Expanding Learning Scenarios
Opening Out the Educational Landscape
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COHERENCE OF ACCELERATED TRANSFORMATIONS AND EXPANDED LEARNING SCENARIOS

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Abstract

Based on a holistic approach an attempt is made to understand the complex relationships with its many related objects. The interaction of theses and antitheses leads to the synthesis and thus to new developments, among other things in education. The processes in all spheres of life of the society, particularly in innovation, knowledge transfer and the related teaching are dominated by permanent transformations. The organizations respond with new enhanced learning scenarios in order to control the acceleration of the transformations from the point of view of content, communication, and cooperation. The increasing knowledge of the management of transformation processes, however, leads to the situation that knowledge, including the appropriate educational systems and processes, can be converted and transferred even more quickly and efficiently. Recently, this period of accelerated development is passing through in all areas of society globally. It is investigated the question which kinds of opportunities exist to control the acceleration by using appropriate methods and designing essential parts of the necessary educational systems.

Introduction

The dynamics of the development of science and technology is constantly increasing. On the one hand, the reason is that the satisfaction of the needs of different target groups leads to an increased motivation to redesign different processes in society, gaining momentum of development. On the other hand, the framework conditions, especially in the field of organization development, international division of labour, new information and communication technologies and new media, etc. are continuously improved and take effect as catalysts for the efficient interaction of resources in accelerating the developmental processes, too.

Information and knowledge management, sharing, and distribution are inextricably linked with this trend. They are essential components of the dynamic global development both in work processes and especially in the education systems. Innovations are not incidentally but very systematically done so that obsolete versions can be continuously replaced by something new and better. Professional management methods are increasingly being taught and

implemented in order to cope with the associated increase in the complexity and intricacy of tasks more efficiently. They provide the very efficient use of available resources for further refinement of different application systems, and thus they contribute to accelerate the further development (Figure 1)

Thus, the current situation is characterized by continuous innovation and resulting transformations leading in shorter time intervals to significant changes, i.e. leading to an acceleration of the processes of change. It is essential to react to the growing flood of requests with noticeable changes in the learning scenarios and the diversification of educational offers to meet the complex challenges adequately. Educational institutions have responded in the regional, national and global context by developing not only new kinds and methods of learning and teaching in special networks and alliances but also by focusing their activities increasingly on the user requirements based on new forms of collaborations

