

EDU

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EDUCATION INQUIRY

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OPEN
SECTION

Towards a Phenomenological Understanding of Web 2.0 and Knowledge Formation

*Håkan Fleischer**

Abstract

The article aims to illuminate the character of Web 2.0 based on a reading of Martin Heidegger in order to provoke new epistemological questions about Web 2.0 and knowledge formation. The article applies the ontological grounds on which Heidegger described being-in-world and worldliness to the phenomenon of Web 2.0. The article states that Web 2.0 could be considered to be both a thing (in Heideggerian terms), but also not a thing. A thing because of the character of the equipment, the feature of self-sameness and the fact it is organised in an equipmental nexus makes it recognisable as a thing from different perspectives. However, it does seem to have unthingly features because of its lack of spatio-temporal fixation, the fact there is no original and no copies of it, and that it lacks timely orientation. The article further discusses the way the world reveals itself by using Web 2.0 and proposes a new term for this kind of revelation, namely a stretched world. It finally discusses Web 2.0 as a place for dwelling, and the epistemological consequences of these features of Web 2.0 for the formation of knowledge. It proposes that research questions should be asked from the perspective that Web 2.0 used for knowledge formation is something to act upon while stepping into it.

Keywords: phenomenology, epistemology, Web 2.0, knowledge formation, Martin Heidegger

Introduction

The idea of enhancing quality in the formation of knowledge with the aid of technology has been haunting schools for decades. According to Ihde (2002), the vision of artificial intelligence partly replacing the teacher was dreamt of for decades but failed as a reality. The introduction of the Internet of course led to interesting questions about schools. Moreover, not only has Internet usage changed but so has its character. It is argued that the Net has developed from being static to dynamic, from being centred around media-consuming to media producing, and from distinguishing the roles of producer and consumer to merging them together. This development is often referred to as a change from Web 1.0 to Web 2.0 (O'Reilly & Battelle, 2009). The main characteristics of Web 2.0 are that the user can contribute to the content of a website and after the contribution should be able to control it. The Web should be interactive, implying interaction between both the user-technology and user-user. On Web 2.0, the difference between the user and producer of content blend together, and a new

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type of active subject emerges: the prosumer (producer and consumer). In order to achieve this sociality on the Web, several of the following functions should be present (Bell, 2009): a search function, a multitude of links, a possibility to author content, tags describing content, extensions (for example, further information such as “other customers also bought these three books”) and signalling, meaning the possibility to signal to other users that, for example, content has been updated. Common Web 2.0 sites are Facebook, Flickr, Delicious and LinkedIn. In sum, this means that what knowledge can be formed about?, and the ways it can happen, are moved way beyond traditional experiences as technology has become more socially-oriented. At the same time, there has been a struggle to lower the computer-pupil ratio all over the Western world (Holcomb, 2009), supporting the belief that a reduced computer-pupil ratio will enhance knowledge formation and prepare youngsters for the future labour market.

The connection between the rapidly growing social technologies and ubiquitous computing should have been of great interest for researchers in the educational area. However, a research overview on 1:1 (one computer per pupil and teacher) research projects conducted during 2005–2010 (Fleischer, under revision) shows that research is somewhat missing on the conditions for knowledge formation. Simply put, most research on 1:1 projects instead focuses on the practical handling of computers in terms of writing, seeking information and presenting information. These results are also in line with a research overview carried out earlier (Penuel, 2006).

One possible reason is that research in the field of ICT and knowledge formation is problematic and there is a strong need for an alternative epistemological analysis within the field. By this I mean that important questions and interpretations of data may have been left behind due to asking questions with the standpoint of Web 2.0 being just another thing, a tool like any other, for knowledge formation. If that is the case, an alternative epistemological view of the phenomena at hand is called for. One way involves the approach taken in this article, offering an interpretation of Web 2.0 out of a reading of Martin Heidegger. The aim of doing this is to provoke new epistemological questions about Web 2.0 and the formation of knowledge. This perhaps unexpected perspective opens new epistemological areas, with a complementary understanding of an emerging field of research. An attempt at this has already been conducted by Kim (2001), although his analysis was about what he calls “digital beings” in general. The following analysis is inspired by his attempt, but deals with Web 2.0 specifically and also expands the analysis.

