Changing the rules of the game - experiences with Web 2.0 learning in higher education

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Abstract

The use of Web 2.0 as tools for social learning within higher education is not as widespread as expected, nor with the expected results within non-distance teaching programmes. The question is why? Many have argued that Web 2.0 tools have potentials to support learning in various ways. It has been argued, but also questioned, that the current generation of students are digital natives prepared to use new media for learning. At the same time critical voices argue that learning designs with high degrees of Web2.0 characteristics challenge the prevailing norms for learning within most teaching systems.

This study investigates reasons why Web 2.0 is difficult to adopt in teaching by looking at reflected feedback from students participating in an experiment using Web 2.0 for social learning. The challenges investigated are derived by looking into 37 undergraduate students' reflections on their experiences and engagement using Web 2.0 technologies for collaborative discussions. The Web 2.0 discussions were part of an elective course in E-learning at the fourth semester at humanistic informatics at Aalborg University Copenhagen. Aalborg University is a PBL (problem based learning) university. Despite the contextual implications on the actual learning design investigated, the conclusions drawn are of general interest to the networked learning community.

The conclusions drawn are that Web 2.0 learning challenges current norms with regard to distribution of control and responsibilities impacting the communication genre, the authenticity, quality assurance and blurring of the existing border between university and private life. Social status is found to influence the interaction to a worrying degree. However, at the same time the interaction holds the potential to challenge student images if students demonstrate unknown resources. Building more rigid learning designs may reduce some of these challenges, but such design will reduce the Web 2.0 characteristics - lowering the student control, the demand to be critical, the authenticity, and motivational issues related to the social interaction.

Keywords

Web 2.0 learning, blogs, social learning, PBL, experiment

Investigating Web 2.0 learning, why and how

The use of Web 2.0 in higher education and especially the use of Web 2.0 discussions as a supplement to lectures and more traditional group work in higher education are found to challenge students in a number of different ways. This is especially with regard to the students' existing skills using Web 2.0 technologies, changes in roles as well as dealing with transparent resources and blurring the borders between university and private life. The findings embark on the understanding of students as digital natives, changes in roles and the implications of social aspects.

This article investigates some of the challenges, which seems of importance for constructing future learning designs, which may support students learning through using Web 2.0 for social learning. The investigation is pursued through looking into students' experiences and reflections on their own engagement in an experiment on social learning using Web 2.0 technologies. Across these experiences common challenges, general contractions as well as clashes between different needs of different students in the learning situation are revealed.

The Web 2.0 experiment investigated is Web 2.0 discussions, understood as e.g. blogs used to present and discuss material on a theme within a student community. The "Web 2.0 discussions" were used as a supplement to the more traditional and well-known teaching methods such as lectures and onsite group work. The main reason for using Web 2.0 discussions was as a means to involve all students and force them to engage in a more active and reflective way. In the experiment the students were asked to find and bring in relevant theoretical material and real life examples and discuss these collaboratively on a Web 2.0 platform. Web 2.0 learning is here associated with the characteristics of Web 2.0 e.g. being open, collaborative and bottom up (Dohn, 2009). The use of Web 2.0 technologies was thus used to make students more active and responsible learners. Here *challenges applying a Web2.0 learning design in higher education* is looked into.

In the following insights using Web 2.0 learning in higher education is presented along with some theoretical considerations. Then the Web2.0 learning experiment is described followed by a description of the methodology used. This leads to a presentation of the students' reflections on a number of selected elements, which is followed by a discussion on the complexity and contradictory insights identified. Lastly, conclusions are drawn along some considerations with regard to future Web 2.0 learning designs.

Current knowledge on Web 2.0 for learning

The use of Web 2.0 in educational settings presents many possibilities and likewise many challenges. Active student participation is often one of the primary advantages mentioned in relation to Web 2.0 learning. Participation is however many things and participation is argued for as an important and valuable element across several learning paradigms e.g. within the cognitive approach as a reflection tool or within the social construction view of learning as a tool for social participation (Conole & Alevizou, 2010). Due to the inherent potentials of Web 2.0 technologies, Web 2.0 learning is associated with social learning through networked learning activities with active student participation. This has a number of implications that we need to be aware of as participation in any community is about building and negotiating relationships with impact on e.g. the construction of identity (Wenger, 1998). As a consequence participation in terms of actions, as well as no actions, within a community has importance regarding the identity of each participant.

