

Conceptual Enhancement Via Textual Plurality: A Pedagogical Wiki Bow Towards Collaborative Structuration

Renée Fountain
University Laval
1178 Tour FSE
Québec, (QC), Canada
01-418-656-2131 ext 8699
renee.fountain@fse.ulaval.ca

Abstract

In this paper I present how I use wikis in my undergraduate courses to try to enhance conceptual comprehension. This WikiConcept research is housed within a theoretical perspective entitled “Communal Constructivism” (CC). According to CC, students construct learning “for” as well as “with” others, ideally leaving their imprint in the development of the course, their school or university, and ideally the discipline. As I argued previously (Fountain, 2005), “The goal of such “co-curricularization” is to influence the quality of ALL work, not just one’s own. Quality is to be influenced OVER TIME (long term sustainability of knowledge-Ciffolilli, 2003 & Schwartz, 2004), ACROSS collectivities (across students, over classes, over years, over generations-Scardamalia & Bereiter, 1994), VIA open-natured projects and TOWARDS creating “impossible public goods” (Ciffolilli, 2003).” While the development and implementation of this conceptual enhancement project across time and collectivities has taken place over several years, the evaluation of these peer-to-peer conceptualizations has just begun (winter, 2007). This paper reports on students (n = 85) reported conceptual comprehension when asked to read and evaluate three differing co-elaborated texts (wiki texts produced by their peers in previous sessions of the same course in technology) regarding the concept of “Cookie”. The same “Cookie” text did not “work” (enable greater comprehension) for all students. Many students appreciated a given text for the same reasons (both in terms of form and content) that many others did not. Again, while these results are preliminary, it appears that conceptual comprehension may be enhanced by systematic inclusion of and instance upon engagement with multiple, (and in this case) textual representations of a given concept. Such an insistence upon “a textual plurality around the same, the ‘always already’”, is seen as a pedagogical wiki bow towards enacting collaborative structuration research and practice.

Categories and Subject Descriptors K.3.1 [Computers and Education] Computer Uses in Education, Collaborative learning

General Terms Measurement, Performance, Human Factors

Keywords Concept development, co-elaboration, Collaboration, Communal Constructivism, higher education, intratextuality, intertextuality, technology, wikis

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WikiSym '07 October 21–23, 2007, Montréal, Québec, Canada.
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1. Introduction

Using wikis in higher education courses is still relatively new. Attempts to enhance conceptual comprehension are not. This research looks at student comprehension of technological concepts when they had to read, then evaluate several conceptual WikiTexts (3) pertaining to a particular concept. While many technical concepts have been wiki co-elaborated by and for students- thus enacting the theoretical lines of Communal Constructivism (CC)- , the analysis in this paper pertains to students understandings of the concept of “Cookies”.

The paper begins with an outline of the course and its theoretical underpinnings. The following section outlines what the students were asked to do and results therein. The final section looks at some of the pedagogical promises and perils that may arise from enacting such horizontal assemblages.

2. The Educational Context

At University Laval (Quebec city, Canada) undergraduate students in education take one course in technology. The course is 30 hours in length (2 credits) and occurs over one semester (generally in the second year -secondary students- or the third year -elementary students - of a four year BA program. The course goals are to stimulate pedagogically creative integration of technology into classrooms, to enhance theoretical understandings and critiques of technologically related concepts and issues and to develop students technical savvy (competency and confidence) with respect to prevalent and emerging software.

Many students who enter this course have had little or limited exposure to technology (other than for personal use such as email, chat, surfing on the web, .etc). While students are usually quite keen to think about the creative pedagogical aspects of technology integration, and do learn to manipulate and even appreciate software, they are consistently (semester after semester) less-than-enthusiastic about engaging with the conceptual aspects of the course.

To counter students “conceptual resistance” (as well as my own, which was –over the years- exponentially developing in response to theirs) I decided (several years ago) to have students co-research and co-elaborate the concepts themselves. They had to form a collective (not more

than 4 people), select a technical term (from an already established list) and then co-elaborate a wiki text in the hope that their efforts would facilitate the conceptual understanding of their peers enrolled in subsequent sessions. They were asked to create a wiki page in which they would offer several differing definitions of the term, delineate its historical aspects, indicate pertinent or related terms, note the strong and weak points of the concept in terms of how it might and might not be actualized in educational contexts, present ideas for integration within and/or across scholarly levels, suggest means for evaluating integration efforts and then finally to provide additional references for further exploration. These co-elaborated WikiTexts were to serve two purposes: 1) to enable those who followed to further understand, appreciate and critique (what are often initially deemed to be uninteresting) technologically-related concepts (concepts such as Arpanet, DHTML2, File Transfer Protocol, Firewall, Internet2, Operating systems, W3C, etc.); and 2) to provide the content basis for the final exam questions in subsequent sessions.ⁱ

