The Collaborative Remix of Cyberculture on the Web Project: Advancing Learning Through Students' Engagement

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Abstract

The paper presents the Collaborative Remix of Cyberculture on the Web Project's ongoing enactment at a Brazilian federal university. The project extends the activities of an on-campus course about Cyberculture as the instructor and current and former students engage in a collaborative process of co-designing a new web interface integrated by a remix of resources available on the internet and by students' own contributions. The Project's main objective is to advance students' learning about Cyberculture by engaging them with the interface co-design, the critical selection of resources and the production of their own materials. The instructor operates as a mediator, helping students develop a critical perspective about the Project and helping them make meaningful connections with the resources available on the internet. Former students act as brokers, aiding exchanges between the instructor and the students and supporting them in adding their imprint to the Project. The co-design of the web interface is detailed. Student response to this new way of participating and learning has been mixed. It is difficult for them to make sense of the new positioning of the instructor as a mediator instead of being the traditional solo holder of knowledge in class. But as the course evolves, students start to appreciate having the opportunity to share their ideas and to contribute to the Project, which leads to increasing participation and learning. Many students recognized that their involvement with the Project helped advance their learning as they had the opportunity to engage with new concepts and ideas related to the course and as they exchanged ideas and different points of view with their peers. Students also appreciated the production of original materials and the integration of these resources on the web interface. Challenges for the future are related to the need to bring new users to participate at the web interface, given that it is currently limited to the students, even though it is open on the internet. Also, new tools are necessary to help build meaningful connections between resources and to manage the continuous posting of new resources and the exchange of information on the web interface.

Keywords

Networked learning, Mediation, Co-design, Web interface, Student engagement.

Introduction

This work presents the experience of the Collaborative Remix of Cyberculture on the Web Project (CRCW). The project entails the development of an on-campus course web interface centered in students' active participation on the interface design and content building. Learning is mediated by the instructor and former students, who operate as brokers between the instructor and current students. The following sections of the paper present the main elements of this process, including the stages of the web interface co-design by the instructor, brokers and the students. The process of searching, selecting and integrating new course content based on resources available on the internet is also detailed. The paper also presents other students activities throughout the project, including writing comments about the resources and making connections with peers' comments and other resources as a way of building understanding and knowledge about Cyberculture from multiple perspectives. Students' production of original resources about Cyberculture that are integrated in the web interface is also presented.

The main issues addressed in the paper are the changes in the instructor's traditional central position of knowledge-giver to take on the role of a mediator and the participation of former students as brokers. Once students are invited to take an active role, they need to learn how to participate in these new processes of learning entailed by the Project.

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The CRCW Project

The Project was envisioned as a way to extend the learning process of students and former students on the Society, Culture and Technology on-campus course (focusing on the theoretical foundations of Cyberculture), offered during the first semester in the Bachelor's degree Systems of Information and Digital Media (also known as Multimedia). This project has been supported by the Dean of the Office of Undergraduate Affairs at the Universidade Federal do Ceará, in the northeast of Brazil. The project related activities are centered around the web interface development based on students' active participation.

The project aims to create new opportunities for students to explore and engage more actively with key components of the course's theoretical foundations. The web interface is envisioned, in line with Cole (1996), as an artifact. This means that it is a social construction of human activity that becomes a tool engaged in processes of cultural production, more specifically in processes of collaboration, dialogue and learning. The Project takes in consideration the idea of the web interface as a network of resources connected to promote learning. Latour (2011, p. 799) proposes that a network

> is defined by the series of little jolts that allow the inquirer to register around any given substance the vast deployment of its *attributes*. Or, rather, what takes any *substance* that had seemed at first self-contained (...) and transforms it into what it needs to *subsist* through a complex ecology of tributaries, allies, accomplices, and helpers.

As students engage with the co-design of the web interface they learn as they help develop the web interface and they expand their views about Cyberculture. The internet becomes an environment that provides various opportunities for learners as they help build the "complex ecology" proposed by Latour. The work around the web interface provides opportunities to "plunge ever deeper into knowledge resources, providing a near limitless means for them to grow their knowledge and find their own way around the knowledge of the discipline, benefitting from its expression in thousands of formats and contexts" (Anderson, 2008, p. 49).

