

Microtraining as a support mechanism for informal learning

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Summary

Most companies are confronted with fast changing learning demands and the need of new concepts. Companies very much overestimate and overinvest in formal training programs, while missing out the opportunities to foster more natural and informal learning processes. For informal learning to flourish it is crucial to develop flexible mechanisms which support this kind of learning, while avoiding the drawbacks that coincide with informality. The Microtraining method is being developed as a mechanism to support predominantly informal learning activities.

Microtraining should be understood as a learning arrangement of about 15 minutes for each learning occasion. Each session contains elements like an active start, demo or exercise, feedback or discussion and a shared view on how to proceed. Such an occasion can be face-to-face, online or in mixed modes depending on the circumstances and possibilities. The concept is based on a number of theoretical considerations of which Social Constructivism is an important element, next to the notions of 'Connectivism' and the 'Levels of Mastery'. Microtraining requires an organisational framework to effectively apply this method relative to the learning issue, the skills of the initiator and the employees and their daily working schedule.

In practice, it is shown that this framework helps to collectively develop solutions for workplace related learning with ample opportunities for information transfer. Microtraining supports informal learning close to the workplace, thereby increasing the learning capacity of the company.

The Microtraining¹ concept is being developed in the framework of the Leonardo da Vinci program of the European Union.

Keywords: informal learning, accessibility, interactivity, Microtraining, workplace training, eLearning

1 The changing learning demand and the need for new concepts

Knowledge and learning have become critical assets for most companies because of the swift socio-economic and technological changes which reduce the time span from the moment knowledge is gained till it becomes obsolete. Especially industries and Small and Medium Enterprises that focus on innovation have an increasing need for rapid development and dissemination of knowledge. The inability of the traditional training and learning organizations to cope with the rising demand mostly relate to inflexibility in time and place of teaching and learning, the irrelevance of the content, the unavailability of experts and the sheer applicability in the workplace of what is learned.

The traditional approach to learning and training and the need for new concepts is very much related to the discussion on formal and informal learning. According to Digenti (2000) and Cross (2007) formal learning - in classes and workshops - is not working anymore, because it covers only 10 to 20 percent of what people need to know to do their job well. The other 80% is

¹ www.microtraining.eu

acquired by means of informal learning that takes place in the vicinity of the workplace and is in general more relevant for job performance than anything else (Cross, 2007, p. 235).

In reality learning happens all the time in a multitude of learning settings which can take place in a classroom, but obviously most of the time in an informal situation. Still, it is about 80% of the training budget that goes to formal learning which means that companies overinvest in formal training programs, while missing out on the opportunity to foster the more natural and informal learning processes. This is what Cross (2007) calls the ‘Spending & Outcomes Paradox’ (see figure 1).

The Spending/ Outcome Paradox

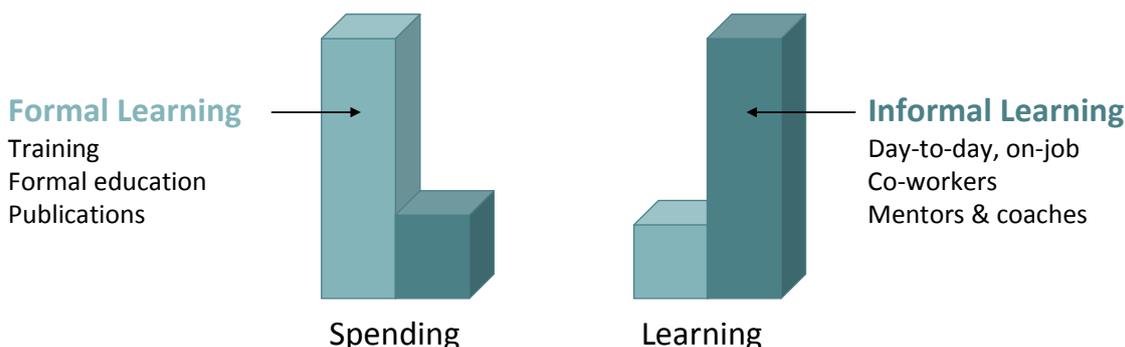


Figure 1 The Spending and Outcomes Paradox (adapted from Cross, 2007, p. XIV)

The distinction between formal and informal learning should not be understood as a strictly separated set of learning activities, but a learning spectrum with formal learning depicted as a traditional classroom oriented, curriculum bound learning and informal learning as a social activity consisting of a mix of actions that support learning on the go (see figure 2).

