act successfully in an unknown situation. Today we have to learn during our entire lifetimes to fulfil lifelong learning in order to be prepared for future jobs and tasks that do not yet exist, which are still unknown and cannot even be thought about (cf. [27], [10] and [29]).

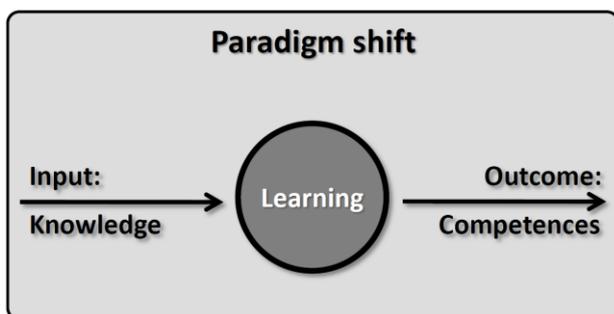


Image 2: Paradigm shift in learning

However the term "competence" is defined in many different ways: The historical development lines of the term "competence" in different science disciplines demonstrate the variety and complexity of meanings and views on the term. In psychology, White has used the term "competence" very early (in the year 1959) to designate skills developed by self-organization and required for performance [cf. 30]. In semantics and only a few years later in 1962, Chomsky defined competence as the self-organized ability to construct and understand a potentially unlimited amount of sentences using a limited set of vocabulary and thus, to manage speech acts as a competent speaker [cf. 31]. And based on these concepts, two different schools of thought were developed in different directions: the first line continued the Chomsky's ideas by broadening them to a human being's acting in general; the second line used the term for societal criticism and combined it along with "coping", in particular with the generation of social situations.

Today, the concept of competence (which is traditionally combined with successful acting in unknown situations in the Central European tradition) offers a theoretical basis for the development of strategies, methods and means for solving the current tasks (cf. [32]). In addition, the needs for personal and organizational development have to be identified, and training and change management methods have to be introduced (cf. [29]).

Thus, initiatives are taking place at the European (cf. [3], [33] and [34]) and international level (cf. [35] and [36]) to harmonize the whole competence field on the basis of the requirements from all stakeholders, educational systems and societies. This paradigm shift towards competence-oriented learning, education and training is not only needed for facing current and future challenges but also for the broad introduction of Open Learning.

8. THE VISION OF OPEN LEARNING

Efforts towards Open Learning through innovations like online cooperation, MOOCs and technology-enhanced learning have achieved broad awareness and agreement through the support of new policies such as Opening up Education launched by the European Commission. Nevertheless, investment in education and training is decreasing in many countries despite general recognition of its importance. Innovation and e-Learning can foster new ways of learning, however many contributions currently focus exclusively on technological opportunities. But it is evident that educational change through Open Learning and refined pedagogies is extremely important to achieve the highest learning quality possible.

ICORE, the International Community for Open Research and Open Education (www.ICORE-online.org) was established with this objective in 2013 and launched at the international LINQ Conference in Rome in order to promote open education and its connections with open research. ICORE is collaborating with leading European and international organizations motivated by a common

vision, joining efforts for future strategies and activities which facilitate innovative learning in schools, universities, societies and at work.

ICORE promotes, supports and enhances Open Research and Open Education worldwide. Main objectives of ICORE are the recognition, progress and application of Open Research and Open Education: ICORE wants to bridge both worlds of Open Research and Open Education. The goal is the mutual re-usage of their results and outcomes, e. g. through the usage of digital resources from Open Research in Open Education.

Hopefully ICORE and all other stakeholders joining and interested in opening up learning, education and training will facilitate the required changes and realize Open Learning for improving school education, lifelong learning and societal impact. A first step was the discussion and approval of the "Declaration of Crete" (cf. [37]) that is requesting the re-establishment of openness as default what could facilitate and improve the introduction of Open Learning worldwide.