The project development assumes a critical standing and it takes in consideration previous experiences in the use of cultural artifacts to improve learning in the classroom and it focus heavily on students1 active participation. This seems to be important as a way to downplay the elusive character of "innovation" usually associated with digital technologies in education. Hemmi, Bayne and Landi (2009, p. 27) reports on the use of blogs in undergraduate and graduate courses in Scotland referring to

> a degree of ambivalence in the use of social technologies. On the one hand, it was used to reinforce academic values which related to deepening students' understanding, their ability to engage in constructive dialogue and critical engagement with source materials, but, on the other, there is a tendency to control and constrain its riskier aspects – to bring this new form of academic writing and communication back within the walls of the academy by assessing it and 'closing' it off (...) and by embedding it within a highly traditional approach to teaching and learning.

The authors conclude that "the appropriation and control of the 'Web 2.0' learning space by the academy actually functions to limit its radical value as a learning space" (p. 29).

Along with the CRCW Project, students are invited to interject and negotiate with the instructor about the course interface and content to avoid the problems pointed by Hemmi, Bayne and Landi (2009). They act as information designers as they develop their understanding about key theories and concepts related to the field of Cyberculture. This process evolves in line with Luckin's (2010) proposition that in ill-defined domains, such as Cyberculture, "learners will need to understand how these constituent knowledge concepts have been formed and justified in order to understand more generally the nature of knowledge and the knowledge construction process" (p. 33). Therefore, as students participate in these activities they start to understand better the field of study in a process in which "the culture emerges from the environment—and grows along with it [given that in this] new culture of learning, the classroom as a model is replaced by learning environments in which digital media provide access to a rich set of original materials" (Thomas & Brown, 2011, p. 37). In other words, the process of co-design, which includes searching and selecting resources on the internet, is mediated by the course instructor and the brokers as an experience aimed to advance students' learning by engaging with the field of knowledge they need to further understand.

Resource-based learning is a key component of the CRCW Project. This modality was chosen given that currently "several factors increase the viability of resources for learning, including access do various materials [text, video, graphics] in contexts not previously available [social networks interfaces, websites, blogs], increased flexibility in their

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use and ready availability, manipulability, and sharability across multiple contexts and purposes" (Hannafin & Hill, 2007, p. 526). The dynamicity and abundance of resources have constituted a challenge and also an opportunity for the CRCW Project enactment, given that resources available on the internet are malleable and they change continuously, as formulated by Bayne (2006): "the inscription securely embedded in the printed page is therefore in contrast with the volatile, malleable text which shifts across the surface of our screens and throughout our networks (...) fluidity and surface belong to the digital" (p. 2). This character also constitutes a challenge for the instructor along the project and an opportunity for students' learning about Cyberculture.

These various elements entailed to the Project challenge the instructor, brokers and the students to identify resources that meet the course and also the students' needs and genuine interests. It also allows students to experience the continuous production and reproduction of information and the need to organize and give meaning to these resources at the interface, which constitutes one of the key characteristics of the Cyberculture. Students' participation on such activities takes place in line with a vygotskyan perspective about creating zones of proximal development in which, according to Newman and Holzman (1993), the focus on the individual is replaced by the focus on the collective, in which the activity is represented, at the same time, by the tool and the result of engaging in the activity with the instructor's mediation. The mediation takes place in processes of scaffolding (Newman & Holzman, 1993) to help students critically integrate knowledge and advance their questions and renewed understanding about Cyberculture.

Another challenge faced by the instructor relates to the fact that young students, often called digital natives (Prensky, 2001), will not always naturally transfer their skills and knowledge about the internet to formal learning situations. Previous studies (Junqueira, 2008) conducted with low income high schools in Brazil have shown that although they were able to manage digital tools and to search for content on the internet, at school it was difficult for them to make sense of innovative learning activities proposed by teachers as they participated in a project-based learning experience. This is particularly true in regards to posting comments on blogs and websites. For many students, openly expressing their opinions seems to be a natural component of their lives on the screen. While at learning interfaces, because students are aware of the teacher's role assessing and grading their contributions, expressing themselves assumes a rather different perspective – students are often silenced.