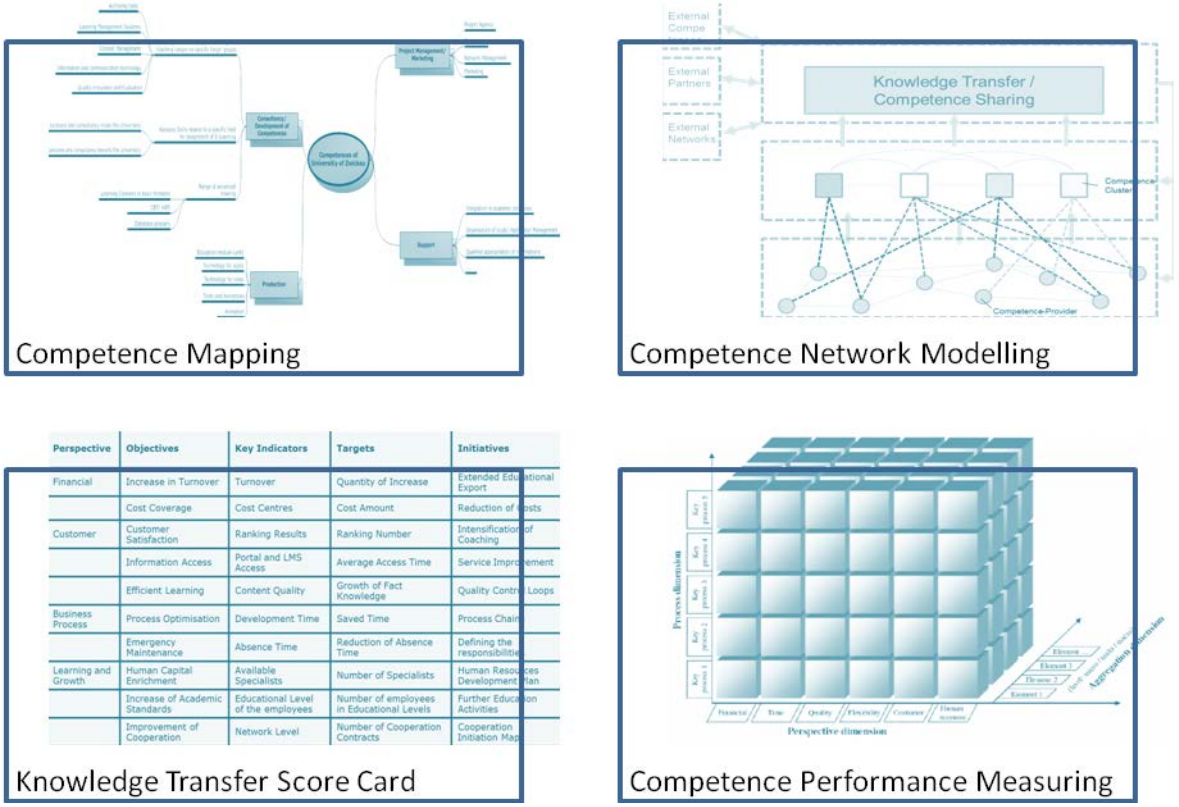

Figure 1. Adapted general methods as particular methods for educational system management (Schumann et al, 2014)

Dynamic of global innovation and information

Innovations are renewals or further developments that make a difference in comparison to an existing state of the art. In general, this means that an improved product or an improved process or an improved system will be achieved. The growing resources in the area of knowledge generation and their increasingly better interconnection especially in a global context effect simplification of the access to information and knowledge and thus better framework conditions for innovation, the acceleration of the processes of change, and an increasing pressure to innovate in the organizations and for their human potentials associated

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with an intensification of the innovation competition. Nowadays, companies improve their innovation ability through optimization of organizational structure, business processes and functions. The foci are mainly:

1. Harmonization of the innovation portfolio with the customer need.
2. Development and retention of specialists, experts and professionals.
3. Consistency of innovation and management processes.
4. Use of new product- and service-oriented technologies and perspectives.
5. Slimming down of the organization in particular the processes in the product and service development.

Usually, organizations will try to define their innovation strategy and communicate, to list factors of their innovative abilities, to combine innovation and business strategies closely, to match the culture and the strategy of innovation, to identify customer needs, to integrate expertise in all development processes, to promote research and development, and to manage risks in a professional way (Januzelski, Staack & Goehle, 2014).

Innovations always presuppose the existence of information and knowledge which in turn can be generated only about the available human capital (Cornell University, INSEAD and WIPO, 2014). "Incidentally" resulting innovations are by far and away no longer sufficient in the context of the recent prevailing innovation contest, so that information management is particularly relevant in this regard. Due to the fact that every innovation process begins as an intangible process of collecting, processing and agglomeration of information, it could be – related to innovation projects – that a lack of information procurement induces inefficiency and failure operating on the market. The necessary strategic direction of innovation projects requires the existence of a corporate strategy whose formulation is also linked to the availability of the necessary information, derived from the company itself (identifying strengths and weaknesses) and from the environment of the company (identification of opportunities and risks). Information for innovation planning concern among others the areas of technical, economic, social and political development, competition, regulation, ecology, management technologies etc. (Springer Gabler Verlag, 2014a).