Instigating a new “purpose” to conceptual work – that is, that students’ efforts might actually serve others who followed them in the course – is based on attempts to implement a theoretical perspective called Communal Constructivism. In Communal Constructivism the focus is on the community itself rather than on the individual learner (Holmes, Tangney, FitzGibbon, Savage, & Mehan, 2004). According to Holmes et al. (2004), “What we argue for is a Communal Constructivism where students and teachers are not simply engaged in developing their own information but actively involved in creating knowledge that will benefit other students. In this model students will not simply pass through a course like water through a sieve but instead leave their own imprint in the development of the course, their school or university, and ideally the discipline.” As I have said previously (Fountain, 2005), “the goal of such “co-curricularization” is to influence the quality of ALL work, not just one’s own. Quality is to be influenced OVER TIME (long term sustainability of knowledge) (Ciffolilli, 2003 & Schwartz, 2004), ACROSS collectivities (across students, over classes, over years, over generations; see, e.g., Scardamalia & Bereiter, 1994), VIA open-natured projects and TOWARDS creating “impossible public goods” (Ciffolilli, 2003). While creating assemblages of valuable collective goods is not new, tools that intrinsically incite them — and on such a large scale — may be truly new (Godwin-Jones, 2003).ⁱⁱ How wiki horizontal assemblages may enhance ALL students’ conceptual understandings of technical concepts (all as in those students who follow the course in any given session) is the underlying question of this higher education course-related research.

3. Students Conceptualizations of “Cookies”

Undergraduate students in the teacher education program at the secondary level (n=85) were asked to read three

previously peer co-elaborated WikiTexts pertaining to the concept of “Cookies”. Two of the 3 Cookie texts were similar in terms of level of abstraction, in-depth use of additional technical terms (to explain Cookies) and diverse examples. The third text was more concrete in that it used few additional technical terms (to explain Cookies), tended to offer more graphics, and focused (to a greater degree than the other texts) on potential use in educational contexts. As part of their weekly homework students – this time on an individual basis – were asked to read the three texts and submit a text document in which they were to rank the texts (in terms of which texts best enabled their comprehension of Cookiesⁱⁱⁱ), substantiate their ranking with a minimum of three arguments and propose three potential exam questions (and responses) that they felt would measure students’ comprehension of Cookies.

Approximately half of the students (n=43) said they preferred the more concrete, graphically oriented rendition of the Cookie concept. The other half of the students (n=42) showed a greater appreciation for the more abstract renditions of the Cookie concept.^{iv} What was surprising was that arguments in favor of a given text for some students were used as opposing arguments by others. For example, the use of graphics proved helpful to many students, whereas these same graphics were said to be a distraction for others. For some (typically the same students who preferred an extensive use of graphics), the use of additional technical language was a hindrance and yet such precise terminology proved to be a very important asset for others’ comprehension.^v For some, conceptual critique (the promises and perils of Cookies) and links to other terms (offered to contextualize the concept – both inside and outside of education) were said to render the text “too long”. That is, conceptual requirements – that were originally designed to (supposedly) facilitate relevance and greater comprehension – had the opposite pedagogical consequence. It was as if these very elements of critique and contextualization (so often demanded by students in education) provided “too much” information with respect to technical terminology comprehension. Hence, elements that served as conceptual scaffolding for some, often proved to impede conceptual comprehension for others.

However, it is not surprising that students appreciate differing textual explanations. Their cognitive styles most likely differ within and across contexts.^{vi} What is surprising is how often we only afford students the opportunity to read one text about a given concept. That is, we do not tend to insist that students read varying renditions of the ‘same’, to engage with what Derrida referred to as the ‘always already’^{vii}.