Understanding the Spectrum of Learning

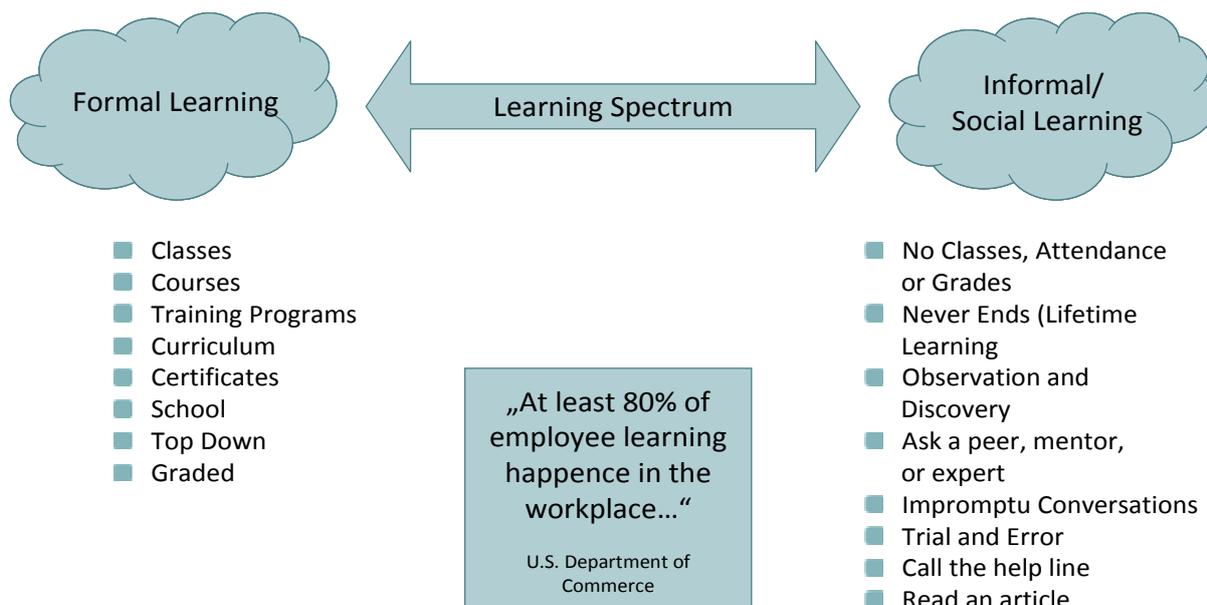


Figure 2 The Learning Spectrum

Formal learning is very much integrated in the existing organization, it is quite predictable and people are used to it, due to their previous learning experiences. The origins of most e-learning activities are based on the need to make formal learning more flexible. In most cases though, the traditional classroom paradigm of the 'lonely learner' was copied into flashy looking e-learning courses 'consumed' in outside the workplace context (De Vries, Veen & Veeningen, 2008).

Informal learning is less predictable, nevertheless it is a very natural way of learning, but is often not perceived as learning. In practice though informal learning is considered more effective than formal learning, because it is personal, it is real and the learner is responsible (Cross, 2007; De Vries & Leege, 2008). Organizations though are still not very much aware of the opportunities informal learning can offer, with the potential to develop as a profit strategy as it allows organizations to better deal with their emerging learning demands. For informal learning to flourish it is crucial to find ways to develop and support this kind of learning in such a way that the ingredients that make it so successful are kept in place, while avoiding the drawbacks that coincide with informality.