This fact indicated the instructor's needs to reposition themselves as a mediator of activities like searching, selecting and reflecting with students about resources available on the internet. This process of mediation by the instructor takes place in line with two studies cited by Hannafin and Hill (2007):

- Greene and Land (2000) concluded that the contextualization and scaffolding supporting resources use influence students' perceived and actual usability, indicating that learners may need explicit guidance in selecting resources until they become sufficiently familiar with their topic or the context (as cited in Hannafin & Hill, 2007, p. 532) .
- Macdonald, Heap and Mason (2001) pointed out that a variety of skills are needed to effectively use resources (e.g., IT skills, cognitive skills) and that instructors should create opportunities to help students understand goal-oriented search on the internet for quality learning resources (as cited in Hannafin & Hill, 2007, p. 533).

The instructor's mediation is also important to help students build a shared critical understanding from these resources within the theoretical foundations of Cyberculture. As Thomas and Brown (2011) explains, this process "is almost quantum in nature: The more we interact with these informational spaces, the more the environment changes, and the very act of finding information reshapes not only the context that gives that information meaning but also the meaning itself" (p.42), which also indicates the need of the instructor's mediation to help students make sense of the shifting universe of information and resources on the internet.

Former students collaborate as brokers to bring the instructor's mediation closer to students' needs and perspectives. These students "personif[y] the ability to transfer certain elements of one practice to another, to understand and appreciate the differences in perspective between one community and another, and [provide] authorization to influence the practices of one or more communities" (Gheradi & Nicolini 2002, as cited in Holley, 2006, p.7). Brokers engage in dialogue with students, under the instructor's guidance, to help gather their ideas for the interface co-design and to stimulate dialogue about the resources available on the interface.

The web interface

The advent of the internet and the various digital tools to cut, paste and edit resources (text, video, and image) available online, power up the practice of remixing. This allows multiple connections among various resources that sometimes reinforce or recreate their meanings. Remixing can be formulated as a pedagogy that invites students to make new and

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multiple connections, creating their own perspectives and expanding learning in line with the theoretical perspective of connectivism (Siemens, 2004). Learning is taken also as a process of connecting specialized nodes or information sources that includes accessing and selecting up-to-date knowledge and nurturing connections for future learning (Anderson, 2008). The course interface, therefore, becomes a remixed content-based knowledge that evolves according to students' participation, as they bring their cultural perspectives to the interface design and content.

The remix phenomenon is not a new one, it goes back to the process of decoupage in Florence in the 18th century and it also relates to the cutups from the Dadaist movement. More recently, it has been theorized as remediation and convergence (Bolter, 2001) and compositing (Manovich, 2001, 2005). Manovich (2001) defines compositing as the process of "assembling together a number of elements to create a single seamless object" (p.139). The author points to the interactive character of selecting and composing, explaining that partially assembled objects are made by integrating new components and by removing original ones. This remixing is made possible, according to the author, by the modular organization of a new media object on different scales. Manovich theorizes about compositing related to the creation of moving images – by tying together an unlimited number of image layers – saying that in this case "interactions between the elements of a visual world over time (for instance, the dinosaur attacking the car), along with the ability to look at this world from different viewpoints become the guarantee of its authenticity" (p. 153).

Manovich's theoretical perspective has been used as a metaphor to guide the conceptualization and development of the CRCW project web interface. The interface contains three "layers": 1) The ongoing co-design of the interface; 2) The resources critically selected from the internet and organized in the interface; 3) Students evaluation and comments about the resources. The goal is to tie together these three layers as one remixed artifact, meaning that the interface will become a learning resource in itself open to those interested in engaging in learning about Cyberculture. The interface is envisioned as a unique and authentic artifact on the internet in which various resources are connected and made meaningful from students' perspectives as the in-process result of their learning during the course.

