Chronicles of Change:
the narrative turn and e-learning research

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ABSTRACT Narrative case research has been widely utilized in educational inquiry to investigate different and changing positions and perspectives on questions of identity, curriculum and classroom practice. Despite the fact that case-study research of this kind is well suited to the investigation of changing technologies and their interpretation in different classroom settings, narrative methods have been little utilized in e-learning research. This article addresses this situation first of all by presenting psychologist Jerome Bruner's understanding of narrative as both a pervasive mode of cognition and a formal mode of inquiry – a dual emphasis that is central to understanding narrative as a research method. It then describes the elicitation of an individual teacher's narrative in an 'active interview' context, and presents her account of the adaptation of blog technology in a writing class. The article examines the ways in which teacher and technology are presented as agents of change in this narrative, and compares this to other, more common but less explicitly 'narrative' accounts in e-learning research. In doing so, the article makes significant reference to Jean-Francois Lyotard's notion of 'meta-narratives', arguing that that the overarching meta-narrative of technological progress still informs a great deal of research in e-learning. It concludes by making the case that the influence of this particular meta-narrative should be balanced by attention to multiple 'micro-narratives', which tend to tell rather different stories.

Introduction: the narrative turn

Over the past 25 years, narrative analyses and interpretations have been applied in social sciences generally (e.g. Polkinghorne, 1988), in history (e.g. White, 1973), and in literary, cultural and film studies (often under the rubric 'narratology'; see Abrams, 1999). These and other 'narrative' developments have been so significant that reference has recently been made to a 'narrative turn' in social science and humanities research overall (Riessman, 2002, p. 696; Chase, 2005, p. 651). Narrative has also been applied in educational research as a way of exploring the values, politics and practices of students and teachers as individuals, and as a way of understanding their identities in educational and personal terms. In their landmark text on narrative research in education, Clandinin & Connelly (1988) speak of an individual teacher's narrative as providing a kind of 'personal curriculum', as fostering a pedagogically relevant understanding of the self and of the practices of teachers: 'Constructing a narrative account of oneself, or of someone else, is difficult, rewarding work. ... It is rewarding because it is curricular and educational. It is a way of making educational meaning of our lives as we continue with the daily grind' (Clandinin & Connelly, 1988, p. 24).

By examining one teacher's narrative of the use of blog technologies in a classroom setting, this article illustrates how narrative interpenetrates and saturates e-learning practice and research. At the same time, though, it attempts to give a voice to at least one example of a kind of position and story that is generally not heard in e-learning research.

Narrative as an Epistemic Mode and as Method

Jerome Bruner, well known as a pioneer in cognitivism, devoted much of his early research career to the study of the mind as a logical information-processing device. In the late 1940s, Bruner was studying the internal, mental processes of inference, hypothesis generation, and above all, *categorization* that enable human beings to function, as he says, 'in a world of more or less ambiguously organized sensory stimulation' (Bruner & Goodman, 1947, p. 35). Thinking of perception in terms of data and their processing and storage, Bruner theorized that it was *categorization* that allowed the ambiguity of this perceptual data to be sorted and organized by the mind into discrete entities, like chairs, tables, people, letters on a page, etc. Bruner later referred to the epistemological mode involved in these processes as the 'logico-scientific' mode – one that 'attempts to fulfill the ideal of a formal, mathematical system of description and explanation' (Bruner, 1986, p. 12). 'At a gross level, the logico-scientific mode', Bruner explains, 'deals in general causes, and in their establishment, and empirical truth. Its language is regulated by requirements of consistency and non-contradiction' (1986, p. 13). Individual, empirically-verified 'truths' are gradually accumulated through the use of 'logical and scientific procedures' to form 'constructs' (Bruner, 1991, p. 4). And these constructs – which can also be referred to as theories or 'paradigms' – are further refined in accordance with logical and mathematical rules and scientific principles. Because of the 'practical power inherent in the use of logic, mathematics and empirical science', Bruner explains, learning and development generally have come to be conceptualized as activities that reproduce these processes of knowledge construction and verification – with the learner or child seen as a '"little scientist", "little logician" [or] "little mathematician"' (Bruner, 1991, p. 4). In this way, the logico-scientific mode is privileged not only in many approaches to research and innovation, but also in cognitive theories of mind.