Microtraining is a concept that is developed as a mechanism for organizations to support informal learning, while finding a balance between the pros and cons of such an informal process. It is from this perspective that a first project was started on Microteaching in the framework of the Leonardo program of the European Union, which was followed by the actual Microtraining project. The Microtraining concept discussed here originates from the research and experiences of this Leonardo project, which will end in the fall of 2009.

2 The Microtraining approach

The Microtraining approach has been developed to deliver learning close to the workplace in a rather different mode, trying to avoid the thresholds that make the traditional approach so unproductive. Microtraining is about the organizational challenge for companies to establish learning in the context of their business and the options to deal with this challenge in a practical, active and effective way.

Most learning takes place at work in an informal setting (Cross, 2007). The Microtraining approach addresses this issue by supporting informal, unofficial, unplanned and ad hoc learning processes as well as semi-formal learning activities, using the same basic arrangement. The most important element is to provide structure to facilitate these learning practices that can help to make the learning activity more visible, extendable, reusable and up to date.

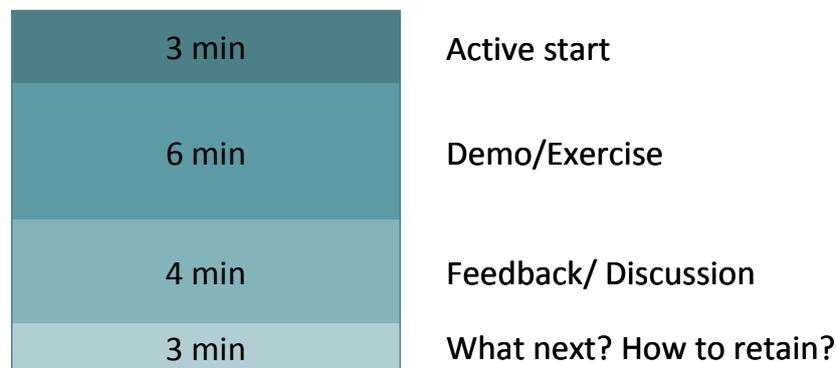
The Microtraining arrangement comprises a time span of 15-20 minutes for each learning occasion, being face-to-face, online or in a blended mode. Each session starts actively, followed by a demonstration or exercise, feedback or short discussion, and ends with directions for further development and a brief preview of the next sessions. In these series of sessions employees are encouraged to share their knowledge with others and to make contributions that benefit their organization (Overschie, 2007; De Vries & Leege, 2008).

Knowledge transfer in companies is especially difficult for employees whose presence in the workplace is of vital importance for the primary business processes like production, operations, sales and transport. The Microtraining approach is especially suitable for those whose basic knowledge needs to be refreshed or improved and who need information for immediate use in their daily practice.

The Microtraining workflow (figure 3) shows that the Microtraining Session has a basic arrangement and in case of more sessions on one issue, all the sessions are structured in the same way with an introduction and a rounding off. The aim of the Microtraining sessions is to have brief sessions with a minimal disturbance of the daily work schedule. The sessions can be organized rapidly by any of the stakeholders in an up to date and realistic fashion. To be effective the learning act needs to take in account the employees' knowledge and experience,

needs to have a high level of applicability to the daily work routine of the employees and should foster self-directed learning, leading to an economic and efficient knowledge acquisition.

Each **Microtraining session** is structured in the same way



Each **series of sessions** is structured in the same way

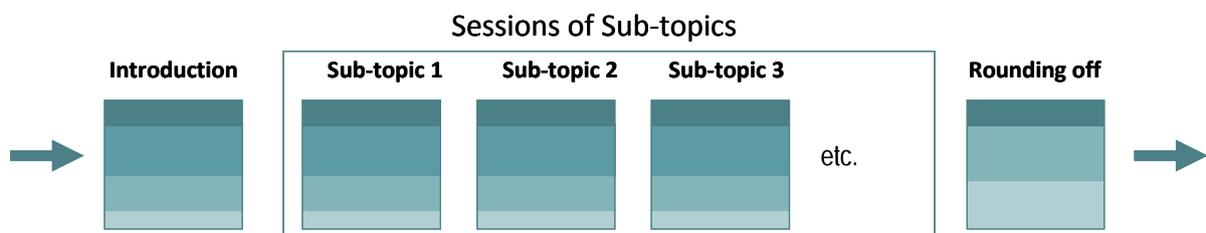


Figure 3 The Microtraining workflow (Overschie et al. 2007)

The experiences with Microtraining confirmed the applicability of the approach (Overschie, 2007; RWTH, 2007). The fact that the Microtraining methodology support employees to take the initiative for learning activities to share knowledge and collaborate on issues that are relevant for them is stimulating.