Innovation means in effect to develop something new and creates a difference to the well-established. Open innovation is a new trend. It refers not only to the business sector, but to all social processes in society. Innovation and creativity are set primarily in relation to knowledge or to the possibility of being able to freely access to information products that represent knowledge. The specific nature of knowledge and information is that it is good, which is difficult to control and striving for open use. Up to date, the politics and the big business were mainly able to react by artificial shortage of information and knowledge. Such avoidance strategies have contra-productive effects for innovation. On the contrary, open innovation is understood as an adaptation of the approach developed in the fields of open / free software and open access principles of the free use of knowledge products (Kuhlen, 2014).

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Thus, innovations drive developments in all areas of society and initiate over again transformations. The more innovations are systematically forced, the more accelerated transformations are generated. The dynamics of knowledge creation and distribution is very closely related.

Acceleration of transformations and design of teaching and learning

Transformations include the active, systematic modification of systems and the adaptation to new and changing conditions (BusinessDictionary.com, 2014). They are the transition to a qualitatively new specific otherness, which may differ on scope, direction, inner regularity, duration and speed (Heine, 2007).

Transformation management is the targeted analysis, planning, implementation and ongoing development of holistic change actions with the aim to build up more flexibility and reaction potential and to implement a holistic change in the dimensions of strategy, culture and organization (Meyer, 2007).

Transformations induced by two main factors: internal adaptability and external strain to change. By extending the innovation dynamics, the external compulsion to change automatically increases and forces the acceleration of the transformations. The internal transformation ability must be permanently improved, so that the organization can adequately respond to inevitable changes. (Figure 2)

Transformation launches have to be courageous and rapid to succeed. Obstacles for transformations are for example cautious management culture, business-as-usual process, initiative gridlock, recalcitrant executives, disengaged employees, loss of focus during execution. All supporting and hindering factors are directly related to human resources (Miles, 2010). If it is possible, therefore, to improve knowledge and motivation through knowledge transfer and absorption, accelerated transformations can be better controlled. Dynamic transformations in all areas of society initiated by innovations must be accompanied and compensated by accelerated changes in teaching and learning. The transformations in education itself are accelerated because they are part of the overall social development.

Methods for accelerated transformations in the transition to service-oriented architectures describe a systematic approach for the design of optimized processes, functions and modules (SAP, 2012).

If this concept is applied to the field of education, major changes from the development of learning scenarios in unity of vision, business processes, information systems, technology, solutions, migrations and implementations through to change and requirement management and associated transformations will occur. This requires the enlargement of the learning scenarios in any case, too.

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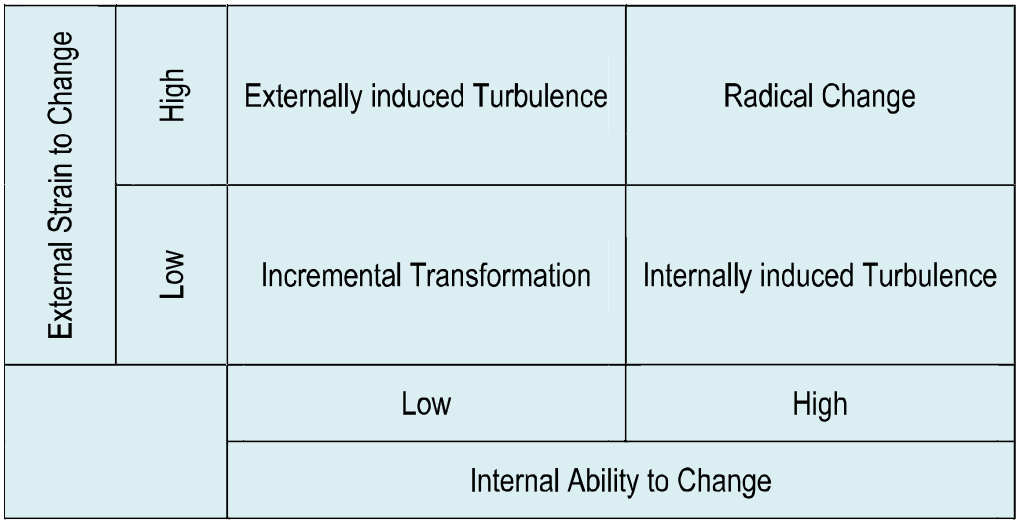

