

Twitter as equipment for educational interaction – The struggle between efficiency and being

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Jesper Tække
Associate Professor, PhD
Centre for Internet Research,
Aarhus University, Denmark
<http://www.jespertaekke.dk>
imvjet@dac.au.dk
Twitter: @taekke

Abstract

As a researcher in the action research project Socio Media Education (SME)¹ I have wondered why it has been so difficult for the participants to integrate the, through successful actions, developed uses of Twitter in their everyday practice. In the research project, the test class and its teachers through actions and experimentation, in an exemplary manner have developed a number of applications of the interaction medium Twitter in the educational interaction. These uses seem clearly to facilitate student learning, increase their participation and commitment and reduce their Internet-driven distraction. Seen exemplarily this is a success to the extent that we have succeeded through publications and lectures to create awareness of the application forms, so they can be applied all over in the educational system. However, a part of the way, the exemplary results are in contrast to our experimental class' everyday use of Twitter. This shows that the class does not generally enjoy the learning and attention catching developed teaching methods. Only when a teacher takes the initiative, which they do not do all, and nobody always do, the methods are used.

Through a cross-optic established on Heidegger's philosophy of technology and Luhmann's ditto, the paper tries to understand the discrepancy, in why not the students by themselves initiate the developed methods, now when they should have recognized that they learn more and are less distracted when they do.

First, I take Heidegger and Luhmann up one at a time and account for their technology philosophies. Then I will try to argue for the establishment of a comprehensive strategy of analysis, and extrapolate a number of analysis points based on an overall consideration, and following observe the problem, as it looks through the two lenses, seen as a single lens, and observe if there will appear something new and explanatory.

¹ See about the SME-experiment in Tække & Paulsen (2013c).

Heidegger and being

I am not going to try to provide a fully description of Heidegger's philosophy, but shortly give a couple of overall clues and after that try to capture what technology is in his view.

Heidegger breaks with the whole history of metaphysics and philosophy of technology from Plato and up to his own new beginning. What he breaks with is that the philosophers have focused on substances instead of being, or more precisely, they have focused on what is, instead of the being of the being (Dasine). With Plato in antiquity we got the *ideas* as the real being behind things, in the Middle Ages with Augustine God, and with Descartes it became the subject in form of the *res cogitans*, the thinking substance that became the real being behind things. However, in the perspective of Heidegger, being was hidden away from the different philosophical paradigms, and his own analytic also just approaches being with greatest difficulties. Even language itself is an obstacle because it is build up around substances resulting in a constant subjectivation. Heidegger himself is doing all sorts of strange linguistic dodge through a self-created language, where things for example are thinging and the world worlds. Heidegger does not provide us with an epistemology, because he does not think that reason provide us with a representation of how reality really is. For Descartes the world is given to us through mathematic, which is what really understands the world. When understanding with mathematic and logic is seen as true – and when only what is true is real, the being is reduced to what is at hand (Hass 1973, 54). For Heidegger the World is perceived and understood by Dasine, which is the unique human form of being that unlike everything else, is able to ask about its own being (Heidegger 1962, 32, 78). We are reflected and conscious about our being – or we may be. In this relationship to our being, which can be seen as an asking or an uncovering or disclosure of reality, the things and especially the equipment plays a special role.

Equipment

Among the things is the equipment, which Heidegger (1962, 97) defines as: “those entities which we encounter in concern”. Equipment is “something in-order-to” – which is part of a structure, in which there lies an assignment or reference of something to something (ibid.). Heidegger gives the example that a writing-equipment is a part of a reference-structure in which belongs other equipment: ink-stand, pen, ink, paper, blotting pad, table, lamp, furniture, windows, doors, room. Thus, more vital it is that the taking in use of the equipment, means that our focus is on what we use it for, on what we are doing and what we want to with the equipment. Heidegger formulates it so that our use of the equipment puts the use under the “towards-which” which is then in-lighted by the project (*das Werk*). The project is what we have intended by the concerned dealing with the equipment: “The work bears with it that referential totality within which the equipment is encountered” (ibid., 99). Especially two concepts seem to be of significance in the concerned dealing with the equipment, which is *ready-to-hand* and *present-at-hand*. That an equipment, for instance a writing equipment, is ready-to-hand means that you are concentrated on the project, for example, what I want to write to you, what