3 The theoretical background

The Microtraining concept has been developed on the basis of a number of theoretical considerations. At the heart of this development is the social constructivist learning theory, which has proven to be very influential for establishing informal learning. This learning theory views the learner as a unique individual with distinctive needs and backgrounds. Crucial is that these qualities are considered to be an integral part of the learning process (Vygotsky, 1978; Wertsch, 1997). Over the years this approach has been put into practice and a series of overall principles has been developed to allow the developer to built appropriate constructivist learning activities. We will discuss these principles as being important points of reference for the use and development of Microtraining.

Considering recent developments and insights in the learning field, it is obvious that the constructivist approach is meaningful to define fundamentals for learning programs, but is less focused on new ways of communication and collaboration. Organizational settings as communities of practice (CoP's) and the emergence of collaboration tools, often called social software, such as wiki's and blog's, make new ways of communication and collaboration possible. Therefore the emerging learning approach of Connectivism (Siemens, 2005), is considered to take in account new and relevant issues in developing Microtraining.

The concepts of Constructivism and Connectivism are both applied for the development of the existing Microtraining-concept that will eventually merge into a development framework for Microtraining to be used by learning initiators in their daily knowledge sharing and learning practice.

Siemens (2006, p. 69) states that the environment of knowledge is changing at two levels: the context in which the knowledge occurs and the flow and characteristics of knowledge itself. This emerging theory focuses on the changes that are taking place in the knowledge landscape. Books, schools, radio, television used to be the ultimate carrier of information. Today there is a whole array of carriers that not only supplies information in a frozen form or as dynamic information, but also constitutes a distributed information pool that derives value because of the interconnectedness. This changing knowledge landscape was the reason for Siemens (2006) to reconsider the existing theories. These theories, including the constructivist approach, provide insight into specific aspects of the learning and knowledge process, but hold the assumption that learning takes place inside a person. Siemens (2006) argues that learning is a process of connecting specialized nodes or information resources.

For our purpose this approach seems to provide the extra dimension to appropriately deal with the learning needs of the actual workplace, where information exchange, collaboration and learning is facilitated by all kinds of new communication tools. A reality for most of the youngster and not so much for the elderly, which is a prominent concern under the changing demographic constellation of the need for elderly people to stay at the job longer, yet another reason to add this dimension (Veen & Vrakking, 2006; New Media Consortium, 2008).

Siemens (2006) considers learning to be a process of connecting specialized nodes or information resources. Downes (2005) puts it like this: "A property of one entity must lead to or become a property of another entity in order for them to be considered connected; the knowledge that results from such connections is connective knowledge" (Downes, 2005, section a - Types of Knowledge). Transposing the concept of connective knowledge from our mind to the rest of the world leads to an understanding of knowledge that is distributed in small parts throughout a network of data, information and people.

The Microtraining concept is developed with these considerations in mind. Yet if we take in account that all people are unique learners, it is evident that the way people learn also varies by their level of mastery in a job. According to Jonassen (1997) people new to the job require more formal and structured learning solutions, but as they progress, their learning requirements start to shift to informal and on-the-job learning that is more personal and performance driven. From this notion it is evident that the Microtraining approach is especially suitable for those whose basic knowledge needs to be refreshed or improved and who need information for immediate use in their daily practice.