The interface development also takes into consideration the three levels proposed by Conole (2010): different content formats (text, video, comics, infographics, web pages), levels (types of activities, connections among materials, concepts and ideas looking for increasing complexity and deeper understanding) and lenses (learning theories). It also considers the six phases of the ADDURI framework – Analyse, Design, Develop, Use, Review and Improve (Valkanos, 2010). It was developed based on the Mojo platform (free and open source, standard ASP.NET) and it is organized in line with the following main thematic units: Concepts, Digital Divide, Cyberactivism and Sociability (each of these holds several sub-units). These units and sub-units are based on an empirical study conducted by Amaral and Montardo (2011) about the themes of the works presented at one of the key conferences in the field in Brazil. The web interface is available at: <http://www.virtual.ufc.br/cybercultura>. It is open on the internet.

The, first, and the second versions of the interface, were evaluated in terms of functionality, resources and navigability by a group of former students of the discipline and the brokers, under the guidance of the course instructor. The third version, still under development, incorporates new features suggested by the students (see figures 1 and 2). The center column of the web interface became more theme-based, highlighting a selected textual material and three secondary related materials in different formats (e.g., videos, websites, and animations). New background colors and more space on the screen displaying various images also emerged from students' participation over the course of the semester. The interface features a ranking of the Top 5 Commented Resources, which allows a better visualization and management of the comments and evaluations produced by the students. The tool for writing comments about the resources was improved. The new one, called Intense Debate, provides a larger and bolder field (in the shape of a box) for writing comments directly on the page in which a resource is displayed on the interface. The Facebook plug-in was included to increase the sense of co-authorship and participation of enrolled students. A new feature is being implemented to allow students to directly post materials on the interface once they receive permission from their teams.

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Figure 1: The first version of the web interface without students' inputs.

Overall, students proposed featuring tools and activities on the web interface that foster collaboration and interaction – these elements, according to them will be central to support students' active participation during the course. Students also suggested changing the main color green to the color blue, which according to them denotes digital technologies. The co-design process also led to the: increasing of the size of the star symbols that are used for resources' evaluation; continuous and quick content up dating; and the inclusion of new resources genres (besides text and video). The interface also includes the following elements: a Twitter feed that changes over the semester to match the course thematic units, a list of the most up to date content incorporated into the interface, a photo gallery of current students. It contains a tag that identifies original content developed by the students along the discipline. Each resource web link is displayed on a single web page followed by a brief description of the content represented in the resource and the related theme within the Cyberculture framework.

Figure 3. The latest version of the web interface includes many of the students' suggestions.

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All these improvements made the interface more focused on the user, i.e. primarily enrolled students, and highlighted the content and the comments that they produced. The new features also help the instructor to quickly identify the most recent comments and the new resources posted on the web interface – which is key to the instructor's mediation during the course.

The interface constitutes a process of continuous co-design in which students play a key role. Seminars are held throughout the course during which instructor, brokers and students debate about the interface design and the functionality of the implemented tools to try to approach it from the perspective of the needs and interests of the students in line with the course objectives and the learning perspective. At the computer lab, students work in groups searching for new content, which is then shared with as part of a collective decision making process as to whether the materials will be included in the web interface. Throughout this process students answer questions formulated by the instructor and by their classmates, regarding the quality of the material in line with what has been learned in the course's thematic units and also regarding aspects of the language and content design – since these elements will be important to attract the attention of students and other users.

These activities also open space up for reflections in classroom as detailed below, regarding searching for videos about the topic of the digital divide. Student A explained to the class that his team "chose this video [because] others were very long and only defined the digital divide, [while] this documentary does not even speaks about digital inclusion [...] [it helps] to highlight what we discussed today in class, [the issues of] access and unconscious use of technology, when people are not necessarily aware of what they are doing there." Another group searched for news about the digital divide and argued in favor of the selected material saying that it was "interesting, [Manuel] Castells cites and criticizes the stereotypical view that digital inclusion is [restricted] to delivering computers and the Internet and the teaching of basic programs like Word and Excel, as we discussed in class" (notes taken in class by the instructor). This dialogue is representative of many activities developed over the semester. It indicates that as students engage in these processes they start building new connections between the instructor's interventions related to the course content, their own questions and the new perspectives they encounter as they search for new resources on the internet.