we are going to do together and understand together. *Present-at-hand* means that the writing equipment itself comes into focus while the project despairs: "When we concern ourselves with something, the entities which are most closely ready-to-hand may be met as something unusable, not properly adapted for the use we have decided upon. The tool turns out to be damaged, or the material unsuitable" (Heidegger 1962, 102). The equipment takes the focus because of its unsuitability: it becomes present-at-hand. In our concerned dealings with equipment we not only experience unusable things within what is ready-to-hand, but also find things which are missing, which not only are not handy, but are not to hand. Such a miss exposes something un-ready-to-hand in what is ready-to-hand as present-at-hand. The more something is missing, is un-ready-to-hand, the more what is ready-to-hand loses its character of being ready-to-hand: "The helpless way in which we stand before it a deficient mode of concern, and as such it uncovers the being-just-present-at-hand-and-no-more of something ready-to-hand" (Heidegger 1962, 103).

Conspicuousness, obtrusiveness and obstinacy have the function that it brings the presence-at-hand to the fore of what is ready-to-hand. Our Dasein's towards-which in a constituted reference-context is disturbed if the equipment has a defect or lack. The reference turns to be explicit, and a *breakdown* happens in our daily concerned dealings with the equipment, in the equipment's readiness-to-hand. When what is ready-to-hand gets visible, becomes present-at-hand, we get a lit up of what is within-the-world: breaks thrust the present-at-hand of the being to the fore (Heidegger 1962, 107). When Dasein as being-in-the-world becomes present-at-hand (and not just ready-to-hand), something providing a miss in the concern-full dealing with the world, must have happened before (Heidegger 1962, 88). Winograd and Flores (1986, 36) sum up with the hammer as an example: "The hammer presents itself as a hammer only when there is some kind of braking down or unreadiness-to-hand". For Heidegger it is meaningless to talk about the existence of objects and their properties in the absence of concerned activity, with its potential for breaking down" (ibid., 37). Pelle Ehn among others in the Scandinavian design tradition used the distinction between ready-to-hand and present-at-hand in the development of information systems. Ehn and Kyng (1991, 179) describes how they in design processes using a mock-up method, uses breakdowns, where the mock-up gets present-at-hand, to see where and when the technology takes the focus while the project slips out of the sight. When it happens a redesign is made so the technology again just convey the processes towards the project without short-circuiting it.

The essence of technology

What is now technology when Heidegger wants to describe its essence? You could say that it is a materialization of our theories, of our mathematically and logically efforts. It was not like that Descartes made his metaphysics with the modern science as a model, instead the new physics was only made possible after the metaphysics had changed, so the world no longer was observed so much as God's creation, as something that could be weighed, measured and calculated. The scientific idea of nature was seen as the being itself, as the real. The metaphysics becomes physics and science only encounter what it is already configured to observe (Hass 1973, 66).

Heidegger is not against technology, what he suggests is that man is not prepared for the radical transformation the age of technology means. He believes that man is the servant of technology, while we think that we are in the inverse ratio to the technology. The problem is not entirely new, although the situation is different in our time, because thinking already by Aristotle was transformed to logic, which for Heidegger is a technology of thinking. According to Hass (1973, 68) the logic for Heidegger means a subjectivation of reality, whereby being is subjected to human reason - and then, so to speak, automated with technology and thereby hidden from us.

