

# **Self Directed Learning With Personal Publishing and Microcontent**

## **Constructivist Approach and Insights for Institutional Implementations**

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**Abstract:** The paper will be sketching out a constructivist approach to learning with microcontent, with special regard to new web technologies emerging in the “blogosphere”, the networked space created by weblogs and widened by many new web services that help to assign metadata to objects, or to construct social networks and webs of trust through the use of personal publishing or social networking platforms. Especially new “tagging” technologies and practices, creating “soft” metadata, show a possible way to new kinds of collaborative knowledge environments. It will be shown that is not only microcontent itself, but also its contextualization through learner-centered approaches, discussion through trackbacks or commentaries, and “soft” object metadata which contribute to an understanding of microlearning and provide insights for implementing personal publishing systems in (educational) institutions. Until now, most of these conceptions are emergent on the web, so future research would have to identify possible uses and integration into learning environments and didactical applications.

**Keywords:** social software, weblogs, microcontent, constructivism ...

### **1. Microcontent through Personal Publishing**

Microcontent has been increasingly gaining importance with the rise of personal publishing on the web. Nowadays, virtually anybody can upload / generate and share content through the use of web services and personal publishing systems. Many new, sophisticated web services have arisen, helping us also to assign metadata to objects, or to construct social networks and webs of trust through the use of personal publishing or social networking platforms. Presently, most Microcontent is generated, published and shared through

personal publishing systems (blogs [1]) photo sharing (like flickr) [2], collaborative text editing (wikis [3]) or social bookmark managers (like del.icio.us [4], furl [5], or scuttle [6]).

## 2. What is Microcontent?

Microcontent itself is a term which is vaguely defined. Wikipedia [7] does not have any entries for “microlearning” [8] and “microcontent” [9], so there does not seem to be a common consensus which is known to or relevant for a larger number of people until now. Some valuable attempts of definition can be found in the blogs of Nova Spivack [10] and Arnaud Leene [11].

Important (formal) aspects of microcontent are that it is referable, can be machine-readable through metadata / xml formats (RSS [12], Atom [13]), and is generally focused on one or few single ideas or topics. The most popular type of microcontent are weblog-postings, which are referable through a permalink, often provide metadata through RSS, Atom, or other XML formats, and are usually focused on a relatively small subject.

Therefore, MicroContent does not mean a genuine quality of content, but is a formal approach of how to present content.

## 3. Theoretical Implications

With personal publishing, it becomes more and more easy to generate and publish microcontent, based on one’s personal, subjective view of the world. This does have various implications for an understanding of self-organized learning.

A theoretical approach to this relatively new way of sharing, accessing and contextual understanding of information should focus on our personal perception, interpretation and representation of communication and personal, subjective knowledge. The learner-centered approach of the weblog-format [14, 15] facilitates self-organized learning processes on the web and corresponds with a constructivist’s theoretical view on perception, consciousness and learning.

The theoretical works of (Radical) Constructivism (Von Glasersfeld, Von Foerster, Hejl, et al. [16]) provide a perspective on the construction of subjective reality and personal knowledge.

## 4. Constructivism

(Radical) Constructivism describes any perceived reality as an active mental construction of human beings. Therefore, we do not perceive objective reality itself, but we actively *invent* an individual representation of it through our subjective perception *and* interpretation of the world which surrounds us. Therefore, an objective reality which is *beyond* any individual

perception cannot initially be perceived *at all*, because any perceiver is a part and also actively *taking part* of what she perceives and constructs as a subjective world view.

Accordances between a postulated objective world and an individual's constructed reality are not understood as equality, correspondence or a mere copy. To postulate a fundamental difference in the relations of compatibility, radical constructivist Ernst von Glasersfeld introduced the term "*viability*". [17] Instead of relations of accordances, the relation of viability is based on "fitting" in the sense of functioning/working. This means that a construct of reality, a perception or an action is viable, if it is not in conflict with any restrictions or obstacles.

Radical constructivism sees an "objective" outside world as something which actually cannot be perceived, so the concept of viability is the measurement if people successfully interact with the world surrounding them. The outside world and its population are understood as non-trivial machines. Non-trivial machines are dependent on the past, analytically indeterminable, and unpredictable. How they act is dependent of their present inner state and self-references. Any action, which is an interaction with the outside world, can trigger a change of the current inner state. This will have an effect on subsequent perceptions and mental constructions.

### **5. Self-organized Learning**

The theoretical approach of radical constructivism can be used to come to several conclusions when it comes to an understanding of active self-organized learning. They are based on the assumption that perception is a construct of a living being and not simply a copy or an image of reality. This means that an objective reality cannot be discovered, and conceptions of "absolute truth" lose their meaning. Furthermore, changes of the environment do not have deterministic functions for the individual, but are merely constraints which have to be either evaded or overcome. Any theoretical conception of the world (space and time, laws of nature, scientific formulas) are understood as constructed inventions which do not belong to the environment or any idea of "objective" reality. Therefore, a solution to a problem, the result of an action, an assertion or realization cannot be verified through reality itself, but through considerations concerning intersubjectivity and viability.