Web 2.0 and supposed effects for knowledge formation

Web 2.0 is believed to affect knowledge formation in at least two different ways (Johnson, Levine, & Smith, 2009). Firstly, by the collective production and sharing of resources, Web 2.0 facilitates the sharing of so-called learning objects. Thanks to Web 2.0, it is possible, for example, for students to jointly produce multimedia content, despite being separated geographically from each other. Even though not

all students produce media themselves, sharing, commenting on and developing it with others are quite easy.

Secondly, knowledge formation is supposed to be affected by the fact that people are more or less always connected to each other through social networks. For example, content on Web 2.0 is not only consumed or produced by members of the community, but also judged by a new kind of folksonomy (Bell, 2009). This means that information on Web 2.0 is tagged by keywords, not from an expert's point of view in a hierarchal way, but in a personal way. While those tags can be used for both personal indexing, it is instead used to allow one to find similar information, and for others to find your tagged information as well. This implies that, while navigating through services on Web 2.0, on for example a bookmarking site, the presence of others is always there. This, in turn, leads to intentionality steering towards "you" rather than toward "it" while working within Web 2.0 (Buber & Kaufmann, 1996) which is quite a change in terms of conditions for the formation of knowledge (Ihde, 2002).

Critical voices regarding Web 2.0

From the position of critical theory, Fuchs (2010) argues that the Internet and Web 2.0 are a prolonging of an already existing capitalistic order. This given order determines the structure and outcomes of the Internet. This analysis is mainly on the structural level. Cammaerts (2008) has developed a critical analysis on the more practical level, using blogs as a study object. He acknowledges the participation potential on Web 2.0, but also finds it necessary to "acknowledge the limitations of and constraints to these participative and democratic potentials" (Cammaerts, 2008, p. 360), by identifying threats to the blogosphere as a participatory arena. Other researchers have argued for the need for an "alternative analysis" of Web 2.0. Van Dijk (2009) calls for the need of a more theoretical anchored analysis of what it means to form knowledge in Web 2.0. The presented path to this is "to include the perspectives from cultural theory, consumer sociology and political economy" (2009, p. 54).

Aim

It is agreed with van Dijk (2009) that a new path to gain knowledge about this field is necessary. Therefore, a question arises concerning the nature of Web 2.0, proposed to have effects on knowledge formation. In this case, the analysis of Web 2.0 as a conditioner of knowledge formation is made in terms of Martin Heidegger's philosophy, and the question of worldliness. Martin Heidegger laid the foundation for the life-world phenomenology in his most famous work *Being and Time* (1962). The reason of using life-world phenomenology with a starting point in Martin Heidegger for this analysis is that it aims to investigate the conditions of what makes things appear the way they do (Ihde, 2002).

This article seeks to gain new knowledge about Web 2.0 as a conditioner of knowledge formation. The article's scope is mainly epistemological. It builds upon an ap-

plication of Martin Heidegger's phenomenological thinking on Web 2.0. The article applies his reasoning to "equipment", "things" and "thingyness" on Web 2.0 in order to achieve a better understanding of how research questions can be phrased about how Web 2.0 conditions knowledge formation.

The Heideggerian approach

Heidegger's main question in his philosophy was: what does it mean to be? The question at stake is not to be understood as a question about the meaning of life. Rather, it is a fundamental question which needs to be asked in order to understand anything we would like to study. Without a proper understanding about the being asking about the world, the question as well as the answers will be misleading (Dreyfus, 1991). Heidegger's exploration of being therefore starts with the question of what it means to be for a human, since in his philosophy the conditions of being must be understood in order to shed light on how we interpret our surroundings.

