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## **Micro Learning and Narration**

Exploring possibilities of utilization of narrations and storytelling for the designing of “micro units” and didactical micro-learning arrangements

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### **Abstract**

Micro learning deals with relatively small learning units and short-term-focused activities. The paper presents basic understandings as well as a special concept, Integrated Micro Learning (IML), which is based on a patent-pending technology. Basically, this approach supports repetitive learning through embedding the learning process into daily routines by making use of communication devices. Through this method new learning spaces emerge and become available for life long learning. In this context, outlines of the role of narrations and storytelling for the designing of “micro units” and didactical arrangements are explored.

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## Micro Learning and Narration

Exploring possibilities of utilization of narrations and storytelling for the designing of “micro units” and didactical micro-learning arrangements

Theo Hug

### 1 Points of Departure

The debate on postmodernism has faded at the end of the last millennium. It has brought about a variety of metatexts, which have altered our view of the social environment and provided ideas for a new framework for the analysis of societies, cultures and knowledge. One of these metatexts is without doubt “The End of the Great Narratives,” by which Jean-François Lyotard (1984) condenses his analysis of knowledge in so called ‘highly developed societies’. According to his view, in the sphere of modernity knowledge was closely tied to an – for lack of a better word – ‘ideological’ framework, for example the emancipation of humanity or prosperity of everybody through capitalism. These common ‘modern’ ideologies have lost their obligation and power of legitimation in the 20<sup>th</sup> century.

If we look at society descriptions and time diagnosis today, some of them are tied up to the postmodern condition in terms of post-industrial, computerized societies. Others are focussing on different aspects which are expressed in terms like multi-cultural society, multi-option society, world society, education society, adventure society, fun society, communication society, information society, knowledge society, media society, etc. Each of the descriptions opens up particular horizons of discourse and analysis, and even if we are aware of their limits we cannot focus on the blind spots of the concepts while using them. And as soon as we look at further details we find paradoxes and ambivalences such as the need of educational changes and processes of internationalization of education vs. wide spread reform resistances, the high value of economic performance vs. missing justice of chances, the ongoing commercialization of knowledge vs. knowledge obligation to the community, or various forms of edutainment vs. needs of media education and media literacy. For these paradoxes and ambivalences and many other current developments media are important driving factors not only in terms of media technologies or media institutions but rather in the sense of complex interplays between symbolic, technological and societal formations. Mediation means more than an aspect of technology which is opening up new spaces of communication, affecting habits, value systems and world views or changing the modes of perception and thinking. It means continuing transformation of the human condition in all of its physical, psychological, biological, socio-cultural and economic aspects. Against this background, medialization can be described as conceptual reinterpretation of the interplay of symbolic and material dimensions in the process of worldmaking.

Therefore, I want to keep in mind the notion on medialization and mediated societies as a starting point, both in the sense of empirical evidence about mediated environments and the medialization and globalization of lifeworlds as well as in the philosophical sense of historical constellations of interacting media<sup>1</sup>.

In view of this short description and current knowledge dynamics – for example politics of knowledge, fragmentation of knowledge and new forms of mediated knowledge – an important question arises: How can we promote learning and educational processes in mediated working spaces and life worlds? One might think that pedagogical institutions act as forerunners in this situation. With the exception some individualists, school experiments, and innovative companies, the mainstream seems to insist on traditional models.

*“Our learning institutions have been created in the spirit of research and openness, yet they have acquired their own neurotic tendencies. Most notable is the strong reaction to change in the classic models of distributing learning. Models of courses, programs, and degrees are still central, even though technology and new needs on the part of learners are creating a climate that requires a more dynamic alternative.”* (Siemens 2005: 4)

Concepts of micro learning offer flexible and dynamic alternatives which are needed in view of medial, societal and environmental changes. In the following sections the basic ideas of micro learning and the concept of Integrated Micro Learning (IML) are presented.