This leads to the conclusion that human beings do not only actively construct perception and consciousness, but also knowledge and learning. Humans are not seen as recipients without any self-activity which could be determined by changes of their environment, inscribing cognitions into them. In fact, they are seen as inventively active subjects (autopoietic) who create (the perception of) their environments through self-activity and the resulting constructions.

This understanding of learning emphasizes the learner's self-direction and autonomy. An orientation towards the individual learners and the subjective meaning of what is learned comes into focus, learners can personally identify with what they learn, and reflect on it. [18]

During my blogging activities within the last two years, [19] I have noticed that the gaining of an online identity through blogging is the key factor to web-based learning and networking. I have been publishing on the web before, but have gotten much more awareness and feedback through being represented through a blog. Instead of static texts, blogs make persons and personalities visible, allow for archiving of subjective knowledge and personal communication, and help building up social networks through references in blog postings and blogrolls.

### **6. Personal Publishing as subjective World View**

The theoretical framework which was described so far, helps us to explain activities in self-organized learning settings, and research & design micropublishing and microcontent conceptions.

The most popular way of micropublishing currently is *blogging*. Short weblog-postings with a timestamp, a permalink, and the possibility of leaving a comment right on the site usually are chronologically arranged on a web-page, which usually represents one or few authors of that particular weblog. Weblogs often are subject-based and learner-centered. They do not only represent their authors, giving them a personal space on the web, but also their subjective views, statements and relations (references to older weblog postings or external sources).

Entries in a weblog are microcontent items, which are mostly rather short, and consist of one or few central ideas or topics. Therefore, they can be more focused than longer, elaborate articles which tend to have many interrelated arguments and are often highly complex. Small units of knowledge are much easier to discuss and deconstruct on a peer-to-peer basis. [20]

Bits and pieces from a specific field of interest or simply because of personal curiosity / involvement can be blogged, often taking into account what they personally mean for the author. These bits and pieces of information or microcontent are combined through external and internal references, shaping a personal knowledge history of the author. By identifying, formulating and discussing problems and interests, a socially shared view can evolve through interaction with other users.

Personal publishing systems seem to be able to support some of the implications which the theory of radical constructivism has for self-directed learning: The subjective personality of the learner is taken into account through being represented by his personal weblog space, situation and personal motivation can be expressed because of the subjective approach of personal publishing, a personal knowledge history becomes accessible through archiving and combining microcontent items with internal and external references, and a socially founded view of an intersubjective "reality" can evolve through interaction with other readers and authors. Furthermore, content can be searched and found through specific search methods which are unique to microcontent, like collaborative categorization through "tagging" or inbound link searches which show links or blog-posts pointing to a specific url. This helps

users find content of their personal interest, and incorporate it into their previous knowledge of a field.

Since learning is always socially situated, and a constructivist understanding of knowledge denies the existence of absolute truth, intersubjective knowledge is the key to a shared view upon the world, or at least parts of it. Learners' motivations, personal interests and states they are in have to be taken into account, because they construct knowledge on a highly subjective basis.

Therefore, two important requirements for self-organized learning with microcontent are emphasized:

- Microcontent, published by an individual, is a subjective view upon the world, which can form a personal knowledge history through chronological archiving and references to other items (internal and external). It furthermore is easily discussable and can be referred to.
- If intersubjectivity replaces the idea of absolute, objective knowledge, the *social construction of knowledge* comes into focus. Through web-based collaboration, intersubjective knowledge can be socially constructed. This does not only happen in text (collaborative wiki entries, discussion in weblog comments) itself or through the infrastructural emergence of metawebs through external references, trackbacks and the like. Another important aspect is the possibility of adding metadata to microcontent items. This way, learners can express what an item means to them (how they construct it), and combine these subjective constructions with how they labeled other items, or how *others* did.

### **7. A Perspective Towards Introducing Microlearning in Institutional Conceptions**

Much of the topics discussed so far seem to be emergent. The theoretical background helps to understand why microcontent is an emergent phenomenon and how it is opposed to traditional methods of instructional learning or objective, factual knowledge. The question, how to implement the approach of generating web-based microcontent through self-directed, constructivist learning in curricular activities, remains unanswered. Similar to the microcontent conception itself, the usage of it can be introduced by the subsequent incorporation of its elements into existing or experimental learning scenarios and / or conceptions.

### 7.1 Static Text vs. Microcontent

One example how at least the rather simple, formal requirements of microcontent can already enhance learning activity in online courses is the modification of static text. The Adult Education at the University of Giessen, where I worked as a student researcher, conducted a blended learning course which goes by the name of ew.web. [21] It is a blended learning course, which introduces students at a beginner level to common pedagogical theories and concepts. Furthermore, the students learn metacognitive skills for a better learning. The course was run several times, and at first mostly consisted of modules with static texts, and instructional tasks. During the time which was reserved for reading of a module, students were instructed to discuss the text and their questions in a bulletin board. This rarely happened at all, which is a rather common occurrence when the trainer wants relatively long, static, and theoretical texts to be openly discussed in a bulletin board. Students said that they found it hard to formulate a question, or if they should take the entire text, or just a single idea into account when posting in the bulletin board. Forum activity was not very high, and mostly on a general basis.