But Bruner later came to see that logical operations like hypothesis generation, inference and categorization were only half of the story, so to speak. Instead of maintaining that only one way of knowing or establishing truth is valid or valuable, Bruner came to recognize the multiplicity of knowledge forms. The 'logico-scientific mode', Bruner later asserts, is only one of *two* very different and indispensible ways of 'ordering experience and constructing reality' (1986, p. 11). This kind of knowledge is insufficient on its own for developing a full understanding of the mind and of learning. For Bruner, the second, neglected way of thinking and knowing 'is so familiar and ubiquitous that it is likely to be overlooked, in much the same way as we suppose that the fish will be the last to discover water' (1991, p. 4). Of course, this second, all-too-familiar epistemic mode or way of knowing is *narrative*; an 'account of a series of events, facts … given in order and with the establishing of connections between them' (*Oxford English Dictionary*, 2008).

Bruner spent the latter part of his career exploring and drawing attention to the nature and implications of narrative as both a cognitive mode and as a means of inquiry. Bruner's understanding of narrative as a way of knowing and a way of researching encompasses both thinking and communication in narrative form, and also, reading, hearing and interpreting narratives: both are part of a broad epistemology for Bruner. In characterizing narrative as a way of knowing, Bruner generally begins by describing it in sharp contrast to the logico-scientific mode:

> Each of the[se two] ways of knowing … has operating principles of its own and its own criteria of
> well-formedness. They differ radically in their procedures for verification. A good story and a
> well-formed argument are different natural kinds. Both can be used as a means of convincing
> another. Yet what they convince *of* is fundamentally different: arguments convince one of their
> truth, stories of their lifelikeness. (1986, p. 11; emphasis in original)

Narratives, in other words, generally do not depend on literal truth or adhere to a one-to-one correspondence to reality. Thinking especially of examples of fictional accounts, the 'truth' of narrative can be judged in terms of persuasive suggestion and convincing evocation. These are evoked in place of the use of logical verification, causal explanation or empirical corroboration. It is a question, as Bruner explains, of the 'believability' of these accounts, rather than their 'testability' or 'falsifiability' (1990, p. 122).

One further difference between narrative, on the one hand, and information and explanation, on the other, is presented by their treatment of the general and particular. Unlike the categorizing and hypothesizing functions of the logico-scientific mode, narrative does not dissolve the particular

into general categories, seeking to 'transcend the particular by … reaching … higher and higher … for abstraction' (Bruner, 1986, p. 13). Narrative is not about making sense of particular things or specific sensory stimuli by classifying them according to universal, abstract categories like 'chair' or 'table' or 'person'. Instead, narratives verily revel in the incidental, in particularity and specificity. Fictional films and television shows, for example, are not literally about abstract categories or relationships, about people as a general category, or about a theoretical conflict or principle. Instead, they are about very *particular* characters, circumstances and actions. The more specific and unique the characters, events and circumstances, the more vivid and engaging the narrative account.

Accordingly, narrative knowledge is *not* subject to methods of experimental repeatability or confirmation which are foundational to 'logico-scientific' inquiry and knowing. Events and other phenomena described in narratives do not unfold according to fixed rules of causal necessity and the actions described in them are not principally a question of indifferent calculation and objective fact. Narratives are instead formed through the actions and motivations of their characters; and these acts and motives have much more to do with characters' desires, plans and intentions than any physical laws of change and motion. Action and intention are also closely intertwined with moral opinion and judgement. This includes the moral responses of the story's characters and also of its listeners and readers. 'Narrative is built upon concern for the human condition' (1986, p. 14), according to Bruner, making it 'necessarily normative' (1991, p. 15). It is a question, in other words, of values and mores rather than facts and figures.

All of this further implies that reading, hearing and interpreting a story is also not a matter of knowing and predicting events with unfailing certainty. It is instead a question of more tentative knowledge and sometimes of empathy or antipathy towards characters and their plans and hopes. In speaking of interpretation of characters' motivations in narration, Bruner refers to 'intentions' and 'intentional states':

> The loose link between intentional states and subsequent action is the reason why narrative accounts cannot provide causal explanations. What they supply instead is the basis for *interpreting* why a character acted as he or she did. Interpretation is concerned with the 'reasons' for things happening, rather than strictly with their 'causes'… (1991, p. 7; emphasis in original)

The methods and principles for undertaking interpretation as a systematic and evidence-based activity are generally referred to as *hermeneutics*. This term designates a set of methods or a kind of 'science of the text' which has been developed in the twentieth century in the early work of Martin Heidegger and of his student, Hans-Georg Gadamer. Especially in Gadamer's *Truth and Method*, hermeneutics is described as a dialogical process through which understanding is gradually negotiated between reader and text. Unlike the isolation and accumulation of verified 'truths' characteristic of the logico-scientific mode, this dialogical process is marked by its iterative or cyclical progression. A hermeneutic understanding entails an ongoing movement from any one part of a narrative or text to the story as a whole. For example, to understand why Hamlet asks the question, 'to be or not to be', a reader might look to any one of a number of other points in Shakespeare's play, then back to Hamlet's famous soliloquy, and back again to other statements and actions elsewhere in the text. Speaking in terms that would again encompass both the composition and interpretation of narrative, Bruner explains:

> The accounts of protagonists and events that constitute a narrative are selected and shaped in terms of a [larger] story or plot that 'contains' them … But that whole cannot be constructed without reference to such appropriate parts. This puzzling part-whole textual interdependence in narrative is, of course, an illustration of the defining property of [what is known as] the *hermeneutic circle*. (1991, p. 8; emphasis added)

Another important characteristic of a narrative is that it presents to readers or listeners a series of events that, as Bruner describes, constitute a 'breach' of or 'violation' in 'canonicity' or in the 'canonical script' (Bruner, 1991, p. 11). This refers to the fact that a narrative or story revolves around something going wrong, and needing to be corrected. It is when something goes wrong or when something out of the ordinary happens in the course of a day that we are provided with a story when we get home. As Bruner explains: 'to be worth telling, a tale must show how an

implicit canonical script has been breached, violated, or deviated from in a manner to do violence to [the underlying] "legitimacy" of the canonical script' (1991, p. 11).

A 'breach in canonicity' or departure from what is expected or normal is a part of a larger narrative structure or sequence of events referred to as *plot*. Typical progressions of developments, events or actions which constitute a plot have been studied in literary (Abrams, 1999, pp. 226-227), linguistic (Labov, 1972) and other narrative analyses (e.g. Sheehan & Rode, 1999). These analyses have led to the identification of five plot components or stages, which recur in nearly any kind of narrative account:

1. an 'exposition' (Abrams, 1999, p. 226) or 'orientation' (Labov, 1972; p. 369) in which readers are oriented to a particular setting, background, or situation;
2. a 'crisis' (Abrams, 1999, p. 227) or 'complicating action' (Labov, 1972; p. 369), corresponding to Bruner's 'breach in canonicity' in which a development of some kind 'complicates or disrupts the otherwise predictable evolution of the original situation' (Sheehan & Rode, 1999, p. 338);
3. an 'evaluation', 'establishing the point or the meaning of the story' (Chase, 2005, p. 655), and including commentary on the meaning or consequences of the crisis or complicating action;
4. a 'dénouement' (Abrams, 1999, p. 227), 'conclusion' (Sheehan & Rode, 1999) 'result' or 'resolution' (Labov, 1972; p. 369) in which 'the action or intrigue ends in success or failure … the mystery is solved, or the misunderstanding cleared away' (Abrams, 1999, p. 139); and
5. a 'coda', a 'device' used especially in more informal narratives 'to indicate *closure*', by bringing 'the listener [back] to the present moment' in time (Chase, 2005, p. 655; Labov, 1972, p. 369). Examples of coda in everyday stories might include phrases such as 'I hope I never see anything like that again', 'And they all lived happily ever after' or 'And that was that' (Labov, 1972, p. 369).

These five stages or components, despite their relatively unassuming character, are remarkably pervasive and ubiquitous. Narrative researchers in various fields have identified these same five stages in spoken and written communication of almost any length or kind – from anecdotes told on inner-city streets (Labov, 1972) to elaborate theoretical texts produced by philosophers and scientists (e.g. see Fisher, 1994; Sheehan & Rode, 1999).

Applied Narrative and the Qualitative Interview

Despite or perhaps precisely *because* of the fact that people tend to inhabit narrative in the way that fish inhabit water, narrative ways of knowing and organizing information have been long neglected in cognitive and constructivist psychologies and also in other areas of research related to e-learning. As Bruner observes, 'we know a very great deal about the [logico-scientific] mode of thinking …' with narrative remaining decidedly 'the less understood of the pair' (1986, pp. 13, 15). In recent decades, however, narrative has been investigated and applied in a wide range of contexts and areas of study.

Narrative methods have been valued specifically in educational contexts for their ability to highlight individualized, contextual knowledge associated with pedagogical practices – knowledge which has proven elusive in other methods of inquiry into educational technology (e.g. Cuban, 1986, pp. 2-6) and in educational research generally (Shabani Varaki, 2007). Speaking as a teacher and teacher-educator, Kathy Carter emphasizes how narrative is able to provide:

> a way of grasping the richness and indeterminacy of our experiences as teachers and the complexity of our understandings of what teaching is and how others can be prepared to engage in this profession. Furthermore, with the vigorous emphasis on cognition in teaching, story [has come] to represent a way of knowing and thinking that is particularly suited to explicating teachers' practical understandings, i.e. the knowledge that arises from action. (Carter, 1995, p. 326)