Furthermore, some possibilities of utilization of narrations and storytelling in the context of micro-learning arrangements are explored.

## 2 Micro Learning

Unlike micro teaching, micro learning is a rather new expression. Yet, in the 60ies, in particular at the University of Stanford (USA), methods of micro teaching have been developed. Based on critical views of traditional lecturing in teacher education, Dwight & Ryan (1969) summed up the state of the art in those days. They designed a cyclical model (teach – critique – re-teach – critique). Their program aims at the acquirement of skills in teacher education. It puts an emphasis on team teaching and mentoring, and it is structured into micro lessons, micro periods and laboratory phases for research purposes. These ideas, which have been advanced in many ways throughout the last decades, are corresponding with ideas of micro learning both, on the level of acquirement of skills and usage of teaching methods and also on the level of reflecting on the learning processes.

Today, we can find many different concepts and practices of micro learning. Some are dealing with special topics such as health care in the context of continuing education, others are referring to the communication technologies being used in the teaching and learning processes, for example short message service (SMS) or e-mail. Figure 1 shows as selection

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<sup>1</sup> Cf. Margreiter (1999) and his considerations about a media-apriori (ibd., p. 17), and Binsbergen & Mul (2005).

concepts and versions of micro learning including some uniform resource locators (URLs) for further information.

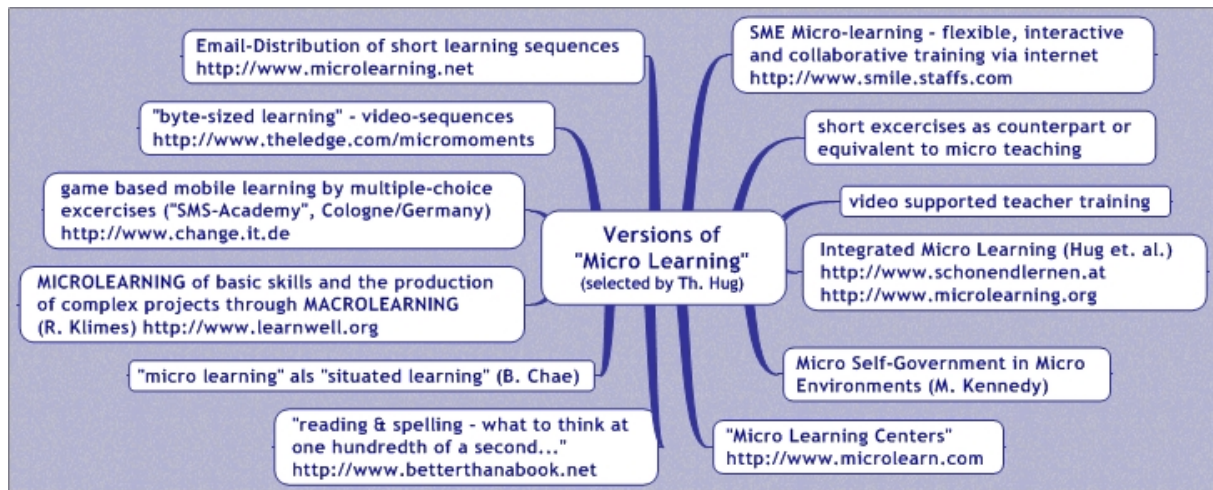


Figure 1: Concepts and Versions of Micro learning – Mindmap

In terms of time, the range goes from less than a second<sup>2</sup> up to more than one hour. The subject matter can deal with single letters, short texts or quite complex tasks. Along with that, the corresponding levels of meso learning or macro learning can refer to different areas, too (see figure 2).