Ryberg et al. (2010) argue for a "disturbance" of the traditional ways of thinking about technologies for sharing, collaborating, participating and learning, which raises new challenges and opportunities in education". The use of Web 2.0 technologies does however, not in themselves, provide for any particular or innovative pedagogy (Ryberg et al., 2010), nor involvement of students. The Web 2.0 technologies may be used for linear and one-way communication in learning designs, as when used to provide for easy access to learning resources without emphasis on student involving interactions; but then it is not Web2.0 learning. Dohn (2009) likewise argues that when teaching is moved to web 2.0 platforms this might make little difference to the learning approach. What is important is, whether the interaction gains some of the Web 2.0 characteristics, which is e.g. collaboration/distributed authorship, active open access etc. Taking these characteristics seriously implies a radical move towards social learning approaches where the students gain more control over their learning space. Glud et al. (2010) reflects upon elements of control and the tensions appearing when Web 2.0 provides for shift in control between teachers and students. They see Web 2.0 as ways, which may actually help changing towards increased student controlled and Problem Based Learning designs. Ferraday and Hodgson (2008) goes much further and argue that online environments should seek for "heterotopia" - spaces where it is possible to act differently, to imagine and desire, spaces which are free of tyranny of the dominant, oppression and control, which they see as the dark side of participation. But as Glud et al. (2010) argue the shift in control from teacher to students is only recommendable if students is mature enough and have the motivation to take over the responsibility.

Another stream of Web 2.0 studies is looking into the students preparedness. Much hype surrounds the IT literacy of young generations known as "digital natives" (Prensky, 2001) overstating their motivation and qualifications using technology for learning (Ryberg et al. 2010). Clark et al (2009) argue that there is a lack in understanding how these technologies may support critical and creative uses and support of learning. This has led them to define a gap between qualifications for informal and formal use of Web2.0, which they call "digital

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dissonance". Newer research emphasise that knowing how to operate and navigate the tools is not enough as challenges may address the shifting roles of students. The students are no longer solely receivers of knowledge but also co-creators, commentators etc. (Clark et al, 2009; Conole & Alevizou, 2010). This likewise indicates a need for teachers to leave the role of being experts in control, which may collide with the teachers and the students' expectations of authority (Collins and Halverson, 2009). Glud et al. (2010) argue that differences in the distribution of control may be seen in relation to a number of different dimensions of the learning design such as the learning process, the infrastructure, the motivation and the content/resources. Changes in the distribution of control call for changes in understandings and norms regarding roles and behaviour. Ryberg et al. (2010) therefore argue that Web 2.0 learning needs to be taught.

The roles of Web 2.0 technologies in learning depend on a negotiation process between the technology, the qualifications and attitudes of both students and teachers including the pedagogy designed for. In this symposium Khalid et al. (2012) argue for directions of this appropriation process, whereas Ryberg and Larsen (2012) argue for a more elaborated understanding of the students' (different) attitudes towards networked technologies.

Unfolding the experiment

The experiment on students' use of Web2.0 for social learning was part of the course "Interaction, learning and collaboration in virtual environments". The 5 ECTS course (equal to 135 "student working hours") is an elective course at the fourth semester at Humanistic Informatics in Aalborg University. The course is passed through "active participation" meaning the students need to sit in on all lectures and fulfil the assignments given. In the spring semester 2011, 37 students participated in the course at the Copenhagen campus. The students enrolled consisted of a fairly equal amount of males and females in their twenties. The course aimed at providing insight into the theoretical and practical discussions in the field of e-learning, likewise learning by doing was sought for. Four three-hour lectures spread over a month were provided, meaning limited time was available during the lecture sessions. The four lectures were designed as a mix of lecturing by the teacher (the author), student demonstrations and group work. In addition homework such as reading, trying out different e-learning tools etc. was designed for and enforced through three assignments.