With its power to highlight aspects of practical and contextual action, narrative, in other words, presents a valuable counterweight to more logico-scientific cognitive emphases. The means by which a researcher is able to access the elusive 'richness and indeterminacy' of concrete teacher experience is, unsurprisingly, by asking teachers about their experience in the classroom (whether virtual or face to face) in terms that are as particular and unabstracted as possible. This engagement

with teachers generally takes the form of an interview – but one that is quite different from a question and answer session typical of surveys and more structured interview techniques. Referred to as the 'active', 'in-depth' or simply, the 'qualitative' interview, this technique – like hermeneutics generally – 'is based in conversation', with its purpose being 'to derive interpretation, not facts or laws, from respondent talk' (Warren, 2002, p. 83). Rubin & Rubin explain:

> Qualitative interviews and ordinary conversations share much in common. As in normal conversations, questions and answers follow each other in a logical fashion as people take turns talking. Researchers listen to each answer and determine the next question based on what was said. Interviewers do not work out three or four questions in advance and ask them regardless of the answers given. [This type of] interview, like an ordinary conversation, is invented new each time it occurs. (Rubin & Rubin, 2005, p. 12)

By thus changing the interview into what one author refers to as a 'guided conversation' (Warren, 2002, p. 85), this heuristic involves a transformation of the 'interviewer–interviewee relationship' (Chase, 2005, p. 660). The relationship changes from that of researcher-interviewer and subject-interviewee to a relationship between conversational partners, with the interviewee as narrator and the interviewer as listener. As Chase explains:

> To think of an interviewee as a narrator is to make a conceptual shift away from the idea that interviewees have answers to researchers' questions and toward the idea that interviewees are narrators with stories to tell and voices of their own. (Chase, 2005, p. 660)

Although these kinds of 'open-ended' interviews are generally unscripted, it is possible to identify a number of question *types* that often follow in sequence in this type of data gathering. According to Warren, there are '*main questions* that begin and guide the conversation, *probes* to clarify answers or request further examples, and *follow-up questions* that pursue implications of answers to main questions' (Warren, 2002, pp. 86-87, emphasis added). But the key is not so much progressing through categories of questions as it is to remain 'flexible and attentive to the variety of meanings that may emerge as the interview progresses' (Warren, 2002, p. 87).

There are of course a number of ways of sampling or selecting 'narrators' for such conversational interviews. These include: (1) 'convenience sampling' (where one or more informants are chosen in an expedient, unstructured way); (2) 'snowball sampling' (where existing informants are asked to recruit new ones 'through the grapevine'); and (3) '*a priori* sampling' (where informants are selected according to criteria inherent in the research design itself [Warren, 2002, p. 87]). In the narrative interview described below, the narrator or informant was selected both on the basis of convenience sampling and on *a priori* design considerations: Lisa, a name used pseudonymously to identify an English as a Second Language (ESL) instructor at a small university, was a participant who was willing and able to participate in the research. And it had already been established through informal contact with the researcher that Lisa had a story to tell. Lisa had taught ESL for approximately four years in the context of nearly a dozen courses, and the class in question was taught at an intermediate level, comprised of young adult students (ages 18-25) of Chinese, Japanese, Mexican and other national origins. The interview with Lisa was recorded using a laptop with a built-in microphone, and with the help of audio recording software (in this case, Audacity, 'a free, cross-platform sound editor'). The recording was subsequently transcribed by an undergraduate research assistant using similar multipurpose recording/playback software. The resulting transcript was analyzed and marked up not using any particular formal system or software, but with an eye to identifying the various narrative stages and dynamics.

As is often the situation in narrative interview research, the inquiry described here represents a kind of case study (e.g. Riessman, 2001, p. 697), focusing on a single narrative rather than on multiple narrators or accounts. Lisa's story effectively provides a 'case' that can be documented and analyzed. Both the case approach and narrative research generally direct the researcher's attention to the particular, situated and concrete. This particularity is recognized in a sense as being valuable for research on its own. The narrative and the 'case' are valuable in inquiry not so much because their particularities can ultimately be generalized to cases deemed similar to 'prove' something about them as a category. Instead, they are valuable simply because they can help researchers and practitioners learn more about the phenomenon in question. To quote psychologist Hans Eysenck, 'Sometimes we simply have to keep our eyes open and look carefully at individual cases – not in

the hope of proving anything but rather in the hope of [simply] learning something' (as cited in Flyvbjerg, 2001, p. 73).