	Example 1	Example 2	Example 3	Example 4	Example 5	Example 6
micro level	single letters	vocables, phrases, sentences	learning objects, micro content	learning objects	competencies of learners or teachers	learning of individuals
meso level	words, letter-figure combinations, sentences	situations, episodes	subareas, narrow themes	topics, lessons	designing a lecture	group learning or learning of organizations
macro level	conversation, linguistic communication	socio-cultural specifics, complex semantics	topics, subjects	courses, curricular structures	designing a curriculum	learning of generations or learning of societies

Figure 2: Micro learning – meso learning – macro learning

The exemplary distinctions shown in figure 2 may give a sense for the variety of understandings. In fact, many more are in use. But rather often elements of such distinctions are used implicitly without taking notice of alternative options or explaining contexts and meanings.

<sup>2</sup> So far, pedagogical concepts of “nano learning” have not been developed. Nevertheless, one can find the term ‘nanolearning’ on the internet referring to learning something about the subject nanotechnology (cf. Hopkin 2005, Demeester 2005).

### *Defining „Micro Learning“*

There are many ways of defining micro learning. In fact, almost the whole spectrum of learning concepts can be differentiated in order to focus on micro and macro aspects of the respective context. For example, a process of imitation that takes just a few seconds, one or two repetitions and no specific resources can easily be distinguished from a process of imitation which takes months or years, which affords attention to many details and which needs special locations for learning as well as specific skills and resources. To make it more concrete: For many people it is very easy to learn to clap hands<sup>3</sup> loudly – for most of the people who were brought up outside Andalusia (Spain) it is very difficult to clap along the rhythm – to be precise: the *compas* – of *bulerias*<sup>4</sup> in a group using gentle and raucous methods as well as changing patterns and counter rhythms (“*contra tiempo*”).

No matter if learning refers to the process of building up and organizing knowledge, to the change of behaviour, of attitudes, of values, of mental abilities, of cognitive structures, of emotional reactions, of action patterns or of societal dimensions, in all cases we have the possibility to consider micro, meso and macro aspects of the various views on more or less persisting changes and sustainable alterations of performances.

It is obvious that different disciplines which are dealing with learning are talking about diverse domains of reference. Therefore, it is important to distinguish between different ways of talking about learning and that means talking about observers observing changing systems, their descriptions and their cultures and methods of observation (cf. Schmidt 2003).

As a result of my observations I want to present a draft of a framework which enables various definitions of micro learning rather than give one single definition. In my view, the following dimensions are appropriate to describe, analyze or generate versions of micro learning:

- **Time:** relatively short effort, operating expense, degree of time consumption, measurable time, subjective time, etc.
- **Content:** small or very small units, narrow topics, rather simplex issues, etc.
- **Curriculum:** part of curricular setting, parts of modules, elements of informal learning, etc.
- **Form:** fragments, facets, episodes, „knowledge nuggets“, skill elements, etc.
- **Process:** separate, concomitant or actual, situated or integrated activities, iterative method, attention management, awareness (getting into or being in a process), etc.
- **Mediality:** face-to-face, mono-media vs. multi-media, (inter-)mediated, information objects or learning objects, symbolic value, cultural capital, etc.
- **Learning type:** repetitive, activist, reflective, pragmatist, conceptionalist, constructivist, connectivist, behaviourist, learning by example, task or exercise, goal- or problem-oriented, „along the way“, action learning, classroom learning, corporate learning, conscious vs. unconscious, etc.

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<sup>3</sup> The exception proves the rule. Of course, there are “easy” clapping tasks that may take a whole life to come to a “solution”. Remember the famous Zen koan “Listen to the clapping of one hand” – or if you have taken that hurdle: “Try to look through it.”

<sup>4</sup> A fast and vivid flamenco style.

This unsystematic draft of a framework makes clear that the general term micro learning is used as a metaphor referring to a set of models of learning. The various versions of micro learning can be analyzed by looking at the explicit or implicit comprehension of the dimensions listed above and their interplay. This open “definition” allows us to deal with different concepts, frameworks and domains of reference.<sup>5</sup>

Talking of a paradigm shift in this context may be overdrawn, but the transition from common perspectives on teaching and learning to micro perspectives and the significance of micro dimensions in the process of learning opens up spaces of innovation in the field of attempts to promote learning and to create viable and productive learning environments.