Previous to this semester (winter, 2007) I had never forced students to read multiple versions of a given concept. Like many pedagogues I usually ask students to read one text per concept (in preparation for the final exam)^{viii}. But since this co-elaborated conceptual WikiWork has been going on

for some time (several sessions over several years) and since during these numerous sessions some students wanted to elaborate an already previously elaborated concept in a “new” way, I found myself with several versions of the same concept^{ix} (four elaborations pertaining to the same concept became an arbitrary limit). My original pedagogical goal in forcing this comparative reading (the same concept elaborated differently) was simply to see how students would evaluate conceptual definitions. I had assumed their criteria (for what constitutes a “good” elaboration of a concept) would be similar to mine and that I would simply build upon their existing knowledge. That is to say that while conceptual evaluation is, indeed, difficult, students had probably already constructed – if not integrated - numerous evaluative criteria for what constitutes a “good” conceptual definition. I also assumed that most students would give a better ranking (and offer similar supporting arguments) to the more contextualized, detailed texts. I had no idea that each kind of text would be so differentially appreciated by such large numbers of students. It then became evident that the WikiWork being done in the course (over semesters) - wherein multiple elaborations of any given concept are allowed^x – held an unexpected potential with respect to enhancing the conceptual comprehension of students with differing cognitive styles.

4. Wiki Semiotic Systems

Through wiki course work over time (in line with Communal Constructivism) one of the course goals is to increase technical conceptual understandings via wiki co-elaborations that are: 1) written by their peers (that is, in a potentially more accessible language); 2) contextualized (linked to educational use); and 3) critiqued (the promises and limitations of such concepts as well as their actual -if not potential- integration in educational contexts are scrutinized- at least to some degree). In addition, - and the reason for this article- when students were forced to read varying renditions of a given concept, that is, to read and evaluate their comprehension “across multiple peer co-elaborated WikiTexts”, enacting a *kind of* intratextuality. Yet, it is only a kind of intratextuality. Intratextuality is “usually”^{xi} defined as the paradigmatic links established by a reader between at least two texts written *by the same author*. Intratextuality (potentially) offers connections/ relationships between a given text and another. However, in this collaborative wiki context, the paradigmatic links and potential connections/relationships between texts may prove to be^{xii} compounded given that each text (that was read) was written *by several authors*.

Such co-authoring poses yet another an interesting semiotic question : if every single authored text is already intertextual^{xiii}, that is, ‘from the outset under the jurisdiction of other discourses which impose a universe on it’^{xiv}, then what kinds of universes might be imposed via multiple authored texts? And what might these “multiverses” imply

for conceptual comprehension within pedagogy that insists upon engagement with such WikiSemioticSystems? Could it be that complicating both the intratextual and intertextual might eventually lead students to a greater understanding of the ‘always already’ overlapping and interpenetrating internal contexts and signs of a text (or texts)? Hence, enacting a pedagogical insistence upon Kristeva’s argument that (rather than confining our attention to the structure of a text) we should study its ‘structuration’^{xv}.

But perhaps all this complexification and contextualization leads to too much (conceptual) diversification? Obviously some students (as indicated in this coursework) would certainly agree. But what if Surowiecki’s (2004) ideas about collective intelligence are “true”? That is, that creativity (associated with the highest levels of intelligence & presumably the primary goal of our educational institutions) is dependent upon diversity. Then perhaps pedagogical insistence upon differing forms of diversity (here, exposure to textual diversities not only in terms of insisting upon a “diverse many” to create within a given text -that is, multiple authors of a sole text as is commonly the case in WikiWork-, but also to insist upon reading several texts of the ‘always already’) could be justified as important and pertinent pedagogical practices. At the very least such diversification of conceptual comprehension practices could be seen as important questions to be researched.

While wikis obviously facilitate such open-natured, long term collaborative projects, collaboration itself (digital-based or otherwise) remains problematic. According to West (2006), there may be too much emphasis on the process of collaboration (at the expense of an appreciation of the actual product) and furthermore, the collaborative process may continue even after the product is claimed to be finished (certainly the case with respect to WikiWork). However, collaborative projects towards enhancing conceptual comprehension - by insisting upon the reading of multiple WikiTexts of the ‘always already’, read structuration - may introduce new ways for researchers to wrestle with West’s rather radical^{xvi} observation of “collaboration as unfinished product” both within and across coursework.