When Heidegger (1977, 289) more precisely defines and discusses what technology is, he notes the widespread assumption that technology is something instrumental where specific resources are used to achieve certain goals. The perception is not wrong, but it obscures a true understanding of the technology: "Technology is not equivalent to the essence of technology" (Heidegger 1977, 287). Heidegger gives the analogy that a tree's essence, that penetrates and determines every tree, as tree, is not itself a tree, that can be found among all the other trees. The problem is, as I mentioned above, that when we think we have seen through the technology, we do not see that our goals and needs, is already determined by the essence of technology. Heidegger (1977, 290) tries, by going back to a concept of cause and effect that is before the latinisation of Greek philosophy's concepts, to show that causality can be seen as responsibility. In contemporary sense, we according to Heidegger are too prone to view responsibility either morally, or as effect, which prevent us in seeing the originally meaning of what would later be called causality. This means that we can not comprehend what the instrumental, based on the causal, actually is (ibid., 292). Responsibility brings something into appearance, help it come forth into the present: "The principal characteristic of being responsible is this starting something on its way into arrival" (Heidegger 1962, 292). The being responsible is an occasion or an inducing to go forward. Something is responsible for something else, which means that something may lead to something else's emergence, making it disclosed. Following this insight Heidegger's method is step by step to disclose what technology, which we construe as means, really *is* and means for *das*ine. "The revealing that rules in modern technology is a challenging, which puts to nature the unreasonable demand that it supply energy which can be extracted and stored as such" (Heidegger 1962, 296). The revealing that rules throughout modern technology, for Heidegger has the character of a setting-upon, in the sense of a challenging-forth: "Such challenging happens in that the energy concealed in nature is unlocked, what is unlocked is transformed, what is transformed is stored up, what is stored up is, in turn, distributed, and what is distributed is switched about ever anew" (Heidegger 1962, 298). What is of interest for Heidegger is the understanding of being that penetrates and makes technology possible. It is not the means that constitutes technology but the way being is disclosed through the technology-way-of-thinking that has interest. As mentioned before, technology is a materialisation of a particular scientific outlook that we do not rule, but which rules us and characterize our time - the time of technology. Everything must be more efficient, everything is seen as raw material and resources, and everything may be optimised and must be seen in a larger

reference-network, where the aircraft, for instance, only can be understood in the context of the whole transport sector, with labour, runways, airports, railroad systems, busy businessmen, tourists etc. Heidegger calls this, the essence of technology, *Ge-stell*. As a concept *Ge-stell* uncovers the being as *Bestand*.² We ourselves is a *Bestand* (a stock or supply) of labour, the Rhine River is a water-power supplier or an object for the vacation industry – not just a river or water against the skin. It seems like Heidegger sees a danger in the abstraction that occurs when energy can be stored and used for unspecified purposes. As counter-example, he mentions the old windmill, which in its design was dedicated to a specific purpose.

Perhaps he believes that people lived with the windmill in a being with other (and better) aspects of reality than we do now that we constantly are eyeing new techniques, new efficiency gains and (life) forms without seeing the mathematical and rationalistic unification of our being. The technologically way of being has penetrated our infrastructure, is the *Ge-stell*. According to Heidegger (*ibid.*, 300) the word *Bestand* characterizes the way we uncover the present. *Ge-stell* is, so to say, the mindset, or the discourse, which is the essence of technology: “Enframing [*Ge-stell*] means the gathering together of that setting-upon that sets upon man, i.e., challenges him forth, to reveal the real, in the mode of ordering, as standing-reserve [*Bestand*]” (Heidegger 1962, 302). The point is, that we are placed (*Stellen*) in a position where we uncover the world through a narrow outlook, namely through the scientific outlook – you could say that life has also other aspects like love, poetry and art. To say that technology colonises all dimensions of life, seems synonymous with Heidegger’s we only uncover being based on the essence of technology (*Ge-stell*). *Ge-stell* is not itself something technical but the essence of technology. Heidegger has a distinction between technology (rods and pistons), which fall within the technical work area and *Ge-stell* that is the metaphysics that comes with and makes technology possible. The scientific outlook let us see nature: “as a coherence of forces calculable in advance” (Heidegger 1962, 303). Or totally clearly formulated: “Modern science’s way of representing pursues and entraps nature as a calculable coherence of forces” (*ibid.*). And in Heidegger’s art-language: “In enframing [*Ge-stell*] that unconcealment comes to pass in conformity with which the work of modern technology reveals the real as standing-reserve [*Bestand*]” (Heidegger 1962, 302). We are sheep, labour, users (not citizens, humans or *dasine*) and students must be ready to learn in an effective knowledge transfer system.