Heidegger (1962) starts his examination of what it means to be with a specific term he develops, namely Dasein. Dasein should not be understood as a person or a conscious subject; instead, it should be described as human being (Dreyfus, 1991), mankind or existence. This is not to be confused with a (certain) human being. The question of Dasein is: what is it that makes human being such a being? In this way, one can say that Heidegger's primary interest in Dasein is its Daseining. The term Dasein implies that existence is characterised as a being-in-world, since *da* means "there" in English, and *Sein* translates to "being". Hence, this being-in-world is characterised by the fact that we are there in an unreflected way, interwoven with the phenomenon appearing to us. The phenomenon that reveals itself – that constitutes itself – to Dasein is indeed the very interconnection between the subject and the object itself (Ruin, 2005), implying that Heidegger develops a *relational* philosophy since understandings are always present in Dasein. Given this, objects do not show themselves in order to be examined and given meaning, but are always meaningful from the beginning in one way or another. It is fundamental to understand this in order to cast a phenomenological light even over a diverse phenomenon such as Web 2.0: it is not the object itself that is under examination; rather, it is the constituted phenomenon in which Dasein is an equal part of that which the object itself is. When dealing with this specific phenomenon, the standpoint raises questions about how Web 2.0 conditions the formation of knowledge.

Tools and equipment¹ in the world become what they are due to Dasein's intentionality towards them, which is expressed through a natural attitude (Dreyfus, 1991). A short description of the term intentionality is necessary to avoid misunderstanding. Intentionality is part of what makes Dasein what it is. This implies that mankind is totally woven into the readiness-at-hand² of the equipmental nexus³ (Heidegger, 1962). Deduced from these facts, one can say that experiencing knowledge formation while using Web 2.0 is about daily coping or dealing with equipment present at hand

in a context of meaningful activity (Dreyfus, 1991). Human being is thereby always involved⁴. It is firstly upon the event of a disturbance of the tool, for example, if the tool breaks or becomes striking or manipulated in one sense or another, that a more reflective act occurs. This disturbance can also be induced by the subject himself, by reflecting upon the tool. If, for example, the social sphere we habitually use on Web 2.0 has a changing character, a fracture is created and at this point the nature of the tool or equipment first becomes clear to us. The being-in-world is then lifted up to an analytical level (Ruin, 2005), and the equipment becomes present-at-hand⁵.

Hidden in this is the key to the question as to why Web 2.0 implies that the research field on Web 2.0 and education could gain from reconsidering Heidegger's ontology. The social web is an entity that highly influences people's being-in-world, and thus the conditions for knowledge formation. When investigating Web 2.0 with the terminology stated by Heidegger, it becomes possible to ask a new type of question. This article continues with an analysis of Web 2.0 as something that is *both* a thing *and* not, so as to create a nuanced epistemological standpoint.

Why Web 2.0 is a thing, and why it is not

Web 2.0 is used daily by many people as part of forming knowledge, yet it is still hard to grasp its nature and ask proper research questions about it. In this section, I will examine the properties of Web 2.0 as a thing in order to more fully understand possible questions about the conditioning of knowledge formation it brings.

Thingly properties of Web 2.0

According to Heidegger (Heidegger, 1962), one of the main characteristics of things is that they are always equipment for something. In other words, they are always tools, or experienced as things in order to achieve something. The telephone on my desk is there in order to make phone calls; the pencil in my hand is there to be written with.

In the same way, the different instances of Web 2.0 are tools – they are there “in order to” form knowledge by providing or producing interesting information or being a tool for collaboration. For example, Facebook is there in order to provide an arena for discussing and reflecting. These tools may appear to have different “in-order-to” properties, for example, blogging can be used in order to market one's products, but also to condition knowledge formation within a special field. This is also true with other things. The pencil I use in order to affix text to paper can be used as a stick with which to stir my coffee, or even as a weapon.