At the same time, the term 'case' on its own implies a kind of comparison. The term itself is commonly defined as an 'instance or example of the occurrence or existence of a thing' (*Oxford English Dictionary*, 2007). A case, as Robert Stake says, refers to 'one among others' (2005, p. 445). Any one case, then, will by definition have something to say about others of its kind. As will be made clear in the conclusion of this article, the particular case described here has something to say about other instructors, technologies, classes and narrative accounts of their evolution. In this sense, the challenge for this case study, like such research generally, as Stake explains, is to connect the complexities of 'ordinary practice in natural habitats to a few abstractions and concerns' (such as questions of change in educational practice). 'This broader purview', Stake continues, should be 'applied to the single case, leaving it [the case] as the focus, yet [questions of] generalization and proof ... linger in the mind of the researcher. A tension exists' (Stake, 2005, p. 448). It is in this tension between the single case and the more general class to which it belongs that the work of the case researcher is, in a sense, suspended. It is this tension, moreover, that this article attempts to sustain, both in presenting the particularities of the case, and in interpreting its more general significance.

Lisa's Narrative

The 'active', 'in-depth' or the 'qualitative' interview methods described above were used to elicit an account of an e-learning innovation in Lisa's ESL classroom. The interview began with an unrecorded and loosely-scripted discussion during which the extended and informal nature of the intended interview itself was described. As the interviewer, I also indicated my own specific interest in the incident that Lisa had mentioned informally in an earlier conversation and that I was hoping to find out more about it through this interview. (Note that although Lisa was informed of the narrative nature of the interview and of the research associated with it, she was not prompted to fit her responses into any kind of explicit narrative framework.) My intention, in short, was to continue conversations that I had held with her earlier; and the record of the interview itself begins with my question: 'So tell me, what was the course?'

Lisa responded not simply by identifying the course, but also, by articulating her goals as the teacher of the course:

> Level three is paragraph composition, basically. And [it is also an] introduction to what essay structure is. So it's a lot of sentence structure, a lot of grammar, a lot of writing, drafts, outlines, and working through rewrites and revisions. My focus as a writing teacher has always been just the writing process, not necessarily all the grammar and mechanics – they're important – but I really like to focus on the writing process and to teach the students that the bottom line is that the writing process never ends and you should always be looking at what [you write] as a work in progress.

This initial response, despite its relative brevity, illustrates a number of important characteristics of personal narratives and their analysis. First, Lisa can be understood as articulating a particular, situated knowledge arising from her actions and experience in an ESL writing classroom. To use Clandinin & Connelly's (2000) term, this knowledge is expressed in terms of a 'personal curriculum' that Lisa, as a teacher of the course in question, espouses. She describes the course in terms of her own 'focus as a writing teacher' and in terms of an emphasis on writing as an ongoing 'work in progress'. Lisa's words are also expressive of what, in narrative terms, is referred to as 'voice' – a particular person speaking with her own words and from her own particular perspective. 'Voice', as Chase explains, 'draws our attention to what the narrator communicates and how he or she communicates it as well as to the subject positions or social locations from which he or she speaks' (Chase, 2005, p. 657). Of course, in articulating her narrative, Lisa speaks with a 'voice' or articulates a position as an individual that is closely related to her professional identity as an ESL teacher. It is from this position that she affirms her pedagogical priorities. It is also from the position and identity of an ESL teacher – and its particular history and concerns – that she continues to articulate her story.

Lisa goes on to explain that in the course, students 'would look at each other's work and peer review each other's work, hand it in to me and I would have a look at it and hand it back. It was quite the cycle of reworkings'. In these and in the passage quoted above, Lisa is also effectively providing the listener with the first element of plot: she *orients* the listener, providing information related to her story's *setting, background* or *situation*. The setting, in this case, is a (presumably) conventional ESL classroom and course, with an emphasis on writing as an ongoing process.

But soon after Lisa orients the listener or reader to the setting of her story, a complication or 'breach in canonicity' arises. As Lisa explains, this particular class had been arranged to take place, through random chance, in a computer lab rather than in a regular classroom. This presented a disruption in the 'canonical script' that had guided the way that Lisa had taught this ESL course. As Lisa explains, the course had 'traditionally' been taught as 'a pencil and paper type of writing course. It was all pencil and paper and handwriting'. It is the presence of the computer and Internet technologies, then, that represents a complication or breach in this canonical classroom setting and correspondingly, in Lisa's narrative.

As Lisa's account goes on to make clear, the problems arising from this complication were significant to her as a teacher: 'Students weren't listening; students were being distracted by the computers. They were turning them on and 'MSNing ... [M]any of them [wore] glasses, so [I] could see a blue glow in the[ir] lenses!' This presented a serious pedagogical problem that needed to be addressed: 'So I was saying okay, how long is this going to go on, because this is ridiculous too, I mean, I can't keep doing this'. The presence of computer and Internet technologies represents a kind of crisis in the plot of Lisa's story. It 'complicates or disrupts the otherwise predictable evolution of the original situation' (Sheehan & Rhode, 1999, p. 338) of a paper-and-pencil ESL writing course.