5. Acknowledgments

Thanks to Professor Jacques Daignault who created Lévinux (Laboratoire d’Éducation à la Virtualité dans l’Intégration des NTIC à l’Université sous Xwindow) found <<http://levinux.org>>) and who introduced me to wikis and to the Free Software Movement. Professor Daignault also generously adapted the MoinMoin wiki in May of 2006 to create the educational wiki site “Curriculum Forge” <<http://en.curriculumforge.org>> and “ La Forge du Curriculum ” <<http://fr.curriculumforge.org>> where I presently conduct some of my wiki course work. Students conceptual co-elaborations referred to in this paper are located at University

Lavals Tuxcafé:

<http://wikini.tuxcafe.org/wakka.php?wiki=ConceptsElabores>

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- i Students conceptual co-elaborations (in French) referred to in this paper can be found at University Lavals Tuxcafé: <<http://wikini.tuxcafe.org/wakka.php?wiki=ConceptsElabores>> Consulted 16 May, 2007.
- ii While whether wikis actually can create “impossible public goods” remains to be seen (and -in my opinion- to be hoped for), wikis have incited large scale horizontal assemblages (see this issue of First Monday:Volume 12, Number 4 , 2 April 2007. <http://www.firstmonday.org/issues/issue12_4> Consulted 26 May, 2007.
- iii While surprising, not one student (when asked informally in class) said they had previously encountered this term.
- iv What is important to note is that hardly any of these students had any previous courses in technology (unlike previous sessions) so preference did not seem to be related to previous exposure to this particular concept or to other technological concepts in general.
- v When their differing elements towards what constituted greater comprehension were subsequently presented and discussed in class I again asked about their previous competencies with respect to Cookies and then, to computers in general. Only one of the 85 had had any previous experience with computers (except email, searching on the web, etc) When they were asked specifically how they had previously understood how certain sites they visited recognized them they said they simply had not thought about it. Most reported they had no previous knowledge that one could - or could not accept cookies- nor any knowledge where this optional function might be found in their respective navigator.
- vi According to wikipedia, “It is commonly believed that most people favor some particular method of interacting with, taking in, and processing stimuli or information. Based on this concept, the idea of individualized “learning styles” originated in the 1970s, and has gained popularity in recent years. A learning style is the method of learning particular to an individual that is presumed to allow that individual to learn best. It has been

proposed that teachers should assess the learning styles of their students and adapt their classroom methods to best fit each student’s learning style. Over 80 learning style models have been proposed, each consisting of at least two different styles. <http://en.wikipedia.org/wiki/Learning_styles> Consulted 24 May, 2007. As an example, in his book *Thinking Styles* (1997), Sternberg denotes 13 characteristics and five categories with respect to cognitive thinking styles.

vii The origins of this word are to be found in the works of Jacques Derrida, a French post-structuralist. “Derrida wants to reveal that every so-called ‘present’, or ‘now’ point, is always already compromised by a trace, or a residue of a previous experience, that precludes us ever being in a self-contained ‘now’ moment”. <<http://www.iep.utm.edu/d/derrida.htm>> Consulted 17 May, 2007.

viii Obviously these (singular texts) are esteemed by the professor.

ix If students choose to elaborate a concept which had already been explained (they did not simply want to just add to the given elaboration) they had to demonstrate that their text would not be the same as the ones already in existence (and yet still meet the same criteria).

x I had never quite understood why I was allowing multiple versions of the same concept to occur over the years. I did know, however, that texts treating the same construct (with the same course work requirements) were never the same; the concept was always treated differently.

xi Here follows a very simple, read reductionist version of intratextuality. For more complex versions about this “highly unwieldy” concept see: <http://omega.cohums.ohio-state.edu/mailling_lists/BMCR-L/2002/0184.php> Consulted 07 May, 2007.

xii This problematization needs to be researched as it was not the original intention of this research. This research does, however, point to the importance of interrogating *multiple* author intratextuality.

xiii “The semiotic notion of intertextuality introduced by Julia Kristeva is associated primarily with poststructuralist theorists. Kristeva referred to texts in terms of two axes: a *horizontal axis* connecting the author and reader of a text, and a *vertical axis*, which connects the text to other texts (Kristeva, 1980). New York: Columbia University Press) Uniting these two axes are shared codes: every text and every reading depends on prior codes.” <<http://www.aber.ac.uk/media/Documents/S4B/sem09.html>> Consulted 27 May, 2007.

xiv Kristeva declared that ‘every text is from the outset under the jurisdiction of other discourses which impose a universe on it’ (Culler, Jonathan (1981): *The Pursuit of Signs: Semiotics, Literature, Deconstruction*. London: Routledge & Kegan Paul).

xv <<http://www.aber.ac.uk/media/Documents/S4B/sem09.html>> Consulted 21 May, 2007.

xvi “Of or pertaining to the root or root cause of the matter” (Source:<http://en.wiktionary.org/wiki/radical>)