A thing also has certain stability in its appearance: it has some kind of self-sameness (Heidegger, 1988; Kim, 2001), a moment of inertia. For example, books are continually recognised as books – they are immediately experienced as books. Dasein inherits the understanding of the surrounding objects as part of itself, not seeing them directly but “around” them by circumspection⁶ and the thing is just that thing due to this property of selfsameness. Web 2.0 instances – for example a blog – also have a self-sameness.

Even though it may change colour scheme or even layout, it always has an “in-order-to”-feature. The self-sameness feature has nothing to do with the persistence of the object as such. It is rather the usability as a phenomenon, experienced while Daseining, which makes the self-sameness the object apparent. In the same way, Web 2.0 entities are things since they have a certain self-sameness, being taken for granted and therefore not reflected upon, but still conditioning knowledge formation.

Dasein can be understood as a being in a world of equipment organised vis-à-vis each other in an equipmental nexus (Dreyfus, 1991; Heidegger, 1962). In these nexuses there are references to the usability of the objects, both separately and in relation to each other. A classic example from Heidegger (1962) is that of a hammer. What gives the hammer its “hammeriness” is the tool’s relation to the nail, the plank and to the subject holding the hammer. The hammer is only a hammer in relation to – and as a part of – this equipment of totality. By the same token, Web 2.0 entities have relations to other tools and equipment, and as such can be regarded as things. A course blog used for knowledge formation has a given relationship to its users, to certain contents on the net, to certain books to be read and so on. The blog is conditioned to be experienced as a blog by the things surrounding it. The equipments of totalities also make it possible to recognise the thing from different perspectives. When watching a building from the perspective of another tool connected to the building, such as a bench in a park, it is, for example, not necessary to see the roof of the building in order to recognise it. The same goes with Web 2.0.

Another feature of things, tied to their persistence and self-sameness, is that they are ready to be used again and again (Heidegger, 1962; Husserl, 1973). The pencils around the writer can easily be picked up again and again, ready to be used. This is a thingly feature. Web 2.0 also has the again-and-again feature. Facebook can be used again and again (and certainly is) in order to connect to people, to find information or to form knowledge.

Hence Web 2.0 seems to be a thing, according to the character of the equipment, the feature of self-sameness and the fact that it is organised in an equipmental nexus that makes it recognisable as a thing from different perspectives. Even so, one cannot totally claim that Web 2.0 is a thing for there are some features that differentiate Web 2.0 from the features of the thing.

Unthingly properties of Web 2.0

All things have a spatio-temporal fixation (Heidegger, 1988; Kim, 2001). That is, things have a here-there dimension tied to them. A textbook is either on the desk or in the office. Things also have a temporal fixation: the textbook can be at the library in the morning and on my table in the evening. But it cannot be in two places at the same time. The education system is strongly bound to this feature of things, exemplified for instance in terms of the need for scheduling or keeping records of school activity. Web 2.0 makes a difference in terms of spatio-temporal fixation: it can be

both here and there at the same time. A blog might be used at school or in a café, or by using a cell phone. Web 2.0 can be at multiple places at multiple times. The lack of spatio-temporal fixation while using Web 2.0 as a source for knowledge probably configures knowledge formation in other ways than the use of spatio-temporal bound information sources do.

Heidegger (1988) claims that even though there may be many instances of a thing, there is only one original. This leads to an evaluation of the things – the original thing will be considered a more “pure” source of information, and copies are worth less than the original. With Web 2.0 entities, this is not the case. There is no original of, for example, a blog. The character of the original is in change. On one hand, there are multiple copies without an original or, viewed from the other side, there are several originals. Even though intertextuality is not new, the use of Web 2.0 is extrapolating this postmodern trend. This feature ought to configure knowledge formation in a different way than when dealing with “ordinary” learning objects.