Lisa's account soon presents a turning point, however, as she describes how, in the context of a graduate-level course in e-learning that she herself was taking at the time, she learned of web-logs or blogs and of their educational potential:

> Then I started [learning] about the concept of blogs and using them as a writing source and using technology somehow. So I got to thinking well okay ... many things: [My ESL students] love the computers, they want to use the computers, in the future and in their academic courses they're going to have to come up with typed, computer-generated writing samples and so scaffolding them into that type of computer use and getting them online with Word might help them. It would help me read their writing because they could edit them easily or if they've got them on a memory stick then it would keep their hands on the computers with my rules.

The computer and Internet technology that initially presented a challenge now present a pedagogical opportunity. Lisa articulates this in terms of a wide range of factors, which include: (1) her own identity, subject position, or 'personal curriculum' as a teacher (she wants to her students to be engaged but also wants 'her rules' to be respected); (2) her priorities in the curriculum writing course (she wants to provide her students with meaningful learning tasks involving computer-generated writing, knowing that they will later have to 'come up with typed, computer-generated writing samples' of their own), and (3) her student's own preferences (she recognizes that students 'want to use the computers', and that they would be grateful if they were allowed to do so).

In narrative terms, the problem, crisis, or conflict appears to be moving towards a kind of solution or resolution. Lisa explains how this unfolded through the creation of a public blog for the class as a whole:

> We all had a class blog which was this one blog that everybody wrote to, so that was a challenge. ... Everybody signed their first names to their work. I had them go in and look at each other's work and make comments. They commented on content and grammar mistakes and anything like that and they did that very well. Sometimes it was just social things about ice cream parties and things, you know, so they'd be, *hey you did that on the weekend, why don't we get together next time*, or something.

To paraphrase, Lisa responded to the crisis presented by technology in her classroom by integrating a single class blog and by integrating it with the particular writing assignments that were a critical part of the way she taught the course. She provided specific ways in which students could identify

themselves in their postings on this blog and encouraged them to make constructive comments on others' contributions.

With her description of her students' active contribution to the course blog, Lisa's story moves towards its 'dénouement', 'conclusion' or 'result' – in which its 'complication' or 'action' is resolved, ending either 'in success or failure'. In the case of Lisa's story, the conclusion can be deemed a success. This is indicated not only by her description, above, of the way that the students actually utilized her class blog; it is also indicated by Lisa's reflections on the ultimate results of adapting technology in this way to the writing classroom.

> It got me connected with them in another way, as well, as I was reading [their postings] and making comments to them. I don't know, it just changed the level of the class as far as, well, I noticed an attitude change in them from the very beginning of the course to the very end of the course and the way they felt about themselves as writers ... The community that this created, that was one of the key things, was that people were helping each other, loaning paper out to print things off ... staying back and helping each other, and being late for next classes together so that they could get through it and get something printed off; if there was a challenge, helping each other cut and paste, helping each other get pictures when they wanted some.

These kinds of reflections can be understood as corresponding to a narrative's evaluation – in which commentary is provided on 'the meaning or consequences of the crisis or complicating action'. It is worth noting that Lisa does not speak of the resolution of the technological complication in terms of measured student outcomes – the final success or failure of students in the course. Instead, she reflects on changes in the identity of her students and her relationship to them. It is their 'attitude', their work as a 'community' and 'the way they felt about themselves as writers', that are of primary importance in terms of her teaching and use of technology. The principal contribution of technology in this course is what it led to in terms of her student's work together, their motivation and their desire to write and to help one another.

In this sense, the kind of knowledge or lessons that can be derived from this particular narrative for research and practice in e-learning are situated, practical, and in some ways, personal in nature. Lisa's story can be said to inform e-learning research by providing valuable knowledge about the use of computer and Internet technology in the case of her classroom and others like it. To use more logico-scientific language, Lisa's narrative suggests that the careful integration of blogs into a writing-intensive course can result in increased student participation, and also in new forms of student participation, such as peer comments on writing, and informal, extracurricular writing in the target language of instruction.

Lisa's narrative also suggests that the use of blogs and related technologies (Word processing programs and computer hardware more generally) can be adapted in such a way as to complement and support her particular priorities as an ESL writing instructor: These technologies actually allowed the students to carry out the tasks of writing, rewriting and checking not through the circulation of handwritten assignment sheets, but as online postings which all students (and also the larger public) could view and comment on. It is important to emphasize that this way of using blog technologies is not necessarily typical or representative of blog use generally. The comments made in response to blog postings typically focus on the substance of those postings, rather than providing advice or corrections for their form and grammar. In this sense (and possibly in others as well), Lisa's use of blogging and other technologies represents an active adaptation, appropriation or even redefinition of these technologies and their intended function, rather than conformity to what may have been their original purpose or design.