Figure 2. Portfolio for transformations determined internally and externally (Heine, 2007)

Expanded learning scenarios

Constructivism, instructional approach, behaviourism and cognitivism are major learning theories characterizing the development of knowledge transfer sustainable. In particular, the constructivism as a philosophical doctrine and in education as a learning theory is combined with the modern scenarios technique in order to realize the knowledge transfer for complex and heterogeneous target groups efficiently. Both the constructivism and the scenario technique have its roots in the system and model theory.

In particular, the decomposition of complex tasks, processes, and functions are the subject of the methodology to develop the holistic understanding of the system by action concepts and method mixes based on an event-based sequence. (Figure 3)

Relationship analysis	Options of design	
	Explorative	Anticipative
Descriptive	Starting from the causes to explore the effects	Analyzing the effects to reveal the causes of changes
Normative	Starting from the existing means to describe achievable objectives	Beginning with the objectives to define the required means

Figure 3. Basic types of scenario planning (Springer Gabler Verlag, 2014b)

The basic idea of constructivist learning theory is that new knowledge can be constructed by using existing knowledge which was generated by actions and distributed by kinds of communicative exchange of information (Nonaka & Takeuchi, 1995).

If the dynamics of innovation and transformation always requires a higher level of knowledge transfer in a lifelong process for an ever-increasing amount of learners, the resources have to be used very efficiently for a growing number of different target groups. But in order to make education more available and affordable, heterogeneities can be compensated through

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learning scenarios. Learning scenarios allow to address and to avoid mental underload or overload (Hölscher, 2005).

The often announced target-oriented and at the same time required individualized education is facilitated without binding exponentially increasing teaching resources. The developments in education show that all available options are used and combined to meet the immense challenges of knowledge exchange as prerequisites and part of social transformations. The scenarios technique is constantly being expanded and leads to expanded learning scenarios. (Figure 4)