As the course evolves students also start to feel more encouraged to develop original content related to the thematic units of the Cyberculture framework. These materials usually explore languages other than the verbal text, in particular videos, comics, infographics, podcasts and animations. Students conduct an investigation about a topic of choice and build new resources that are presented to the class and posted on the web interface. These activities take place in a way similar to what Anderson refers to be the current collaborative production of knowledge in which "content is augmented, annotated, enhanced, and, in some cases, displaced by content created by the end users themselves. Increasingly, ways are being developed to have content harvested, filtered, repurposed, and transformed" (Anderson, 2008, p. 63). The materials developed by the student at the end of the semester are also integrated to the interface and tagged as "original" ones.

Collaborative learning mediated by the CRCW Project

During the semester, the project aims to help students move from an initially peripheral participation in these activities to a more central role along the course (Lave & Wenger, 1991). This also means that the web interface is characterized by evolving content gathered from the internet but also by the students' evolving perspectives about the course units and their understanding about the various themes in the field of Cyberculture. Activities developed on the CRCW project acquire the dimension of a collective knowledge that rebuilds itself on a daily basis (Aparici, 2010) in a process similar to the collective intelligence (Levy, 1999) that characterizes the internet.

The instructor's shifting role as the source of knowledge to the one who learns with the students along the process indicates that expertise becomes a quality that moves between members of a learning network, dependent upon time, activity and focus (Beaty & Howard, 2010). By drawing on Action Learning theory, the authors say that learners involved in these processes become experts in 'why they want to know it" while the teacher is positioned as a "fellow holder of expertise", who brings a distinct suite of skills and knowledge, in particular content knowledge (epistemology of the disciplinary field, theories, critical perspective). The instructor guides learners trough the "potentially bewildering range of resources and interactions and providing compass points that highlight how relevant knowledge should be valued and used in academically sound ways" (Beaty & Howard, 2010, p. 605).

As students engage with the active production of knowledge that is incorporated in the course content trough the web interface they perform "historical and historical role-and-result, rather than more or less naturally act out a societal role—really a role for result" (Newman & Holzman, 1993, p. 176). This means that students share with the instructor the once traditional central position of knowledge on campus to bring new ways of enacting the course content and

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learning process that moves closer to their own identities, interests and online activities and preferences. The networked knowledge that results from this process is available on the web interface open on the internet.

Also, the work of designing the web interface occurs in line with Hannafin and Hill's (2007, p. 530) proposition that

> design criteria require that the components, strategies, and activities of any learning environment reflect an alignment of associated foundations and assumptions underlying epistemological beliefs. The unique ways in which design practices are enacted vary according to the epistemology, foundations, and assumptions consistent with and extended from a given learning model.

In the case of the CRCW project, Cyberculture constitutes the epistemology, the theoretical perspectives and the practices in which students, brokers and the instructor engage to learn and to produce knowledge shared on the internet.

At the end of the semester students evaluated the experience. Most of them said that they appreciated having their voices heard in the classroom. They considered that they had significantly contributed to the improvement of the web interface and the collection of new resources, with the goal that their work would help future enrolled students to engage with issues related to Cyberculture and to succeed in the course. They complained about the high volume of work and also about having to spend too much time searching for good and sound resources on the internet, which according to them are hard to find. Many students recognized that their involvement with the CRCW Project helped improve and expand their learning as they had the opportunity to engage with new content about the concepts and ideas related to the course, and exchanged ideas and different points of view with their peers. Students also appreciated the production of original materials and the integration of these resources on the interface.