The situational particularity of this and other kinds of knowledge gained from this story is further heightened by Lisa's description of how her use of blogging in her ESL classroom has since changed and continues to change. And it is not surprising that her description of these changes is articulated in terms of how it affects both her as a teacher and her students communally:

> This year I did it different so everyone has their own blog. It's very different now, but community-wise they went through that one blog and that's where everybody was, so they could look at each other's postings.

A similar emphasis is evident in what can be interpreted as the *coda* of Lisa's narrative. In bringing her account into connection with the present and drawing it to its final conclusion, Lisa explains

that although her course is no longer assigned to a computer lab, she has deliberately sought out such a lab environment, at least periodically, for her new students to use:

> I booked a computer lab one afternoon just as a bit of a break to have them look at their blogs and work on the final draft, and just to get them into a different environment. It was interesting ... I was walking around, and they were so on task that all you could hear was keyboards. They were just –. I just stood there and watched them work, really.

This coda in Lisa's first-person narrative brings the narrative account to a conclusion and relates it to her present moment by again emphasizing her ongoing concern with her students' attitudes and their engagement in their writing tasks. At the same time, by indicating how she now integrates technology in her writing classroom, Lisa's description also shows that computer and Internet technology is part of a larger dynamic in her class. Now that she is no longer teaching in a computer lab, she visits one such lab with her class simply 'as a bit of a break ... just to get them into a different environment'. Computers and access to the Internet are valuable for a number of reasons, but at the same time, continuous access to them in the writing classroom has not become a necessary precondition for Lisa to be able to comfortably meet her own expectations for herself as a teacher.

Conclusion: stories of change in e-learning research

As mentioned earlier, the story of Lisa's use of weblogs is retold and analyzed here not so much in the hope of 'proving' or establishing any generalizable truths about computer or Internet technologies. Instead, to refer again to Eysenck's comment about learning from case studies, the particular 'case' constituted by Lisa's narrative has been presented in the hope of *learning* something about these technologies, about their educational contextualization, and to compare this knowledge with the ways that technology and its educational contextualization is already understood in the research. Of course, there are many potential lessons to be learned from the case presented by Lisa's adaptation of technology: As a case study in the integration of technology into classroom settings, Lisa's narrative illustrates the value of blogs for presenting writing collectively in the class and also to a wider, public audience. As a case study, this account also provides evidence of the potential of blogs and other relatively new kinds of 'social software' for fostering communication and cohesion among a class of students. Additionally, it indicates the *ambivalence* of computer and Internet technology in a classroom setting, in the sense that these technologies, at least at the beginning of Lisa's story, have the potential to serve either as an enormous help or hindrance to both students and teacher. This multiplicity of lessons is consistent with the interpretive, hermeneutic nature of narrative generally: Narratives support not one but multiple interpretations and reward repeated interpretation and analysis.

One lesson that will be given special attention in this article's conclusion relates back to Bruner's distinction between narrative and logico-scientific epistemologies or ways of knowing. Lisa's story, of course, provides a way of understanding change and transformation associated with educational use of computer and Internet technologies in explicitly *narrative* terms. As such, Lisa's narrative can be compared to 'accounts' developed from more logico-scientific perspectives – those emphasizing the importance of causality, of testability and of generalizable 'truth'. A common example of this kind of research in e-learning is found in experimentally-designed 'media comparison studies'. In such studies, a new medium or technology – such as online course components or laptop computers (see Johnson, 2002; TCER, 2007) – is introduced into an otherwise conventional educational setting in order to isolate and measure the 'impact' of these technologies, specifically on student achievement. As was explained, studies designed and implemented in this way are seen as sufficiently important and widespread in e-learning to be themselves the subject of critical and synthesizing research (e.g. Kember, 2003; Zhao, 2005; Lou et al, 2006) and ongoing controversy (e.g. Oblinger & Hawkins, 2006).

In both types of accounts –Lisa's narrative and the logico-scientific media comparison study – one could argue that computer and Internet technologies play a leading, catalytic role. In Lisa's story, the unexpected or initially uninvited presence of these technologies in the normally non-technological setting of an ESL classroom presents an initial 'breach in canonicity'. In media comparison studies, technology is introduced as a clearly defined and isolated experimental

'treatment' or 'intervention' in classrooms that are seen as being otherwise free of conspicuous technologies.