Another thingly feature is that of the timely orientation. A thing always “lives” in a time-scale (Heidegger, 1992). For instance, once upon a time the pencil was new, but after a year it is covered by marks, reminding me of the writing process. Things are bound in time, and serve as a constant reminder of the knowledge formation process, for better or for worse. Web 2.0 lacks this thingly feature. Even though it is possible to date-stamp the appearance of a blog or a social network, or the time when the binary code was uploaded to a server, there are no time marks in the experienced phenomena in terms of durability. Web 2.0 entities – like other digital ones - could last forever, or they could vanish instantly (Kim, 2001). In itself as a digital entity, there is no use in time-stamping it since it (or the multitude of copies of it) does not show signs of history. Web 2.0 will therefore never tell me of the historicity of myself or my knowledge formation process as such, and therefore it is configuring the experience of it in another way.

Thus far, we have discovered that on the basis of this analysis Web 2.0 is a thing in certain aspects, but not in others. Kim (2001) makes a similar analysis of what he calls “digital beings”, described as something in between *res cogito* and *res extensa*. Whatever we should call this entity known as Web 2.0, it seems clear that it has the potential to reconfigure knowledge formation, and that it reveals itself as some kind of existence to us. It is now time to continue the ontological journey of Web 2.0 into the field of revelations.

The stretched world

According to Heidegger (Heidegger, 1962), there are three kinds of revelations, or ways that the world presents itself to Dasein. Firstly, there is the physical representation. The pencil, for example, when lying on a desk, is represented as itself to me: it stands for itself, so to speak. This is the normal and unreflected mode of the world: we are entangled with the equipment surrounding us in a circumspective way.

Secondly, the world also reveals itself in the form of thought or reflection (Dreyfus, 1991). However, Heidegger clarifies that this mental state, for example the reflection over a flower, does not appear by itself. Rather, it is the result of something that has become occurrent, or present-at-hand, rather than ready-at-hand. The occurrentness could be induced even by Dasein itself, manipulating the thing in mind. In this way, all mental states are intertwined with the background that the equipmental nexus makes up. The “normal” mode is to be entangled with the pencil in a circumspective way, but as it becomes striking or manipulated it enters the mind of the subject and thus becomes a revelation of the world as a mental state.

Thirdly, there is also equipment that has a special task: to point out or refer to something else. Heidegger (1962) talks extensively of such equipment as signs. For example, if someone sends a picture by mms as a modern postcard, the picture points out its motif. A great deal of material on the Internet is of this kind of revelation of the world: pictures, videos and text all represent different things. The pencil on my desk is a physical revelation of worldliness, but it can also be a symbol of my writing process. In the same way, the mms on my cell phone is certainly also a kind of physical equipment, at least in some ways.

However, it seems as though the revelation of the world is functioning quite differently when it comes to Web 2.0. It may be described as a certain mode of the equipment, by the same logic as signs are. It is not a new kind of being, but it is an entity that Dasein deals with in a circumspective way, which has both thingly and unthingly characteristics. Web 2.0 can be both ready-at-hand and present-at-hand, and can be described as both equipment and as a room inheriting other equipment. I will now investigate the possibilities of a fourth kind of revelation of the world, here called the stretched world. In order to grasp the qualities of this stretched world, I must first lay some foundations about the naturalness of our being-in-world.

Web 2.0 as a facilitator of the stretched world

As mentioned, human beings have a natural and unreflected attitude to the world in which they are born since, according to Heidegger (1993), the human being is enframe⁷d in the world. The world shows itself to us out of the preconditions available for the being-in-world as totally natural, and it provides us with a natural attitude, as Husserl would claim (Husserl, 1973). The point of Heidegger’s analysis of enframe-ment is that even if something, for example living with machines, could be described as totally unnatural in one setting, it can certainly be experienced in an unreflected, natural way in another. The use of Web 2.0 as an entity affecting knowledge formation preconfigures one’s experiences of the world in an entirely natural way.