In the first assignment the students (in groups of 6) were asked to look into a Web 2.0 tool of their own choice, which they then had to present and demonstrate in class to their fellow students. The second assignment (the experiment) was to engage in a number of "Web 2.0-discussions". The intention of the Web 2.0 discussions was to enable the students to learn together, by building up knowledge on a number of themes through short interrelated and reflexive posts, providing different angles and understandings. In this assignment all students were asked to make at least three contributions. Two contributions had to include theoretical material whereas one could provide case material like examples found in magazines/newspapers. One of the contributions could initiate a theme; the others should respond to entries by others. The students were encouraged to work together in groups deciding on a theme to discuss. At the same time they were asked to contribute to other discussions. All initiated discussions had to be announced to all in class. In the beginning Twitter was used for discussion announcements, however this did not work well and a closed Facebook group was formed.

The Web 2.0 discussion assignment was seen as an experiment providing an alternative way to unfold new themes or phenomena in order to expand the learning design beyond the given course hours and even more important to involve the students and make them active learners. The students were forced to introduce different understandings and angles due to the request to draw on theoretical material and practical examples. This way of working was intended to provide for multiple perspectives forcing critical thinking, as well as making the students more active and confident in finding, presenting and reading material on their own in a critical way.

In the third and last assignment in the course the students were asked individually to reflect on the relevance of Web 2.0 technologies in support of e-learning. The two pages reflection had to be handed in to the teacher by e-mail shortly before the last lecture. In the last course lesson the general findings from the reflections was presented by the teacher and discussed in class.

Methodology

The experiment reported was not initially designed as a research project but the data obtained from the student reflections revealed interesting insight into the challenges and understanding of Web 2.0 for social learning. 37 reflections were received each of approximately 1.000 words.

The study is following an interpretative design of the constructivist type (Guba and Lincoln, 1994) creating an understanding about students' perceptions and understanding of the benefits and challenges using Web2.0 (in particular blogs) as tools for learning. The reflections were read several times and the student-raised themes pertaining to their E-learning experiences were categorized using open coding (Neuman, 2000). In a second round the material was re-read to see if more e.g. indirect data fit the categories (selective coding, ibid) this categorisation was theoretically informed and analysed (Kvale, 1990) against discussions within the field of Web 2.0 in higher education. In this second round the focus was on elements with many different or even contradictory understandings to supply a more nuanced and critical view of how students experience Web2.0 learning

The data collection contains both weaknesses and strengths. The validity of the data may be questioned, as the reflections are a means to pass the course, which may have made some students trying to please the teacher. Some of the reflections take a more general stand on the subject and they are of course of less interest to this study. However, most reflections include personal thoughts on the students' experiences using Web 2.0 for learning. Some of the reflections are overly positive some are more critical towards the experiment, however most of them provide considerations of the experiment by discussing the experienced outcome, as well as the joy and frustrations felt on the way. As a consequence the findings are probably just presenting the tip of the iceberg. Another potential bias with regard to the type of challenges identified is a potential limitation of issues addressed arising from the demand to use one of two given theoretical frameworks (either the learning triangle

by Illeris (2007) or E-learning by Dohn & Johnson (2009). This is on the other hand exactly what makes the internal validity high.

In the following section bits from the students' reflections describing parts of what went on, and how it was interpreted, are presented (fictive student names are used). Based on these insights differences and contradictions are identified to provide input to discuss the fuzziness surrounding using Web 2.0 for learning. This insight may help future teachers to consider various design choices when using Web 2.0 for learning.