Recapitulation

Heidegger has a double distinction: 1 one between Technology that falls within the technical work area and *Ge-stell* that are the metaphysics that comes with modern technology, the essence of technology. 2 one between the early Akkadian technology (equipment) where you get a concrete and with nature strictly coupled output (e.g., grain and wind that in the mill becomes into flour) and the modern technology with an arbitrary and loosely-coupled output and relation-structure (e.g., the mill

² In English *Gestell* can be scaffold or frame, in the translation from 1962 (page 301) it is translated as en-framing/frame. *Bestand* is translated as standing-reserve (*ibid.*, 298).

creating power used in all kinds of electrical machinery, distributed through a non-transparent system, depending on an even more abstract and complex economy system - a system in which we ourselves have ended up as Bestand). As Heidegger have not discussed the distinctions we must assume that only modern technology and its development depends on Ge-stell, but that both the modern and the Akkadian technology can be ready-to-hand respectively present-at-hand. In my interpretation we, according to Heidegger, by asking about the technology can uncover and understand how it works and affects our being (dasine) - even when it comes to modern technology.

Luhmann and Technology

Luhmann's philosophy of technology is based on the distinction between operational closure on the one hand, and the causal (technical) closure on the other hand. Operational closure concerns autopoietic systems and determines them typologically, i.e. whether they are alive, conscious or communicative. Operational closure means that the different types of systems cannot operate outside of themselves, so that, for example, suddenly a cell from the biological level of system formation comes into the social system's communications, or into our conscious thinking. If we turn to the concept of causal (technical) closure, then the question about causality, according to Luhmann (2007: 89), always is an assessment of an observer's observation, a coupling of cause and effect. Causality is also selective (subjective), because only specific causes are of interest, as the observer has uncertainty regarding the effects, it wonder, for example, if the construction of this bridge collapses? Or, conversely, you can be interested in specific effects and therefore ask about their causes: how you constructed the bridge, so it became so strong? Formally causality, according to Luhmann (ibid.), which here seems to follow Kant (2002a: 153, see also Luhmann 2002b: 137), is *a schematic for observing the world*. Since, however, we could continue to look for new causes, effects, side effects and unintended effects it would blow up the capacity for information processing in every observing system, why causality always is selective and must be attributed to an observer with certain interests (Luhmann 2007: 89).

Luhmann (2005: 87, 1999: 524) defines technology as "functioning simplification". One can imagine a plough that works in that it turns the soil. A single (simplified) effect caused by the fact that the twisted material is pulled through the soil. As Luhmann here as often expresses himself form-theoretically using the terminology from the logician George Spencer-Brown (1969), one can say that technology is seen as a form in the medium of causality, so that *functioning simplification is the inside of the form technology in the medium of causality* (Luhmann, 2005: 87). One can imagine the medium as all sorts of cause-and-effect relationships, for example, all possible forms, the material that is pulled through the soil, can have - and also its *form* as the actual form of the material that is pulled through the soil as the cause, giving a concrete effect, such as a harrow, raking the soil, or a cultivator mixing the soil. However, the examples are misleading the abstraction level the definition provides, which becomes evident because the outside of the form, according to Luhmann, is made up of "the immense complexity of causal processes taking their simultaneous course" (Luhmann, 2005: 88).

The concept of technology, the causal (technical) closure is a term that encompasses all issues where we have identified devices (functioning simplification), which causes certain effects, while the exterior of the concept is given by all other possible causes and effects. This becomes evident when Luhmann elsewhere formulate the form of technology as a distinction between controllable and non-controllable facts (Luhmann, 1999: 525). The reflection concept for technology (the outside of the concept) consists therefore in this optic of all effects that fall outside the one's, we so to say, have trapped and are able to control. Luhmann (1999: 524) also describes technology as the observation of a calculus, in the sense that we talk about repeatable causality. Thus, it is assumed that on the inside of the form "technology" we have repeatable causality, while on the outside of the form "technology" we have unreduced causality. For example, we have experiences of building a particular type of bridge and therefore count on that a bridge of this particular construction will be able to carry the same load, if it is built somewhere else - just as it is estimated that the bridge each day will carry the same traffic load. As a result of this concept of technology Luhmann often uses the concept of technology in connection with the concept of risk, for example in connection with the establishment of biochemical and nuclear installations when we deliberately run a risk to obtain benefits (energy and economy). The exterior side of the concept of "technology" (the immense complexity of causal processes taking their simultaneous course) attracts attention in the form of everything from rot in the bridge over a tsunami to new economic conditions.

However, Luhmann also uses the technology concept on the purely social level. This particularly in connection with management trying to minimize a specific difference between calculus and deviation, or between expectation and disappointment (Andersen & Thygesen 2004). Luhmann has described, for example, certain teaching methods as technology (from now on we're talking about *social technology*): You want the students to learn something specific and therefore use specific teaching methods. Again, this is based on assumptions about cause-effect chains (see Luhmann, 2006: 176, and Lars Qvortrup's introduction to the same p 16-18).