### *Integrated Micro-Learning (IML) and the Knowledge Pulse®*

In view of the widespread dissatisfaction with common “learning platforms”<sup>6</sup> and the need of flexible systems we searched for alternatives to the prevalent „one-way-streets“ in e-education. Who does not know “language trainer shelfware” in the form of CD-ROMs, learning management systems filled up with PDF- and PPT-collections and concepts of old pedagogy dealing with new media? Many of the established e-learning systems offer old courseware in new pipes. They feel like foreign elements in school, workflow and lifestream. As a first result of this search for alternatives we developed a concept of Integrated Micro-Learning (IML)<sup>7</sup> based on the principle of making use of the use of media. This concept meets following criteria:

- It is open, flexible and modular and – at the same time – allows the use of learning management functions.
- It enables concomitant learning embedded in workflows together with the development of knowledge architectures.
- Short learning sequences are initiated according to the use of media and the client settings („push-approach“). Small units are delivered automatically based on a slip box system. Each learning step is put forward by a Microstep Manager®.

Thus, IML offers ways of bridging the gap between the individual’s willingness to learn and the frustration resulting from contexts which do not support learning but rather impede it. This is achieved by making use of the everyday use of information and communication technologies for didactic purposes. Integrated Micro Learning (IML) is designed to empower the learner with a tool which embeds learning activities into daily life according to user-dependent patterns. Therefore, in addition to the learning which takes place either in institutional or auto-didactic contexts as well as during e-learning courses, IML accompanies learning on an individual basis (cf. Gassler 2004, Gassler et al, 2004).

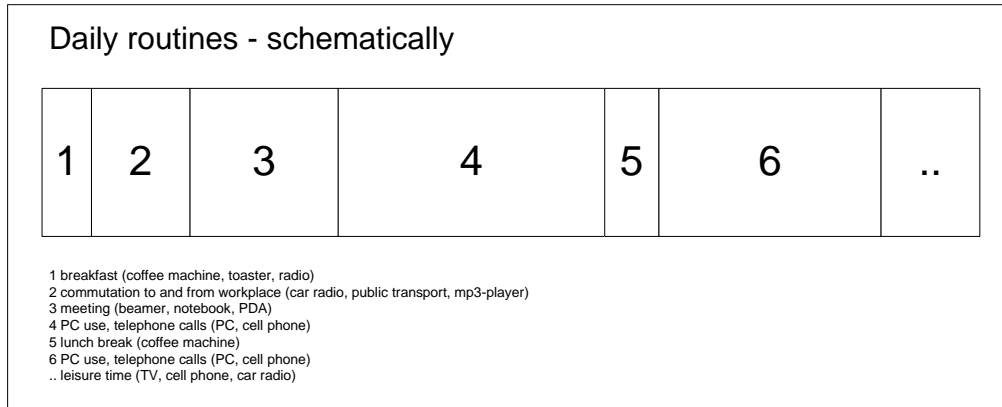
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<sup>5</sup> The heterogeneous concepts of micro learning can be analyzed and reconstructed in detail with reference to the concept of variation (cf. Goodman 1978, Goodman & Elgin 1988, Hug 2003).

<sup>6</sup> Learning Management Systems (LMS).

<sup>7</sup> Integrated Micro-Learning (IML) is a development of the Research Studio eLearning Environments (<http://ele.researchstudio.at>) in cooperation with the Institute of Educational Sciences at the University of Innsbruck (<http://www2.uibk.ac.at/ezwi>). The project is supported by the Federal Ministry of Economy and Employment (Austria) and also the Tyrolean Future Foundation.