Experiences using Web 2.0 learning

There is no doubt that the students felt challenged by the social experiment. When trying out different Web 2.0 technologies as part of the first course assignment it became clear that the students in general have experiences using Web 2.0 technologies from using Facebook, which all except from one use extensively as part of their personal life. Only few of the students had experiences using Twitter and only one used Twitter on a regular basis. Most students read blogs and one had a blog. The students had never used Web 2.0 tools for engaging more actively in the learning set up. The challenges identified are related to influence, changes in roles etc. Here insights are reported pertaining to how the students see their roles, as well as how they interpret their responsibilities and possibilities for navigating and fulfilling the given requirements as well as consequences.

The learning design

The students had an open, but framed, choice regarding which theme, theory or phenomena to discuss. The themes discussed were E-learning related, such as Crowdsourcing and Podcast lectures. Quite a number of the students found the open choice of theme encouraging (eg. Tom). The choice of themes was argued to be important as relevance follows from the opportunity to "draw on competencies developed due to interest" (Dan). The choice of themes is also argued to create ownership (Jean). Another student argues "it is an interesting way to learn … it becomes academic in a way where it is still possible to include your own experiences and positions … making the theme more interesting" (Eva). According to another student "when real people provide content it contributes to validity and authenticity" (Jacob) and "some participants discovered that other people in the group

had similar academic interests …" (Dan). However, another student argues that the contrary is at stake in the experiment; that the authenticity is lost, because the learning process and the utterances are "animated and impersonal" (Greg). Catherine further supports this argument, as she agues that "the learning situation might be too constructed" and that the contributions are influenced by the situation and the views of the teacher.

Some of the groups took pride in creating discussions with high participation of others. They sat down and discussed how to engage their peers. One group decided that each post should end posing questions to invite for further discussion (Anna). Likewise some found it encouraging "selling" their discussion to their peers (Tom, Jean) and they did an effort to announce developments in "their" discussions on Facebook.

Student generated content

The students are well aware of their changed roles with extended responsibilities regarding the content created in the Web 2.0 discussions (eg. Jacob, Tim, John). Laura writes that students become sort of "experts", very much like the lecturer, when they contribute with new angles and nuances on the different themes. Or as Susan expresses it, "we take part in creating the teaching and the learning, as we are the ones forming the content of the discussions". This role is argued to place a number of demands on the students, which most students acknowledge as fruitful e.g. Julie: "it has given me much more to initiate discussion, read others texts with critical eyes, evaluate the material, comment and provide meaningful responses". Not all students found this encouraging as exemplified when Clara argues that all these demands resulted in her finding the task overwhelming. Mavin likewise explains, "We had to find information relating different concepts and theories. In the beginning I found this demotivating as it was difficult to find quality assured material on our subject". In addition Laura and Clara as well as others "felt insecure about the demands; the type or amount of theory to be used or the length of posts". Other students (e.g. Amy) argue that the collaboration demand felt quite challenging probably because the students had to use unfamiliar working methods or as John put it - the Web 2.0 still felt too strange for him.

The written form of student discussions opposed to "in class discussions" also presented changes to the students. According to Carl it allows for "adjustments of your contributions meaning - you can reach 100 % satisfaction with your utterances". Frederic argues that this form of communication feels less binding regarding the writings, which became less academic. The reason stated is that you write in present tense, and it becomes more impulsive and less reflective. Frederic likewise argues that the use of Web 2.0 made the process of learning work smoothly "when looking back on this process the lightness and the naturalness of the process strikes me". Julie argues that the set up with the demands to reflect and write, and to read and consider are seen as providing for better input compared to what is possible in discussions in class. The argument being that the overview is easily lost and inputs are less prepared for and less elaborated (Julie). Tom writes that the interaction level in the experiment was higher than in the traditional lecture "where the students fear rejection or being corrected".

Quite a number of the students (eg. Mavin, Dan, Emma) raise concerns about quality assurance of the discussions. This is despite the fact that they find the debates quite good in quality and despite the fact that they acknowledge that part of the task is for them to act more critically. Ian expresses it very clearly as "I have to a

much larger extent considered what my co-students have written, than what I would have if I had been presented to the same material in a traditional teaching session". A number of students argue for the teacher acting as a moderator securing focus and quality of content (eg. Allan, David).