If we return to the distinction between operational closure and technically causal closure, then an organisation system like a school operationally closed around communicative processes, and a car engine, for example, causally closed around a number of mechanical effects and causes. According to Luhmann (2007: 91), the advantage of a technical causally closed system, first and foremost, that it is possible to detect errors. This is not simply possible in the case of operational closure. When the system is operating, it continues, since the question whether an error has occurred or not is up to the observer, and its standard - whether students, for example, learn or not learn what they should using specific teaching techniques.

The same distinction, according to Luhmann (2007: 92), can be made with Heinz von Foerster's distinction between trivial and non-trivial machines. Foerster perceive equipment and machinery from a cybernetic perspective and not just as mechanical or electronic realizations. Trivial machines are consequently such devices based on a rule steering that always produces a certain result when fed with energy or information. If you give it another input, it works again and produces, if it

has more features, a different result. Non-trivial machines, on the other hand, always ask themselves and use their own internal complexity to produce the output. There is a built-in self-referential loop in non-trivial machines (ibid.). If a student, for example, gets a question, the student must ask herself, try to remember or reason out for an answer, opposite a calculator that on trivial ways spits out a result. Luhmann describes both psychic and social systems as non-trivial machines, but points out that we often want the social and psychic machines to behave as trivial machines. We will, for example, like to see the judge judges the same in all unified trials, and that the pupils in the same way as those last year understand and learn what they should in the same way and with the same examples as last year. We do not master social technology in the same way as with the causally closed trivial machines.

On the way to a strategy of analysis

In the following section I will develop four reflections with sets of parameters on how we can ask about technology with inspiration from the two technology philosophies. The aim is to better understand the problem presented in the introduction and to try to figure out how to develop an appropriate use of technology in teaching.

I believe I can reinforce Heidegger's concept of Ge-stell (the essence of technology) through the concept of social technology respectively non-trivial machines. Inspired by Luhmann's further work on sociology, I will develop a communication code for technology that might be able to clarify what technology is in a sociological sense. Such a code will enable us to go behind the terms about technology both in the form of trivial machines and in the form of non-trivial machines (social technology), in order to observe the social's observation form of technology. I establish the following communication code for the technology: *more efficient / less efficient*, whether we are dealing with social technology, for example, a method of teaching, or trivial machines, such as a piece of software. This will apply both from Luhmann and Heidegger, e.g. a more efficient mill compared to a less efficient one. In the logic of the Ge-stell, it is more efficient to observe everything in the world as Bestand and not as nature. Heidegger seems to think that efficiency has become too much of a passion, and gives basis for a critique of the education system saying that the focus on efficiency is too big. In addition, with the analysis of the use of equipment and the distinction between present-at-hand and ready-to-hand he provide us with an analytic, to discuss our life with technology that is sensitive to our existence and being, which stand orthogonal to the communication code (a method of teaching, for example, might be efficient in one class but not in another). When this is associated with Luhmann's theory of social technology in connection with the school class seen as an interactive system, we see the contours of an analysis strategy that opens up for discussing technology as more or less efficient in relation to both social technology, being-with-technology and learning-with-technology.

First reflection: to much focus on efficiency

Heidegger's take on the essence of technology in the form of Ge-stell with students and teachers, as Bestand will be used as input to philosophise about what school time brings. Specifically, this could be in form of relating to the idea of the education system's contingency formula about learning to learn (which according to Luhmann (2006, 213) has replaced bildung (literacy) as contingency formula, because bildung as normative aim has been made impossible by the societal dynamics and differentiation). The student's conscious presence cannot just approximately be captured by the learning activity and participation in the educational interaction. Luhmann's inside of the form technology with the closed causality can be observed up against Heidegger equipment analytics, while the outside of Luhmann's distinction can be used to discuss the risks education runs for decoupling, sadden, bore, stupefy and instrumentalize students (treat them as trivial machines). The school risks to decouple the students from their adolescence, for example, in their work with forming a social identity, damaging their self-esteem and/or stress them by requiring attention demands that exceed their resources.