In research articles on the Internet and knowledge formation, there is often a focus on stepping in and out of a virtual world (Palfrey & Gasser, 2008; Veen & Vrakking, 2006). Since the analysis of Dasein says that we can only be in an understanding of the present world, and that everything we experience is a part of it, a suggestion

instead is that Web 2.0 allows living in a stretched world. This difference calls for different conditions of knowledge formation. In the first way of viewing it, common in constructivist traditions, there must be an evaluation of what “sphere” is the most “real”, and what knowledge to acknowledge the most. Inevitably, the virtuality theory leads to tensions between reality and virtuality, reflected in knowledge formation. In terms of stretched reality, it is the one and only reality that is stretched. The conditions of knowledge formation should therefore focus instead on the enhancements, the additions, the many more possibilities made by use of Web 2.0 as such.

This stretched world is the result of coping with digital entities such as Web 2.0 – that is, entities that do have some thingly properties, but which cannot be regarded as things according to a Heideggerian interpretation of the world. The total experience of the world through the use of Web 2.0 becomes a stretched world, that is, it is experienced as richer and with different qualities – since what we experience is enhanced and enriched by the use of modern technology - than anything that we have ever experienced as physical representations. Other technologies have expanded the world, such as the invention of typing by Gutenberg, or the invention of photography. In the case of photography, it led to totally new ways of freezing a moment, experiencing the present moment in greater detail, with the time and possibility to connect the elements in the picture to one another. In this analysis, what distinguishes stretching from expanding, such as being experienced earlier, is the quality of “stepping-into”. This is the fourth way of revealing the world: acting upon the present-at-hand object while at the same time entering into itself. The purpose of entering is to dwell in it.

Web 2.0 as a place for dwelling

The natural mode of Dasein seems to be a dwelling in the act of coping with equipment (Dreyfus, 1991). Although no walls, floor nor other spatialities can be assigned to Web 2.0 as such, we can view it as a building in some sense because attaining to dwelling seems to be closely related to buildings (Heidegger, 1993). The purpose of a house is to inherit people dwelling in it. However, not all buildings are made as a dwelling, for example, bridges and roads. These can instead be arenas of a temporary dwelling, but hardly places for permanent dwelling.

Permanent dwelling in a building invites thinking and reflection – it allows Dasein to make the equipment occurrent (Heidegger, 1993). This is why it is so important to consider the esthetical qualities conditioning knowledge formation (Alerby & Jórunn, 2006), and it might be a key to understanding knowledge formation on Web 2.0 as well. Here an epistemological key question is at stake: If Web 2.0 is considered to be one of those “buildings” that are not made for dwelling (such as bridges in Heidegger’s example), it should be considered as a mere pickup spot for information. The epistemological focus of such a perspective on Web 2.0 poses questions about what the actions are on Web 2.0. If, instead, Web 2.0 were considered as a place for dwelling, more focus would be given to the question of which elements in the dwelling sphere

provoke reflection, leading to knowledge formation. It would also shift the focus to the interaction both between man and technology, but also man to man as a basis for knowledge formation. While seeing Web 2.0 as a place for non-dwelling-activities, there is no room to ask questions of how identity-building on the net conditions knowledge formation. The dwelling perspective does just that.

Further, without buildings there would not be space (Heidegger, 1993). Spaces are defined by buildings, and allow us the possibility to move from building to building, an intellectual act necessary while forming knowledge. That is, the building (and thus the dwelling) makes it possible to make leaps from here to there. That which is closest to mind in a certain Dasein must not be that which is closest geographically. While forming knowledge one can be here physically, but there intellectually. A roomly-oriented dwelling makes this possible and also calls for an investigation of the intellectual leaps Web 2.0 is offering while dwelling.

Conclusions

In educational settings, one conclusion is that Web 2.0 is something that has a double feature: while acting actively upon it, one also steps into it to dwell. This is the nature of the stretched world offered by Web 2.0. This analysis of Web 2.0 shows that it has some thingly properties, but also some features that suggest it is not a thing. It reveals the world as stretched, and it has both equipmental status and a status as a building or room to inherit equipment – it is made as a place for dwelling. This is what distinguishes stretching from an expansion. From an epistemological standpoint, this leads to the question of what knowledge we can seek when forming knowledge on Web 2.0.