4 Organizational requirements

A new understanding of work and learning is required as a consequence of the different organizational settings of Microtraining activities. It is not the hierarchical control and the standardized learning situations that forms the model, but the decentralized operating partial-autonomous working units that integrate individual learning and collective development of the organization into the everyday working processes. This model affects the existing training organization of the company, but also poses special demands for the learners and the trainers. The learner in the Microtraining concept is assigned with the responsibility for his own learning processes but also for the learning processes of his team. The trainer is no longer the overall initiator or presenter, but has a coaching role. The characteristics of Microtraining sessions and the single short learning units are marked by this change. The reflection of the work, the activation of self steered learning and communication across departmental borders takes centre stage.

The requirements for Microtraining to function in an organizational setting can be summarized as a set of basic principles:

Requirements for the company

Enterprises must trust in the self organization ability of their employees and delegate the responsibility to teams and departments. Executives must thereby provide space for the reflection of the working processes. Due to the fact that executives often have a technical background, they need - at least in the beginning - professional consultation by internal or external experts. Possibilities for informal meetings must be created to enable the staff to learn from each other. Therefore an adequate (technical) infrastructure must be created for the cooperation in the everyday working life.

Requirements for the design of a Microtraining session

Microtraining should support the self-directed learning and the communication in the enterprise. A Microtraining session should always contain a kick-off to concretize the needs of the participants. The event should wind up with a feedback which should also raise future needs besides the analysis of the past. Microtraining should be temporary. More than eight units (including kick-off and evaluation) is not advisable, because the Microtraining approach is more suitable for instant, short and informal learning activities to refresh basic knowledge, solve a sudden learning demand, and cover knowledge needs, applicable and directly related to the workplace. So splitting subjects into several Microtraining units, is a practical way of dealing with time constraints and should not lead to a never ending sequence of sessions, losing out on the purpose of the method. The subject of the session and the learning activity should not be chosen too tight to allow for self-directed learning as the most important motivating factor. Consequently Microtraining can establish the organizational context for work related, autonomous and informal learning.

Requirements for the design of a Microtraining learning unit

Microtraining units are short. In the best case they should last merely 15 minutes or a little bit longer when this is required, but should not exceed the 30 minutes barrier. Every single Microtraining unit should be designed with the aim to have the participant reflect on his work. The units should activate the participants to continue working on the issue and convey the exchange with colleagues. Every methodical form which is useful to trigger and support continuous reflection, learning and dialogue can be used in Microtraining. Knowledge transfer, e.g., in the form of presentations, is just one of the ways and not an exclusive component of Microtraining. Leading questions at the end of a learning unit can support the transfer to the daily working situation.

Developing a Microtraining unit or a series of units

Taking the requirements into account it becomes rather difficult for a not-teacher to be able to get started with Microtraining. Therefore an online User Guide is being developed that will be available in a test version early next year (2009 and see: www.microtraining.eu). This support system will contain all available information on the topic, but also plain printable formats for selecting the topics, formulating the learning goals, organizing the learning activities per unit and include tools for assessment. So the procedure and structure to 'do' Microtraining has been laid out for use by the community of interest.

5 Microtraining in practice

The Microtraining concept is a support mechanism for the development of informal learning activities. For this concept to do well organizational requirements are to be considered to achieve the advantages organizations are looking for because of the ever changing demands for learning. Now the advancement of the enterprise is for a large part the responsibility of the employees. Thereby self-directed learning allows straightened purposeful advancement on the working process and saves long detours (Brall & Hees, 2007). The application of Microtraining helps to connect with colleagues and other learning processes in the organization and can help to maintain, distribute and share knowledge in a structured way, so it does not become incidental, hidden or intransferrable. It is not just about individual learning, but about a mechanism that should be part of the organizational learning strategy (Brall et al., 2007).

Experiences with Microtraining over the last two years show that (Overschie et al., 2007; Brall & Hees, 2007; De Vries & Leege, 2008):

- Individuals connect, collaborate and produce resources that can be used company wide.
- People are brought together and problems are solved collectively.
- Learning processes can take place in the vicinity of the workplace, with ample opportunities for information transfer.
- Target-oriented self-directed learning motivates the staff.
- It saves time by focussing on the activation of essential advancements.