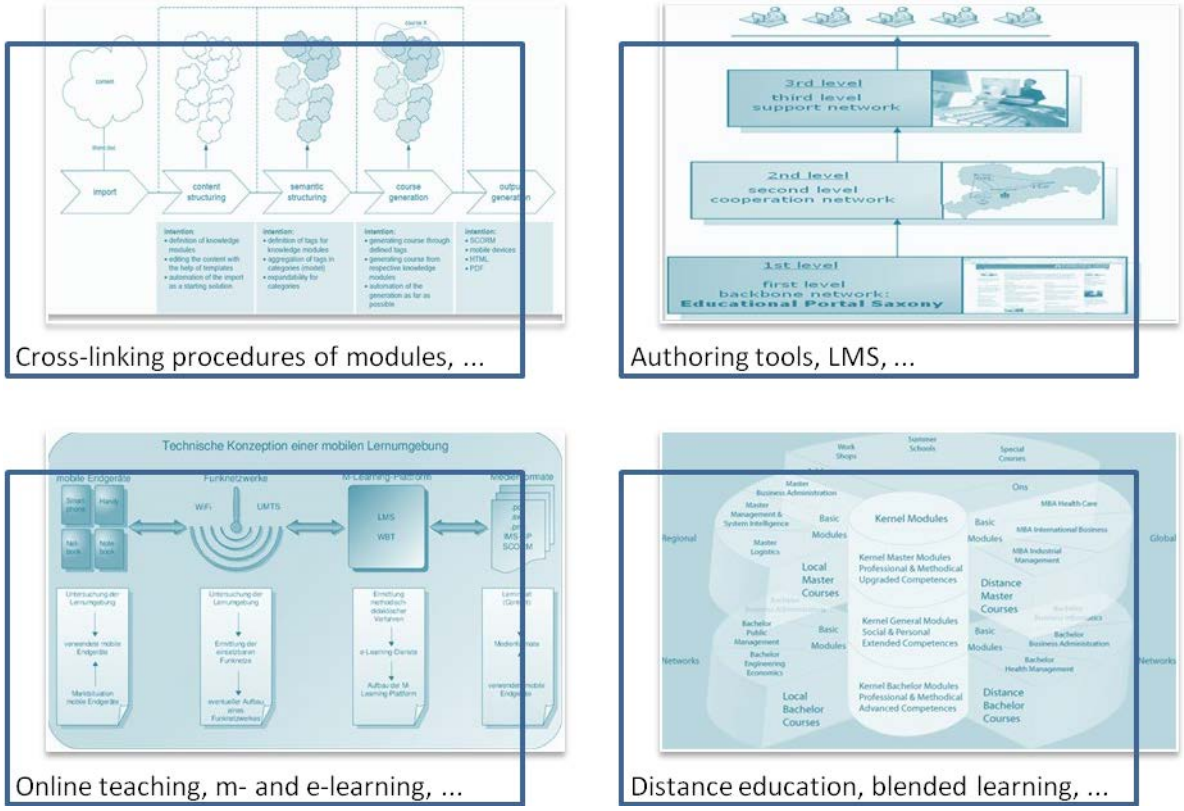

Figure 4. Framework for expanding of learning scenarios

The expanded learning scenarios are generated by combining a variety of manifestations in dimension such as leaning forms (Blended Learning, etc.), learning support (Semantic Knowledge Base, etc.), learning technology (m-Learning, etc.), learning system (Learning Management System, etc.), learning space (Augmented Learning Space, etc.) learning communication (Chat, etc.), learning process (Individual Learning Path, etc.).

Diversification of educational offers in practice

Educational institutions have to operate with limited resources in globalized education markets and to manage more and more complex educational tasks for very different target groups of learners. They respond to the challenges with a diversification of educational offers approving the inconsistency with the limited resources and the associated risk of overextension. In general, strategies of unification and modularization are used, to escape the

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dilemma, but it may jeopardize the quality of individualized education. Currently, mainstreams have been identified assisting in solving the complex problem. These include:

- Increasing cooperation and the creation of networks of educational providers
- Extensive use of new learning technologies and media resources
- Growing influence of methodology and didactics in all areas of learning
- Raising interdisciplinarity and transdisciplinarity in research and application
- Professional development of the management and the business processes.

Typical examples of the diversification of educational opportunities in practice involve:

- Online study programs offered by groups of educational organizations.
- Multi and double degree programs offered by international educational networks.
- MOOCs in combination with existing distance education opportunities offered by educational providers.
- Integrated study programs including diversified professional profiles offered by interdisciplinary working groups.
- VR and AR applications as well as m-learning for practical-oriented training offered by enterprises and educational suppliers etc.

There are extensive theoretical elaborations, educational approaches and models, and practical experience to the above mentioned examples. They are based on advanced learning scenarios in order to be able to efficiently control the acceleration of the transformations in education in particular and in society in general in regional, national and international manner.

Conclusions

The coherence of accelerated transformations and expended learning scenarios opens up new opportunities to meet the exponentially growing demands on educational institutions as result of the globalization, digitization, the dynamics of science and technology, the knowledge explosion resulting in an extreme acceleration of transformations. Learning scenarios provide new educational paths, methods as well as didactics and thus the mastery of knowledge transformations in different contexts. The approach was and will be applied successfully in several bilateral and multilateral research projects in different countries as well as in the study offer and program development in special business and cooperation models in regional, national, and international educational networks, associations, and divisions in the form of public and / or non-profit projects or public-private-partnership or private services in training and education, respectively.

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