One epistemological point worth making here is that, in order to understand the conditioning of knowledge formation while using Web 2.0, one aspect to research is the exact way this dwelling takes place. Interesting questions arise, besides current ones that focus on the thingly aspects of Web 2.0: how to evaluate the amount of time spent while dwelling? How much reflection does the dwelling aspect of Web 2.0 invite? While dwelling, by which elements is the sense of other dwellers made? Are the others reduced to the content they provide, or are they experienced as significant others? In such case, what are the proper strategies to connect to these significant others?

It is obvious that, when discussing knowledge formation with Web 2.0, one cannot separate it from other things. This is always true when conducting phenomenological research, but especially so with Web 2.0 since its properties are not entirely thingly. Therefore, one epistemological quest would be to investigate the quality of interaction between Web 2.0 and other entities configuring the experience of knowledge formation. The questioning of knowledge formation on Web 2.0 must therefore extremely carefully consider the surrounding equipment. Second, this is an entity with some roomly properties – revealing the world as a stretched world, not divided, not splintered. Therefore, when forming knowledge in Web 2.0 one must not consider it as a virtual world. If that is done, both the focus of the question as well as the answers

will be misleading. For example, the term is stretched used by Kroksmark (2010) when discussing the possibility to bring digital experiences into an analogue world, and vice versa. According to the analysis presented above, this is an expansion rather than stretching. Instead, from the epistemological standpoint, one should examine the way in which the world becomes stretched. Which qualities of knowledge formation are so to speak “bended” past the realm of what was earlier possible due to the stretchiness? Moreover, on the room aspect of Web 2.0 dwelling in a special kind of room might produce special kinds of reflectional acts. If the “room-without-walls” property of Web 2.0 is not considered, again, the focus is wrong. Therefore, the qualities of reflection should be investigated. Examples of questions here might be: which topics are reflected upon and which are left behind? Does the specific environment evoke specific kinds of reflection, for example detailed or overviewed? Learning and studying in ubiquitous computer environments stimulate motivation but, at the same time, call for a great amount of self-regulation according to a recent research review within the area of one-to-one computing (Fleischer, under revision). Sooner or later, ubiquitous computing in schools will enter Web 2.0, if it has not already. How do teachers in the stretched world of Web 2.0 take this into account while teaching?

Further, the lack of historicity may also produce different kinds of reflection and action while forming knowledge. The effects of this should be properly investigated in terms of how it configures the experience. Last but not least, when trying to understand knowledge formation on Web 2.0, it is important to remember that Dasein is always in understanding (and therefore also in a mode⁸ while experiencing the world). That is, Web 2.0 is always meaningful and, to some extent, emotional for the learning subject. If research on knowledge formation on Web 2.0 views the phenomenon as something socially constructed, labelling it with a meaning and after that applying studies to that very phenomenon with that very meaning applied, then a true understanding of Web 2.0 is lost. Instead, it must be interpreted from the immediate and intuitive understanding, both as ready-at-hand equipment and as way of revealing the world as stretched. Therein lays one possibility to gain an epistemological insight how Web 2.0 configures experiences of knowledge formation.

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Endnotes

- ¹ The original German term is “Zeug”.
- ² The original German term is “Zuhandenheit”. The term could also be described as “something being available”.
- ³ The original German term is “Zeugganses”. The term could also be described as “equipmental whole” or “equipmental totality”.
- ⁴ The original German term is “Bewantnis”.
- ⁵ The original German term is “Vorhandenheit”. The term could also be described as “something occurrentness”. I think this should just be “occurrentness”; the something simply does not work linguistically.
- ⁶ The original German term is “Umsicht”.
- ⁷ The original German term is “Gestelled”.
- ⁸ The original German term is “Stimmung”.