By increasing the efficiency of the learning process through formalized teaching techniques, the school run a risk of reducing the space for informal learning through play, curious behaviour, the going on discovery and the students independent initiatives. As a teacher you run a risk of having disappointed expectations if you expect all students to participate actively. That one can have such expectations is because we before the digital media revolution had teaching methods that meant asynchronous preparation in X that you worked with at home and was examined in up in the school, which meant that everyone could be examined in X. Anyone who has been to school know that there was an order of when who should be examined and when, and now where it was X that the teacher had written on the blackboard the day before and the student had written down in his notebook and which also stood in the textbook, it was possible for most students. At the same time the majority of students remained invisible, while the teacher discussed with the few who through their contributions were visible. With the digital media much are turned upside down, not least our attention on attention and on that everyone continuously contributes, but now as before, only few can contribute factually correct to the educationally interaction without preparation. In the new situation the curriculum with X also is abolished and students must be able to prepare more independently. In addition, many more and hence many academically "weak" students have come into upper secondary schools in Denmark, to which the mentality has changed, so that several forms of counter-power has fallen into the hands of the students and the teachers really only have the marks and exclusion as possible sanctions left (regarding power and education see Tække & Paulsen 2010 and 2013, 86-92).

To sum up, the teachers' idea of efficiency is a survival from before the digital media and we have not yet found our legs to stand on in the new situation. Digital media are much more effective than former types of media, through which it was so much more difficult to find out what the individual student knew. The student's presence is reduced to Bestand in form of generalized control mechanisms for learning, and for learning learning. Heidegger's analysis of science as the

rulebook for what is reality can be used to highlight an eventually excessive rationalization and streamlining of teaching. With the help of Luhmann we can see technology (e.g. social media) as structural couplings between the teacher-led educational interaction and the students' consciousness. If the students feel alienated and/or under psychological pressure, e.g. stressed, by the setup our social technology (a certain teaching method), we can say that it is too scientifically reductive in relation to the students' being (e.g. following a single manual for teaching across all classes). A related approach could be, if social technology and/or trivial-machines work as present-at-hand for the students. If this approach is followed, the teacher could immediately change the social technology.

Reflection two: Ge-stell's efficiency as efficiency as attention diverter

Maybe we can completely turn the issue upside down and ask if the students' *dasine* has been totally consumed by the Ge-stell in the form of Facebook, online games and online apparel sale so they do not manage to connect to the educational interaction whether it is orally or via social media.

The outside of the distinction controlled causality/non controlled causality is sensitive to the risk, that students using technology for distraction instead of focusing on the educational interaction and homework. The applied teaching method (social technology) becomes, if at all observed, a disturbing element (present-at-hand) in the students' digital activities. At the same time a social medium like Facebook, or various online games consciously fade into the background as ready-to-hand – such media mediate only those activities and interactions which students are engaged with consciously following their intentional object.

Reflection three: the teaching medium as present-at-hand

The technology can be used inappropriately (ineffective use of social technology), or be a wrong use of media in relation to the teaching activity (inefficient use of mechanical technology). This can be revealed by looking at students' participation activity, if it is missing or below minimum one could ask the students and find out how the technology obstruct the work (becomes present-at-hand). Then one can try to modify the teaching method (social technology) or the media use (mechanical technology). The teacher's and the students' experience of social media as ready-to-hand respectively present-at-hand may self-reflexively be used in the classes to develop teaching methods (social technologies) that are adequate to the new medium environment.

Reflection four: The educational medium as ready-to-hand

If both social technology and media technology is experienced as ready-to-hand the teaching will proceed undisturbed and focus will be on the work (the project), on learning something. Whether this is, so to speak, too good may appear in the form of assessments that show how good skills the students subsequently have acquired. It's probably a utopia that such a state will be able to extend unchanged over time. For example, the students will probably get bored, or the medium environment

change again, or the constellation of students that enabled the equilibrium state can for example change. There is, to turn the whole thing upside down again, something positive about the technology becomes present-at-hand, because it will lead to conflict and development, and thus new adaption to the dynamic and changing medium environment.