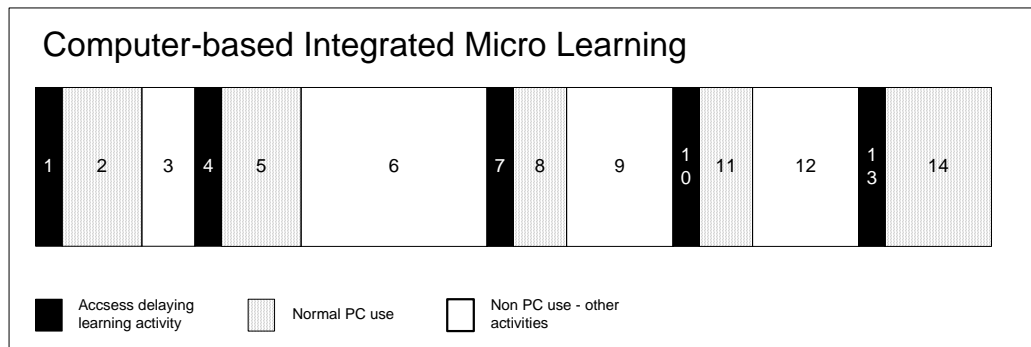
IML works on the basis of subdividing the learning process into small activities<sup>8</sup> embedded in everyday life. Learning takes place along with professional and domestic activities and as such is in strong contrast to “artificial” learning found in conventional course-settings.



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Figure 3: Daily routines – Schematically

Figure 3 outlines a possible daily routine starting with breakfast and commutation to and from work and ending with some leisure time. IML is based on the principle of a delayed access to technical devices and information services. These access delays open up small time frames for learning. In this manner, learning spaces are created.



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Figure 4: PC-workplace as an example for Integrated Micro Learning

Figure 4 illustrates a typical workflow of a PC user where Integrated Micro Learning is embedded into the daily work routines. The use of other electronic devices, such as mobile phones, can be shown in a similar way. In this example, the learning activities are bound to the use of the PC. Whenever the user wants to continue working on the PC after having given attention to other commitments he or she is presented a learning activity which could be skipped by pressing ESC but normally should be completed before proceeding with other activities. In this manner, time-slots are used constructively for learning purposes.

<sup>8</sup> These “micro activities” last approximately 15-30 seconds per task.

Consequently, interference with work in progress must be avoided. The best way to do this is to design the accompanying learning process along the small everyday transitions when using digital media. We believe that other options, for example the attempt to introduce learning activities as regular time-based interruptions (e.g. pop-ups) regardless of the present activity, fail because they disturb cognitive processes and rather impede learning than promote it. The first prototypical IML solutions are quite simple. One of the solutions is available online, it can be downloaded for free.<sup>9</sup> This screen saver (“Lernschoner“) supports language training. Once installed, idioms and phrases are offered as soon as the screen saver starts. The user can then translate the sentence, request the solution to see the sample solution, self evaluate and use the system as usual. One can also start the “Lernschoner“ manually with an icon on the desktop. According to the settings, this procedure can be repeated up to ten times with every start of the “Lernschoner”.



At first the Lernschoner shows a phrase in a language. Now you have to translate the sentence. Then you request the solution to see the sample solution.



When it is shown you have to evaluate yourself whether your answer was correct or matches with the sample solution.

Figure 5: Screen saver for learning (“Lernschoner“) as an example for Integrated Micro Learning

As shown in figure 6, one can see easily that the principle of keeping it simple is also heeded when using the screen saver of mobile phones.