It also shows that:

- Companies have to decide about their learning policy in line with their business goals. Employees must recognize the potentials of self development with a share of individual responsibility and for the development of the company.
- On account of its shortness the preparation of Microtraining units might take as much time to prepare, as an equally long sequence of traditional training, but allowing much more flexibility in the execution..
- When employees and executives take over the role of a trainer, they need competences to design Microtrainings in an activating way.

In the Microteaching project, part of the European Leonardo da Vinci program, we tested different types of face-to-face and e-learning Microtraining. Another kind of Microtraining was to present thematic building blocks that were decomposed into small learning units. This form allows the learner to make a goal-oriented choice. Each learning unit in the building block is self contained and connected at the same time to other learning units. The learning modules provide the opportunity for the learner to select single learning units fitted to his needs. The learner though needs competences for this self-directed learning (Brall & Hees 2007). Often the learner does not have the competences to maintain his self-directed learning over a longer period of time.

It is shown in practice that the Microtraining approach presented in chapter 2, with an emphasis on activating and connecting people can support informal and self-directed learning. A plumber carried out a Microteaching series with the subject "What does sustainable energy mean to our company?" The first meeting was used to introduce the method and the subject. The employees' involved then collected the main questions and their answers and constructed a Mind map which was shown publicly in the company. In the next meetings single elements from the introductory meeting were taken up, contents were presented, solutions developed and ideas transferred on the applicability in the workplace. Weekly refreshments took place reminding the participants over and over again of the importance of the subject and confronted the employees continuously with single aspects by the visualisation. The employees could apply their acquired knowledge immediately, discuss the experiences with each other and talk about questions and transfer of results in other areas.

The combination of short sessions with the daily working schedule is very helpful and shows one of the strengths of Microtraining. A supplier in Slovakia developed for face-to-face Microtraining a detailed e-Learning variant which can be used, for example, in the preparation of a session or in the post processing of content. So all participants had a comparable level of knowledge, which can make the 15 minutes of the Microtraining even more effective. Another example is the learning framework which is developed for unqualified customer advisers in do-it-yourself stores in the project Reload. The employees can extend in waiting periods their knowledge about materials and tools in short multimedia trainings. Thus they specifically broaden their consultation competence. In the combination with the described face-to-face Microtraining Series the learning "en passant" can be stimulated and the inhibition threshold to the communication with colleagues about problems relevant for work can be lowered.

Another example is the use of Microtraining by a Dutch transport company. This organization has chosen Microtraining as the main learning concept and has integrated this approach in their overall learning strategy. The main target group is lorry drivers, who are not experienced learners, but increasingly in need of information and learning. The key elements in this strategy are information exchange, learning and performance improvement. Microtraining is the dominant organizational framework for on site and on the road or mobile learning. The online learning portal brings all the elements together and give the drivers access to an online newsletter for up-to-date information, to informal and formal learning activities, which are considered to be a blend of information exchange, communication, online learning units, reference materials, face-to-face sessions, etc.

6 Activating informal learning

This article is about the potential of Microtraining to support informal and self-directed learning. In general, companies are not sufficiently aware of the value of informal learning and underestimate the possibilities they have to use this potential in addition to their current training and development programs. The value of informal learning is evident, but how to support this kind of learning in a way that the process itself is not harmed?. The Microtraining concept is a method to deal with the organizational requirements to make informal learning more conceivable. It can help to add flexibility in the organisation of learning processes, close the gap of motivating and supporting the learners to develop, share and apply knowledge to increase their competences and be better able to assess their performance. The Microteaching approach connects different ways of learning by strengthening the focus of individual and collective learning on an important topic. In this way Microtraining can help to close actively knowledge gaps and to support the development of the learning organization for a continuous life long learning.

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Links

Microtraining Projekt: www.microtraining.eu

Microteaching Projekt: www.microteaching.org

Reload Projekt: www.project-reload.com

Technical University Delft, Edutec: www.edutec.tbm.tudelft.nl

RWTH Aachen University: Center for Learning and Knowledge Management: www.zlw-ima.com

Technical University Delft: Section Technology Dynamics & Sustainable Development: www.ta.tbm.tudelft.nl

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