The case

The case I will take, as the point of departure, is an action that was performed on the first year of the SME action-research project, where the class saw the movie "Kundskabens træ" and initiated by the teacher, used Twitter to discuss while they were watching. This meant, according to our observations and interview with the teacher, that several participated actively and got a better hold of the plot and the cast than the teacher otherwise have observed in other classes. Furthermore, the students had notes from their twitter interaction, which they could use for analysing the film afterwards. Also, according to the students the twitter interaction had a beneficial influence on their attention and on their understanding of the film. Following we were very surprised because the class in another lesson where they also watched a movie did not use Twitter. In this lesson we observed that six of the students played racing game against each other, many were on Facebook, some played other games, or did homework for other subjects, or took a nap, while no one really seemed to watch the movie, which according to the teacher was an important and information heavy film. Our explanations have centred on the lack of knowledge sharing and commitment among the teachers, some of whom also showed signs of being in opposition to the project and new media, as well as nervousness about the new teacher role. When it comes to students, we came to the conclusion that they only are actively participating in the educationally activities when the teacher drives them to it (see more details about the case study in Tække & Paulsen 2013).

The case and reflection 4

Both the social technology and the Twitter technology proved to be ready-to-hand for the teacher and the students, according to interviews and observations. Here is a selection of a student interview, which here is reproduced from Tække & Paulsen (2013):

Student 1: And when we saw the movie, so he sat and asked questions on Twitter that we should reply. I think it was really good.

Researcher: And why was it good?

Student 1: Because, then you got it, if there was anything important ... something that you did not just picked up or something. Then you got it through Twitter.

Student 2: ... Instead of remembering it after the movie. It may be relatively hard to remember an entire movie afterwards.

Researcher: [...] Wasn't it difficult?

Student 1: No, not really, you just lose a few seconds because it runs at the same time. What one misses, it's just how the image was.

Student Interview 2, 2nd November
2011.

It seems probable that the medium technology was seen as ready-to-hand, which also seems to be the case for the social technology.

The case and reflection 3

It was, however, not all students that could manage to write while watching the film, but all expressed that they were able to read what the other's wrote and to have had benefit of it. This means that even in the good case a part of the media use became present-at-hand for at least some of the students. Furthermore, the teacher on many occasions has expressed that he experience the medium as present-at-hand, as disruptive to his idea of teaching and to his practice in relation to teaching. However, we never manage to get an understandable explanation except a genuine ideological opposition to digital media - it's just better to interact verbally - seems to be his outlook. In the failed case where the students are not directed by the teacher to use Twitter during the showing of a film, Twitter, however, was not used at all, indicating that the students, in the activity of seeing a movie, do not find it natural to use Twitter. This suggests that students when film is used in the teaching, unless otherwise required by the teacher, observes the time as their own. As one student noted in connection with the successful case:

"It would be more relaxing without Twitter, but you probably would not get as much out of the film without - you lose a little, but you pay more attention to what the teacher wants."

Student Interview 3, 29th September 2011

Twitter becomes, which also countless other student interviews have shown, a medium associated with work, effort, performance and transparency so that your contributions can be observed and also the absence of contributions will be noted, which should be seen against a background of an environment built on preliminary marks.

In many other cases where we have asked questions about why Twitter is not used more that the medium is, the students have objected that they are more accustomed to Facebook, that Twitter is confusing and hard to retrieve in, and that you cannot see who is on right now, representing a wide range of examples on how Twitter is becoming present-at-hand and directs the students' attention elsewhere than they want - whether it is learning or fun.

The Case and reflection 2

Previously we have described the educational system on the one hand and social media like Facebook and computer games on the other hand as two different apparatus of capture with reference to Deleuze (Tække & Paulsen 2013b, 154). If we consider the teaching method (the social technology) to show movies (without student activity in general) as an apparatus of capture, then on the basis of the bad case, we must conclude that Facebook and computer game's apparatus of capture seems much stronger. The cosiness and social life has become part of the Ge-stell. The pupils have become a Bestand that contribute with attention and contributions in the form of status updates, comments on Facebook, Snapchat, Instagram and