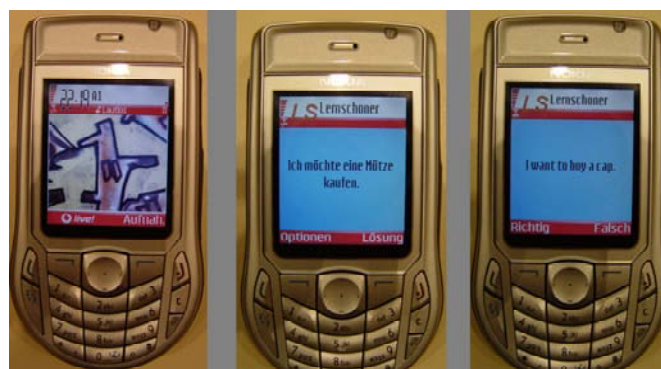


Figure 6: Mobile micro learning as an example for Integrated Micro Learning

<sup>9</sup> See <http://www.schonendlernen.at>



The text based mobile version will be enhanced with multimedia elements. Also a simplified installation (e.g. WAP push) is planned. The application is currently implemented for Symbian Series60 and it is going to be developed for Java MIDP 2.0 devices (a prototype is already finished).

Thus, learning can be an unintrusive element of everyday routines and workflows.

Furthermore, IML can be an integral part with respect to

- overall didactical concepts, knowledge management and communication design,
- collaborative learning and group didactics,
- practice, knowledge transfer and application of learning results,
- learning success, grading and evaluation,
- different digital technologies, platforms and media environments,
- demands of administration.

So far, some experiences with IML have been made with screen savers and mobile phones in the context of continuous education at operational and private levels.<sup>10</sup> In all cases, data were processed on the basis of a special learning-algorithm similar to the former use of file-card boxes.

In the near future, different learning forms, various didactical arrangements and also further technologies like PDAs, TV sets or vending machines will be explored. In this context, the concepts and practices of narration will be sounded out with respect to questions of motivation, improvement and especially to aspects of re-integration, re-combination and re-contextualization of micro activities, learning sequences and information chunks. So, how can we make use of narrations and storytelling for educational purposes in the context of micro-learning arrangements?

### **3 Narration and Storytelling in the Context of Integrated Micro Learning**

Concepts of narration and storytelling for didactical purposes are widespread on the level of primary schools (cf. Golden 2000), partly in second language learning (L2 learning) as well (cf. Caré & Debyser 1984). Such concepts are also quite widespread as narrative forms of psychotherapy (cf. White & Epston 1990, Grossmann 2003), as elements of hypnotherapy (cf. Erickson & Rossi 1979), and neuro-linguistic programming (NLP) (cf. Grinder & Bandler 1981). But if you look at common forms of corporate learning or e-education as well as at learning at the university level you will hardly find well going and established concepts of narration and storytelling in service of didactics.

Looking at the context of micro learning, some first pragmatic considerations about possibilities of utilization of narrations and storytelling can be given. According to design options I want to distinguish between three levels referring to a single screen (1), to a set of screens (2), and to more complex uses of sets of screens (3).

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<sup>10</sup> For first evaluation results in the field of second language learning see Gstrein & Hug (2005).

*Level 1: One-picture stories and elements of fabula (single screens)*

In view of the simplicity of the IML-approach and the claim of a smooth and undisturbing integration into daily routines, the old idea of one-picture stories seems to fit perfectly for enhancements in terms of narration. Also text-based short stories (e.g. SMS poetry) as well as text-picture combinations (e.g. illustrated texts, sub-titles for animations) can meet similar functions. Text and images have been ubiquitous in human communication for centuries and also the connections between the usage of the two modalities. On the one hand, the interrelations between the two modalities can be a source for rich forms of multimodal communication. They refer to and depend upon each other which can be enriching and clarifying or disturbing and irritating. On the other hand, we have an individual strength of each of the two modes which can be utilized in productive ways. Moreover, single screens, for example of mobile phones or PDAs, can depict both forms – separately or integrated into a multimodal form – also in terms of memory hooks and mnemonic rhymes.