Motivation

Despite the fact that the students were forced to participate, a number of motivational issues were identified. Carl argues that the "Web 2.0 is like a "showroom" where you get the opportunity to show the rest of the world what you know. While some students find this motivating others e.g. Clara find that "if you are not fit for fight, and you know you will not be able to produce a splendid performance then it is difficult to motivate one self to write in public". A consequence of the experiment is an extended insight into contributions of peer students, which is argued to provide new insight into the resources of peers (eg. Clara). This is further exemplified by Janet arguing that the contributions may be seen as a presentation of resources through "worked through and academically interesting posts". Janet argues that this insight has challenged her previous understanding of some

of her peers - developed from socializing in the classroom, gossip etc. She indicates this knowledge influence options regarding collaboration partners in future group assignments. However, also the other way around, that some peers show disappointing efforts making them less attractive as future project members.

It took a while before the discussions took off and some even posted their contributions after the deadline. Due to the design of the experiment all students were forced to take part as a request to pass the course. The formal demands to pass the course are mentioned as a determining factor (Siri). However, Sarah and Carl mention that this was mainly important in the initiating phase of the discussions, hereafter the inner motivation increased. Some students even made more comments than formally required (Mavin). A couple of students argue that social needs is at stake, Carl explains that the motivation increases due to socializing issues meaning when friends or student peers write then it motivates others to follow. Ian speculates that despite the good experience he fears "that there isn't momentum to continue using blogs this way, without involving the lecturers to pose demands …".

The last element regards the virtuality of Web 2.0 discussions or the ubiquity of the learning experiment. Sally and Allan argue that the "here and now" debate is appealing and probably generate more involvement than in-class discussio,n as the virtual setting provides for students to pose questions and input when they arise. These questions may generate immediate responses and raise a debate, which Sally feels is more rewarding, rather than trying to remember the questions and reflections for the next class. The flexibility of the learning time and place is thus celebrated. However the backside of this is likewise stated as some (Jacob, David) find that university use of personal and social software blurs the border between study time and leisure time.

The number of inputs rose exponentially with few in the beginning and a lot the last few days. Some students felt it was hard to follow the pace and keep updated on all developments and many of the students lost overview (eg. Jacob, David). As a consequence some of the students decided by themselves to focus on a few themes to have time to think and reflect on the developments (Janet) or they followed the more popular ones (Jacob). It turned out that Facebook got an important role in selecting, which discussions to follow as the many discussions made it overwhelming for some to follow them all (eg. Sally, Janet). Jacob states explicitly that the motivation to read posts was dependent upon who "like"ed it in Facebook as well as who already commented upon a post. Feedback through interaction such as like'ed and comments seems likewise of importance as Clara felt unsupported as no one commented on her first two posts, which made her insecure about whether she did it "right".

Challenges in Web 2.0 learning design

Looking into the students' experiences and perceptions of the Web 2.0 experiment what we find is rather different understandings of whether this was easy, interesting, authentic etc. Insights, which may help us, understand what is at stake in Web2.0 learning. In the following we present some of challenges identified. These may be either general challenges emerging from the changed demands, or arising from different understandings between students or contradictions between what is celebrated and what is not.

First of all it is important to acknowledge that the students in general felt challenged by the learning design used for the Web 2.0 discussions. The findings indicate that the students felt uncertain about the requirements and demands with regard to the length, the content and how this would flow. The students thus had to experiment together and individually find forms and ways to contribute to the discussions. The discussions did not at all have the content or form as found in their private Facebook, nor was it as long or academic as their written work, but something in-between. The norms are broken and a quite different type of genre appeared as one of the students argued in class. For some students this was found encouraging for others this created stress. This supports very well Ryberg et. al.s (2010) argument that Web2.0 learning "disturbs" the current way of thinking about technologies for sharing, collaborating, participating and learning and therefore it needs to be taught. A way to teach this with less stress is to present a more rigid learning design, with less choice and more structure and rules to guide the interaction. A possible solution is to follow a rigid learning design the first couple of times using Web 2.0 learning to take smaller steps and then loosen up when the students become more familiar using Web 2.0 learning. Sigala (2007) recommends that the teacher is involved in the beginning to set the stage

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but withdraw, as the forms and norms are established. This does however hold other implications, which will be presented in the following.