9. CONCLUSION

Learning innovation and learning quality are very often addressed separately and solely. But in fact they are interdependent and have to be reflected both for achieving the best learning quality: The best appropriate learning quality remains the core objective in learning, education and training and can be achieved by combining the three dimensions learning history, learning innovations and learning standards. Learning innovations can increase the learning quality but require a basis provided by the learning experiences and theories from the past. On the other hand learning traditions have to be enriched by innovations, in particular facing the current worldwide challenges of globalisation and worldwide internet establishment. Together with the third dimension, the learning standards, learning history and learning innovations are building the basis and potential inputs for planning and design learning opportunities. A suitable mix of history from learning experiences and theories and current innovations combined with international consensus on learning standards is required.

The Open Learning concept was introduced to fulfil these challenges and requirements: It has been roughly adapted to the school education as Open School Learning. In general Open Learning can ensure to meet the learners' needs and to provide the best and appropriate learning opportunities and learning quality fitting to the given situation and for a long-term and sustainable improvement. In the future it has to be demonstrated that Open Learning can also be adapted across all sectors in learning, education and training, all communities, educational and training systems and societies in Europe and worldwide.

LITERATURE

[1] European Commission (2005): i2010 – A European Information Society for growth and employment {SEC(2005) 717} [COM/2005/0229 final]; [http://eur-](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52005DC0229:EN:NOT)

[lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52005DC0229:EN:NOT](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52005DC0229:EN:NOT).

- [2] European Commission (2010): EUROPE 2020 - A strategy for smart, sustainable and inclusive growth [COM/2010/2020 final]; <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52010DC2020:EN:NOT>.
- [3] European Commission (2010): A Digital Agenda for Europe; <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52010DC0245:EN:NOT>.
- [4] European Council (2009): Education and Training 2020 (ET 2020); <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52009XG0528%2801%29:EN:NOT>.
- [5] Siemens, G. (2005): "Connectivism: Learning as Network-Creation", online available at: <http://elearnspace.org/Articles/networks.doc>, retrieved 2012-11-02.
- [6] Hart, J. (2011): Social Learning Handbook, Centre for Learning & Performance Technologies, Wiltshire.
- [7] Downes, St. (2005): E-Learning 2.0, in: eLearn Magazine (October 2005), <http://elearnmag.acm.org/featured.cfm?aid=1104968>.
- [8] Karrer, T. (2007): Understanding E-Learning 2.0, in: Learning Circuits (07/2007), <http://www.astd.org/Publications/Newsletters/Learning-Circuits/Learning-Circuits-Archives/2007/07/Understanding-E-Learning-20>.
- [9] Redecker, C. (2009): Review of Learning 2.0 Practices: Study on the Impact of Web 2.0 Innovations on Education and Training in Europe, Joint Research Centre; Luxembourg.
- [10] Friedman, T. (2006): The World is Flat. Penguin Books, London.
- [11] Dewey, J. (1966): Democracy and Education: An Introduction to the Philosophy of Education, The Free Press, New York.
- [12] Piaget, J. (1953): The origin of intelligence in the child. Routledge; London.
- [13] Rousseau, J.-J. (1968): The Social Contract, Penguin, Harmondsworth.
- [14] Vygotsky, L. (1988): Thought and Language. Cambridge, MA: MIT Press.
- [15] Prensky, M. (2001): "Digital Natives, Digital Immigrants - Part II: Do they really think differently?", in: On the Horizon, 9 (6), 1-9.
- [16] Schulmeister, R. (2008): Gibt es eine "Net Generation"? Version 2.0, http://www.zhw.uni-hamburg.de/uploads/schulmeister-net-generation_v2.pdf.
- [17] Stracke, C. M. (2006): Process-oriented Quality Management. In: Pawlowski J. & Ehlers, U. (Eds.) European Handbook on Quality and Standardisation in E-Learning. Springer, Berlin: 79-96.
- [18] Stracke, C. M. (2013): "Open Learning: The Concept for Modernizing School Education and Lifelong Learning through the Combination of Learning Innovations and Quality"; in: Stracke, C. M. (Ed.):