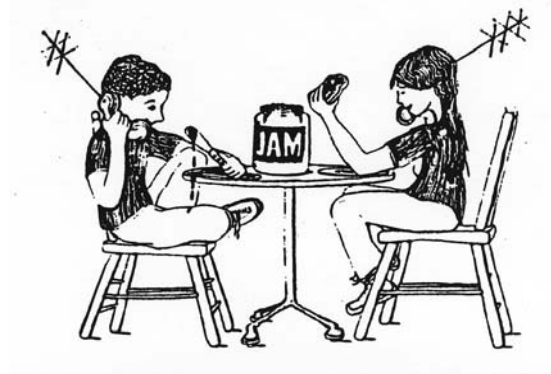


Figure 7: Example for a memory hook (Weidenmann 1991: 38)

Figure 7 shows an example of a memory hook which was developed to improve recollection of an invention of Karl Jansky<sup>11</sup> (1905-1950), an American radio engineer who designed an antenna for better telecommunications. The image shows a scene with two juveniles eating bread with jam, using telephones, and, thus, referring to the topic in an alienated way. The similar sounds of the name 'Jansky' and the term 'jam' facilitate anchoring and the effect of a better recollection of the basic fact. The example shows how single pictures can support processes of learning and memorizing.

In similar ways cartoons, caricatures and elements of fabula (actors, scenes, situations, events, key statements) can be utilized in the context of micro-learning offers. Depending on the type of illustration<sup>12</sup> and the concept of picture perception respectively text-picture reception, single-screen depictions can instigate narrow and comprehending processes of narration and

<sup>11</sup> See <http://scienceworld.wolfram.com/biography/Jansky.html> (consulted: 2005-08-15).

<sup>12</sup> For example, types of illustration can be distinguished in terms of static vs. dynamic characteristics, argumentative claims (logical pictures, pictural analogies, dialectical text-picture combination, discourse fragments, etc.), or in terms of categorical distinctions such as pictures, images, diagrams, charts, etc..

storytelling.<sup>13</sup> Such “micro stories” can aim at small and well-defined content parts but also re-frame the whole learning process.

*Level 2: Multiple-picture stories and arranged elements of fabula (sequences of screens)*

For example, a sequence of a few pictures or a comic strip can act as basis, inducement and motive for telling a short story dealing with certain learning contents. Compared to level 1, successions of pictures or sequences of text-picture combinations show less forced directness. On the other hand, they offer more detailed depictions of relatively complex issues. Elements of fabula can be arranged in micro steps in order to successively describe parts of a story. Similar to level 1 the depictions can aim at specific learning contents and subject matters or at wider contexts of narration. They also can refer to second order topics and include meta-reflexive elements or aim at meta-learning directly. In contrast to proto-learning, which involves individual facts or actions, Deutero-learning refers to learning to learn, which means learning about the context of learning as well as the content of learning (cf. Bateson 1972: 279 ff). For example, a set of micro activities can be initiated by textual elements, successions of pictures or sequences of text-picture combinations which can include „nested loops“ by seeding of meta-reflexive tasks, story-elements or elements of framing and, thus, contribute to a complex storytelling process.

*Level 3: Elaborated forms of narration and storytelling (complex uses of sets of screens)*

On third level we have elaborated forms of the utilization of narration and storytelling for didactical purposes. Amongst the variety of well proven concepts two of them seem very suitable for the adaptation in the context of micro-learning arrangements: the concept of global simulations (cf. Caré & Debyser 1984, Yaiche 1996, Mentz & Rattunde 1997) and the storyline concept (cf. Creswell 1997, Egan 1989, Fehse 1995).

The concept of global simulations (“simulation globale”) was developed in the 70ies by Francis Debyser and Jean-Marc Caré. It is an action learning model using scenarios or outlines (constraints), elements of role play and hands-on elements. The basic idea does not refer to global learning or the globalization discourse but to frameworks which quasi embrace the elements of the whole learning process. These frameworks, offered by teachers, encourage the learners to collectively invent their worlds in playful ways<sup>14</sup>. The global simulations – such as village descriptions, travelling, islands, buildings, etc. – can be distinguished from functional simulations (e.g. inventing a traffic network, international conference, hospital, etc.). Basically, the teacher asks fruitful questions in the context of the arrangement in order to facilitate participation without heading for completeness in terms of learning contents. These questions, important information and communicative elements can be integrated into the context of global simulations as micro-steps by using electronic devices such as cell

<sup>13</sup> For a general survey of concepts of visual representation and learning see Anglin et al (2004).