performances in online games. They are rewarded in form of attention from others, which their own activities have facilitated. It is clear that the most important thing for man intuitively seen is social interaction: the babbling and delousing in the ape group has been replaced by small talk in the schoolyard and kissing in the smoking shed in the first place and with the digital media has become a never-ending and all places occurring activity. A huge industry performs research night and day to find out how to catch our attention and let our own contributions be the content that attracts our attention (Fuchs 2008). This research could be construed as providing us with total usability (only Like on Facebook) and bling-bling, as pure readiness-to-hand. Is it possible at all to feel alive without? However, there are students who tell that they turn off Facebook in some or all lessons, or during their homework, because Facebook for the mind directed towards schoolwork, with its vibration in the pocket, or flashing on the screen, becomes present-at-hand.³ *School*, which originally meant freedom from work (implied, time for education), now mean work and trouble. The difficulty of learning is pushed into the son of nature's life, in his lazy predator desire to play, eat and participate in social interaction. For most people this tendency first began with the print technology, but now the new media threatens our thin veneer of civilization and culture. The new media that can give us all kinds of information and interaction opportunities across time and space is paradoxically a risk to our young people in education age. The risk is that they are lulled to sleep as contributing dairy cows in a cybernetic comfort system. In Heidegger language: "This with-each-other-being is ready-to-hand and dissolves one own's dasine being in other's way-of-being, such unfolds the man its real dictatorship" (Heidegger 2007, 153).⁴ Anyone must ask about his own use of technology, about if it in its readiness-to-hand leads him as an individual, the way he as an individual actually chooses – and in this process the teacher plays an important role, helping the students to gain digital literacy.

The Case and reflection 1

In the successful case the part of the SME-philosophy, which prescribes that social media should be used in teaching, is followed. In the study class we as researchers on basis of international research, had selected the medium Twitter because this medium technology most clearly showed increased student engagement and participation. A clear efficiency calculation: more effective in encouraging students to participate in lessons (our idea of social technology can not be said to be free of being part of the Ge-stell). The second part of the SME-philosophy is to prohibit prohibitions and indifference in relation to students' media use, but in turn to initiate reflexivity about media use. This part was also followed in the good case, however, one can say that the directive to use Twitter can be seen as an indirect prohibition of other media (however, teaching always involves an asymmetrical power relations: turn to page X). In defence of the SME-philosophy one can say that the many experiments and actions precisely uncovered and thus *asked about how the Twitter technology can be used in teaching*. As a counterpoint to this one can

³ Paradoxically you can ask a friend on Facebook to help you with an assignment.

⁴ My translation.

mention schools that just hand out new types of hardware, such as iPads and then just expect an improved efficiency (here is no asking about the technology). In contrast, the SME experiment as a project that examines and ask about how the new social situations provided by the new media environment, can be understood and acted in relation to in a way that ensures that teaching not only still is possible, but directly is made more geared towards students dasine in the new medium environment. Through actions the SME experiment has studied how it is possible to learn in the new media environment. The good case study examines how to create a situation where students direct their attention to the film, where students are given the best opportunities to understand the film, as it is as a medium text, and where students urged, but not forced, relate independently to the film and its content.

Conclusion

It was not supposed to end by praising The SME experiment, the point of the article was to try to explain why the project did *not* seem to have achieved the results that have shown in exemplary cases, in SME-class' everyday life. The first reflection does not seem to match the problem, since The SME experiment probably is revealed as resting on an idea of efficiency (the students' attention and learning on the one hand and teachers' educational leadership on the other hand), but not from a scientific reductionist calculus. If we look at the second reflection, it appears evident how the technologification of cosiness and social life has colonized the teaching time - before one were left for an endless period of boredom, if the teaching did not capture one's attention - now we get bored so little that our brain barely have time to recap and store the impressions we receive (Baldursson 2012). Up against this situation, managed by cunningly devised algorithms formed to control attention, we all struggle, albeit to varying degrees, in vain. We live in an update-society, and that society's pressure is, all else being equal (sorry Heidegger), bigger for the young (and all those who never become adults - if it is possible to become adult in this society - who have respect for somebody's point of view due to their age?). If the teachers stay true to the experiments, that show useful teaching methodologies (social technologies), after all lead the way, when watching movies and activate students' viewing - the movie again does works as teaching methodology (all though not as relaxing for either teachers or students). The described so-called "good case" must not solidify as a methodology, on the contrary teachers and students must continue to experiment on the bases of their present-at-hand and ready-to-hand dynamic experience with the ever-changing social and technical constellations (there will always emerge new media and new updates to the ones we already have) when they see a movie, the teacher will find educational relevant. This is to ask about the technology.

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