- Learning Innovations and Quality: The Future of Digital Resources, Berlin: Logos. p. 15-28. [also online available at: <http://www.learning-innovations.eu>]
- [19] Luhmann, N. (1995): Social Systems. Stanford University Press, Stanford.
- [20] Luhmann, N. (1998): The Society of the Society [= Die Gesellschaft der Gesellschaft]. Suhrkamp Frankfurt/ Main.
- [21] Maturana, H. R./ Varela, Francisco J. (1992): The Tree of Knowledge. The Biological Roots of Understanding. Shambhala, Boston.
- [22] Daniel, J. (2012): "Making Sense of MOOCs: Musings in a Maze of Myth, Paradox and Possibility", online available at: <http://sirjohn.ca/wordpress/wp-content/uploads/2012/08/120925MOOCspaper2.pdf>, retrieved 2012-11-02.
- [23] Stracke, C. M. (2012): "Learning Innovations and Learning Quality: Relations, Interdependences, and Future"; in: Stracke, Christian M. (Ed.): The Future of Learning Innovations and Learning Quality. How do they fit together?, Berlin: Gito, p. 13-25.
- [24] Stracke, C. M. (2010): "Quality development and standards in learning, education, and training: adaptation model and guidelines for implementations". In: Информатизация образования и науки [= Информике (Informika), ISSN 2073-7572]; Vol. 7 (3), 2010. Moscow (Russian Federation), 136-146 [online available at: <http://www.qualitydevelopment.eu/docs>].
- [25] UNESCO (2002): Forum on the Impact of Open Courseware for Higher Education in Developing Countries. Final Report. Paris: UNESCO. [online available at: <http://unesdoc.unesco.org/images/0012/001285/128515e.pdf>]
- [26] Cross, J. (2010): Working smarter fieldbook, Internet Time Alliance, Berkeley.
- [27] Davenport, T. (2005): Thinking for a Living: How to Get Better Performances and Results from Knowledge Workers, Harvard Business Review Press, Boston.
- [28] Stracke, C. M. et al. (2013): "Open School Learning. A vision to improve European schools towards 2030 – using the results of the Open Discovery Space project"; in: Open Education 2030. JRC-IPTS Call for Vision Papers. Part II: School Education. Sevilla: JRC. p. 99-104. [also online available at: <http://blogs.ec.europa.eu/openeducation2030/files/2013/05/Stracke-OE-SE-2030.pdf> and at: <http://www.qualitydevelopment.eu/docs>]
- [29] Keeley, B. (2007): Human Capital. How what you know shapes your life, OECD, Paris. [also online available at: <http://www.oecd.org/insights/humancapital>]
- [30] White, R. W. (1959): "Motivation Reconsidered. The Concept of Competence", in: Psychological Review, 66, 297-333.
- [31] Chomsky, N. (1962): Current Issues in Linguistic Theory. The Hague: Mouton.
- [32] Weinert, F. E. (2001): "Concept of Competence: A Conceptual Clarification", in: Rychen, D. S. (Ed.): Defining and Selecting Key Competencies, Hogrefe & Huber: Seattle et al., 45-66.
- [33] European Parliament/ European Council (2006): Recommendation of the European Parliament and of the Council on Key Competences for Lifelong Learning. [online available at: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:394:0010:0018:EN:PDF>]
- [34] European Parliament/ European Council (2008): Recommendation of the European Parliament and of the Council on the Establishment of the European Qualifications Framework for Lifelong Learning (EQF). [online available at: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2008:111:0001:0007:EN:PDF>]
- [35] Stracke, C. M. (2011): "Competence Modelling for Innovations and Quality Development in E-Learning: Towards learning outcome orientation by competence models"; in: Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunication 2011 [= EdMedia 2011] (2011), AACE, Chesapeake, VA, 1885-1894.
- [36] ISO/IEC 20006-1 (2012): Information Technology for Learning, Education and Training — Information Model for Competency — Part 1: Competency General Framework and Information Model (CD), ISO, Geneva.
- [37] ICORE (2014): *Declaration of Crete*, http://wiki.icore-online.org/index.php/ICORE_Declaration_of_Crete.