<sup>14</sup> Playful ways of learning and the concept of ludic spaces are of increasing importance in our mediated societies (cf. the project “Playful identities. From narrative to ludic self-construction”, Jos de Mul et al, <http://www2.eur.nl/fw/hyper/NWO/programma.htm>; consulted: 2005-05-15).

phones, PDAs or PCs. In this manner, the elements of micro learning and global simulations can refer to each other.

The second example of an elaborated form of narration and storytelling, the storyline concept, is more structured and relatively widespread. It was developed in Scotland during the mid 60ies and it is also known as the “Scottish storyline method” (cf. Creswell 1997).<sup>15</sup> Starting point was the animadversion on discrete and isolated subjects in the curricula of primary education (cf. Creswell 1997: xiv). Interdisciplinary approaches are presented as an alternative, underlined by a clear vote for a shift from discipline-based education to meaningful and context sensitive integration of different branches and subjects. As a consequence teachers and students are meant to be actively involved in the learning process. The storyline constitutes a narrative framework for the structuring of learning contents, networked episodes, tasks and activities. It follows a narrative outline (setting the scene in time and place, introducing characters, creating ways of living) and a pedagogical outline with reference to key questions, learning tasks, activities, resources, media and cooperative interactions. Along with the episodes incidents are introduced. There are several principles relevant for a successful application of the concept such as the principle of story, the principle of anticipation, the principle of the teacher’s rope, the principle of ownership, the principle of context, the structure before activity principle (cf. Creswell 1997: 10 ff). Like in the case of global simulations micro learning steps are per definition quasi part of the concept here. On the one hand, micro activities and knowledge fragments can be brought together by means of the storyline concept. On the other hand, Integrated Micro Learning can support the unfolding narrative by means of delivering questions and basic information in each episode.

#### **4 Micro Learning and Narration – An Outlook**

The examples given in part 3 show up some possibilities of utilization of narrations and storytelling for the designing of “micro units” and didactical micro-learning arrangements in a sketchy way. They all can be explored more detailed and applied in various contexts. In addition, further options are waiting to be explored, for example with regard to re-framing strategies, postmodern (“rhizomatic”) versions, discourse concepts, game-based elements (cf. Prensky 2001) and new production practices in terms of blogging, podcasting and digital storytelling (cf. Lambert 2003; Porter 2004). To sum it up, we are able to develop many ways of making use of narrations and storytelling for educational purposes. Vice versa, the IML approach can be used as an instrument to enhance and enrich learning processes and to support creative didactical methods. I am sure that along with micro and macro transitions of media new forms of knowledge and learning are evolving. But as long as the transformation processes are elusive and unstable, and as long as digital technologies and software products are transient and unreliable, the communicative stabilization of new genres and formats remains an open question, quasi sentenced to the definitiveness of preliminary answers. Comparisons with former transitions, for example the emergence of novels as a result of the

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<sup>15</sup> See also <http://www.storyline.org> (consulted: 2005-05-15).

invention of the letterpress, are insofar easily misleading as the innovation cycle was a question of many decades in those days and not a question of a few years, months or weeks. In this sense, learning and narration become questions of media anthropology. We also have to be aware of possible limits of the utilization of narration and storytelling. Important characteristics of these domains may easily disappear in the light of overestimated intended purposes and overwhelming instrumentalization. But as pointed out at the beginning, mediation means continuing transformation of the human condition in all of its important aspects, and the stories about instrumentalization and its effects are told in certain historical constellations of interacting media, too. However, the narration of micro learning has no end in itself. It aims at new ways of bridging formal, non-formal and informal learning in a mediated world.

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