Conclusion

The CRCW Project aims to advance learning by students' collaborative participation on the co-design of an on-campus course web interface. Collaboration along the project entails to developing the web interface, searching, selecting and evaluating resources available on the internet and assembling new resources. The web interface is open on the internet. Along with the learning experience, the instructor shares his traditional place of knowledge in class with current students and brokers. The instructor's mediation and guidance aims to make learning more visible to the students, helping them understand better the activities and the learning process entailed by it. Students develop a better sense about the changeable character of the resources available on the internet, they learn how to deal with this apparently endless process and they also develop an understanding about the theoretical foundations related to the field of Cyberculture. During the semester, they learn how to critically relate to the resources and various content available, i.e. the limits and the possibilities of learning about Cyberculture entailed in the CRCW project. They also exchange ideas about the resources to make new connections and further understand concepts and ideas related to the course units. The brokers' active participation brings a new perspective to the project development, allowing space for students real input into the co-design of the interface and the mix of resources selected. Their collaboration with the project has helped built students imprint into the project, downplaying the institutional ties and limits without compromising course objectives.

Students' participation seems to advance through three phases along the semester: at the beginning of the semester it is difficult for them to understand the nature of the CRCW Project, which seems to be related to their traditional understanding of the instructor centrality at on-campus courses. As the semester progress students start to engage more actively with the Project activities. Various debates take place in class, when students need to decide which resources will be included in the interface. Debates also take place on the web interface, where they exchange ideas about the selected resources and Cyberculture related content. Students also become very vocal about their likes and dislikes in regards to the web interface design. At that point they seem to be driven both by their own preferences but also by the nature of the field studied in the course. At the end of the semester, when they are more familiar with the web interface and the various sources of content about Cyberculture on the internet, students praise the opportunity to develop original resources on their own to be integrated on the interface. Students' learning evolves during the Project activities (including working in the classroom). This becomes more evident as students relate with the brokers and the instructor and as they are invited to make connections at various levels about the field of Cyberculture and their own activities during the course.

Overall, in line with Cole's (1996) findings, the co-design of the interface as a new tool expands the context for learning from the on-campus course to the internet and it constituted a new dimension to the course – students are invited to be in the center of the experience. As indicated by Newman and Holzman (1993), the creation of a classroom environment that allows the social nature of learning to be expressed leads to increased learning (p. 70-71). This seems to be the case

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with the CRCW Project, particularly given students' appreciation of their active participation in the Project, their understanding about being able to place their imprint as a way to bring the interface closer to their cultural milieu and also as a way to help future students to learn.

Still, more studies about the CRCW Project are needed given that, according to Hannafin and Hill (2007), "little is known about how recontextualized resources (...) influence interpretation, meaning, and understanding during RBL [resource based learning]. In externally imposed contexts, the range of intended interpretations and meaning is largely constrained by the tasks, activities, and goals to which their use is directed" (p. 533). Work related to the CRCW Project indicates that the instructor mediation is a key component to help students make meaningful connections about the resources, but more investigation is need to better describe and qualify the learning process.

In regards to the challenges for the future of the Project, it is important to note that despite the fact that the web interface is open on the internet, it is used mostly by current students, brokers and instructors. The challenge to transform the web interface from a course-based activity into an authentic site of knowledge on the internet will likely improve students' learning. This argument is in line with Anderson's (2008, p. 60) argument (based on a study conducted by Jon Dron) stating that

> the group itself is an educational resource with characteristics that are different than the bounded interaction among two or more learners registered in a course. Dron's groups include responses from strangers retrieved from services like Google Answers, referrals from networks of friends and friends of friends, such as those supported in MySpace (...) These groups support far more diverse and often less reliable interactions. Nonetheless, they are far more generative than the discourse that typically merges from interaction among a bounded class of students and teachers. Thus, learner-group and teacher-group interaction opens the online classroom door to viewpoints, resources, and insights gathered from throughout the Net.

According to Castells, Monge and Contractor (2011), "a fully multidimensional network is one that includes multiple types of relations both among the same types of nodes and between different types of nodes. Thus, a fully multidimensional network has multiple types of connections among all possible types of entities" (p. 789). The web interface would greatly benefit from more human (and also machine operated) connections between the various resources available, which would provide new meanings and instigate students' new questions and new understanding. Data mining tools would also play an important role, particularly to help the instructor manage the multiple exchange of ideas taking place at the web interface over the course of the semester.

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