However, in a later run of the course, I introduced wiki technologies to the department and we implemented it in their course, replacing the bulletin board with it. We used the wiki more for collaborative text editing in groups with a learning task, than in an encyclopedic format. The course consisted of several student groups of two to four people, who shared one wiki page for each group. Furthermore, we split the static reading texts into much smaller units, with a separate wiki page for each bit (a paragraph, a single topic or at most about one page) of reading text. The wiki-pages with the text were linked together in both the linear format of the original text, and through non-linear hyperlinks which connected text references and ideas to each other.

Note that the reading text itself did not change, but the matter of representing the text on the web did. Not only were topics connected to each other to allow a further reading without necessarily having to follow the original's linear structure. Furthermore, some rudimentary aspects of microcontent conceptions were introduced: The reading on wiki pages consisted of smaller text units which were grouped around the original text's headlines and / or paragraphs. Each of them was referable through the wiki pages' URLs [22], and allowed the learners to edit the text or insert questions, assumptions or notes into or below the text at any time, due to the underlying wiki technology.

This mode of presenting a text for reading and discussion on the web notably increased the learner's discussion activities: "On-site" questions or discussions emerged right where the microcontent text is (in the wiki). Through the ability of writing down notes, statements or questions directly into or below the corresponding text passages, learners have the possibility to engage in discussions which are situated towards their personal interests, and can concentrate on a single topic or "micro-discussion", in order to re-construct their personal knowledge about it through intersubjective, socially shared knowledge. Note that this discussion of smaller text units cannot be as elaborate as a discussion on a larger scale with

complex theories possibly could. The advantage lies in the circumstance that learners have to formulate their statements in micro discussions very clearly, because they cannot assume a particularly high level of previously shared knowledge in the group. This facilitates discussions on a peer-to-peer basis, and requires less previous knowledge from students at a beginner level.

### **7.2 Socially constructed knowledge through tagging?**

In 2004, *tagging* [23] became popular through web services like the collaborative photo-sharing site flickr.com, social bookmarking systems like del.icio.us, and Technorati.com's tagging feature for weblogs, just to name a few. Generally, tagging can be understood as labeling a unit of data with appropriate metadata. The aforementioned web-based applications of collaborative categorization through tags imply that a tag is a freely chosen keyword, which is assigned to an object by an individual user.

In a constructivist sense, the act of tagging an item is an individual's expression of how the object is represented in her mental constructions. This subjective construction is based on the individual's knowledge history and how this construct knowledge about this item was viable for reaching one's goal or not. Therefore, this kind of metadata is not a description of an "objective" world, but an expression of knowledge of others about it. The advantage of collaborative tagging is, that either all tags assigned by any user to an object can be viewed (flickr photos, for example), or that it is possible to visualize how individuals tagged an object without knowledge of any other possible tags which might have already been assigned by other users (this is usually the case when using a social bookmarking system). Tags can be analyzed and visualized as tag clouds [24], which show the most popular tags in a system as weighted words, usually by displaying them in bold type and / or larger print.

Another kind of further references are the *related tag* features, which show the most important or all tags, which are related to a specific tag. This feature enables users to browse through "adjacent" tags of an object, and helps identify coherent areas of knowledge. Note that this type of representation of information is actually derived from collaborative efforts of describing an object through the use of tags as keyword by several different users.

For the individual user, the universe of tags which have been assigned to objects on a system is sheer endless, and can hardly be "objectively" perceived in their entirety, or would be without any identifiable sense or meaning. For (social) groups however, tags can be used to negotiate the meaning or at least the categorization of objects among its members. This practice might be able to support a deeper understanding and / or interpretation of microcontent objects.

Learners in an online course, for example, could use a social bookmarking system which is integrated into the course environment in order to tag their weblog postings, (microcontent) reading texts, and external material they find and reference. If multiple users assign metadata based on their individual constructions of reality and understanding of microcontent objects (like adding keyword sidenotes to paragraphs of printed text on a

paper, for example), a socially founded shared view will evolve. The personal knowledge history in the learner's weblogs could lead to a categorization through tags, which visualizes shared knowledge through tag clouds.

So, it is not only microcontent itself, but also its contextualization through learner-centered approaches, discussion through trackbacks or commentaries, and "soft" object metadata which contribute to an understanding of microlearning and provide insights for implementing personal publishing systems in (educational) institutions. Until now, most of these conceptions are emergent on the web, so future research would have to identify possible uses and integration into learning environments and didactical applications, possibly based on the constructivist approach to learning with microcontent, of which I hopefully managed to describe some core aspects in this paper.

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