Within a framework including an overarching theme and demand for three contributions the students could to a large extent decide themes to discuss, tools, materials, time and sequence. This extended student control is presenting the students to a quite different learning design, with a move from learner to student control with regard to elements in all of the four dimensions identified by Glud et al. (2010) the learning process, the motivation, the infrastructure and the content/resources. Glud et al. (2010) foresaw tensions following a potential shift in control from teachers to students this study document some of them. A challenge regards the motivational aspect and thus whether the choice regarding what to discuss is ensuring a more authentic learning experience to the students. The majority of the students found that the way of learning become more interesting, valid and authentic due to a larger degree of personal interest. A student even argued that it helped him to locate a community of interest. On the other hand a couple of students argued that due to the overarching frames and demands they felt that the outcome was animated and impersonal indicating a feeling of oppression. These students' seem to expect freedom and full control and thus a "heterotopia". The question is to what extent this is possible as part of a learning design. As argued by Glud et al. (2010) this requires mature students with an inner motivation to learn, which according to this study is not yet the situation or at least would result in reduced activity, which would probably undermine the critical mass to make the discussions flow. It would probably also make some of the students withdraw not gaining the experiences and reflections aimed at.

The openness and free choice to involve in the discussion of interest resulted in quite an amount of material to navigate and overlook. Although the free choice was found appealing it had a less positive side; some of the discussions did not really flow as no one responded on the blog posts. Having no answers was found both confusing and demotivating probably because the reason was difficult to interpret. Many of the students selected discussions to follow based on either/or popularity of the writer (a friend or clever students), or interesting themes. The competitive element identified is thus highly influenced by social status and not necessarily the contributions. This is problematic, as it seems to motivate strong students but demotivate weak students, which may explain why some see the request to write "in public" as a way to "show of" while others see it as "public humiliation". This is found to be a weakness of the learning design related to the free choice of selecting which discussions to follow and contribute to. A way to overcome this is changing the learning design appoint a responding person/group to each discussion.

On the other hand the transparency of resources did not only build on existing social reputation and relations but also created an opportunity to gain new knowledge about fellow students challenging images of others. The use of Web 2.0 turned out to provide the students an opportunity to re-establish or change their image to show of their resources, or lack hereof, to their fellow students, with implications for their future value as collaboration partners. We thus find that the interaction is influenced by existing relationships and knowledge of the others, but at the same time that the interaction holds potential to change this knowledge, which is well in line with the argument of Wenger (1998) that social learning is very much about participation and construction of identity. This finding suggests that Web 2.0 learning creates a different type of learning activity that might support students that are weak in e.g. class discussions. The findings suggest that this might be because the students may easier gain an overview of the content of a discussion and or time to reflect and prepare.

The wish for quality control (requested by a large number of students) is seen to contradict the extended responsibilities of the students and their acknowledgement that learning is stimulated by the need of being critical both as content creators and readers. On the practical side it would be difficult due to time issues however even more importantly it can be seen as undermining the responsibilities given to the students and reducing their need to be critical. It would probably also undermine some of the students engagement as a student is arguing that students were motivated to interact because they did not fear to be rejected or corrected by a teacher. A way to meet the request for quality assurance without undermining the responsibilities would be to bring in some of the discussions in class however this would present some challenges as well, and require tact.

Using an online environment and especially using Facebook is blurring the borders between private activities and study. This blurring is seen as both good and bad. It is good as learning is not constrained to given hours – discussions are on-going and you get to know whenever somebody has posted new material, making it easier to digest the content as it comes in small portions. On the other hand it keeps flowing and is more difficult to restrict the engagement to given hours meaning some students found they never had time off. Excluding Facebook or any other technology pushing out announcements on new stuff would probably reduce the stress generated, but it would likewise reduce the on-going continuity of discussions.

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