In both kinds of research accounts, the introduction of technology presents a kind of 'crisis' condition which drives the literal or figurative story towards its resolution or outcome. But significant differences between these accounts appear in terms of the resolution and evaluation that follow this crisis. Lisa responds to the challenge presented by technology by considering its manifold possibilities and by negotiating and working towards its effective use in the classroom. This takes place first over a matter of weeks and later, over a number of semesters.

Logico-scientific accounts in which technology is introduced in the form of an isolated experimental treatment – often for a single semester or a shorter period of time – have produced rather different results. As mentioned in the introduction, these studies have gained notoriety for the particular finding of 'no significant difference' that they have produced through many and varied iterations. This final result is associated with what has come to be known as the 'no significant difference phenomenon'. This phrase, of course, refers to hundreds of media comparison studies that have attempted to measure student achievement and that report that the introduction of technology or media did *not* make a statistically significant difference in terms of this metric.

Again using narrative terms, the divergence of logico-scientific accounts and Lisa's narrative can be understood in terms of the assigned roles and conceptualizations of both teacher and technology. In Lisa's narrative, she is both the narrator and also the protagonist. Although the availability of computer technology creates a crisis in her story, it is ultimately Lisa herself who drives the action of the story forward and who is implicated in its outcome: she is motivated by her priorities and principles as a teacher, and she is responsive to her classroom circumstances and her students' needs and preferences. As a result, it is also Lisa who consciously decides on a course of action that addresses all of these factors. In quasi-experimental media comparison accounts, the only 'figurative' protagonist is the technology: It is the introduction of technology as an experimental variable that is seen as causing change or driving the figurative 'action' of these accounts forward. And it is technology that is expected, single-handedly, to determine the resolution of what has been set in motion – in terms of statistically significant improvements in student outcomes. Actions of individual teachers, students and others who might contribute in one way or another to the final outcome in these accounts are not so much marginalized or overlooked as they are deliberately and systematically excluded. This is evident in the manner in which 'media comparison studies' identify and attempt to control what are called 'confounding variables'. Examples of such confounding variables would include the priorities and acts of individual agency or initiative on the part of teachers that are not anticipated in the experimental design itself. Teachers' and students' unforeseen adaptations of the technology to their priorities, abilities and interests could also fall into this category; ideally, they would also be controlled or kept to a minimum. All of this is done in the name of reliability and generalizability, in order that such logico-scientific accounts can be compared to and even combined with other, similar accounts in the form of 'meta-analyses'. The end result is ultimately envisaged as A single, common body of research or 'knowledge' that should accumulate over time, leading to ever more firmly-established truth about the impact of technology in the classroom, and in learning overall.

This combined, accumulated knowledge of multiple logico-scientific accounts can itself be understood in narrative terms. The narrative vocabulary for such an understanding is provided by French philosopher Jean-François Lyotard, who developed the notion of the 'metanarrative' (Lyotard, 1984). As the name suggests, a meta-narrative represents the integration of a number of lesser accounts or stories into a cumulative narrative whole. As indicated briefly in the outset of this article, the 'meta' or 'master' narrative corresponds to grand, overarching stories or accounts that entire societies and cultures can be said to 'tell' themselves, or to generate and reproduce. According to Lyotard, metanarratives are an integral part of the 'legitimation' or internal justification of a society and culture; they represent an attempt to explain or account for a universal collective enterprise in all of its parts, or as a single whole or 'totality':

> metanarratives are understood as totalizing stories about history and the goals of the human race
> that ground and legitimize knowledges and cultural practices. The two metanarratives that
> Lyotard sees as having been most important in the past are (1) history as progressing towards

social enlightenment and emancipation, and (2) knowledge as progressing towards totalization. (Woodward, 2006)

The progression of scientific and technical knowledge to eventually form a complete and all-encompassing whole can be said to be one of the figurative 'stories' that researchers, students and other members of society tell themselves and others as a means of explaining and justifying their own goals and activities. In the context of such an all-explaining and all-justifying metanarrative of technical and historical progress, individual scientific accounts of various kinds – including those of quasi-experimental analyses of the effects of technologies on student outcomes – can be seen to represent figurative sub-plots or secondary developments. They contribute to a body of scientific knowledge that is itself striving to become more complete or total, working to complement and reinforce the progression and development that is central to the overarching metanarrative.

The specific result of the 'no significant difference phenomenon' produced repeatedly by media comparison studies, however, renders the relation between such studies and the larger totalizing metanarratives of progress and enlightenment problematic: In repeatedly arriving at the same conclusion, especially one that shows that technology does not lead to improvement and progress, these studies make the accumulation of knowledge seem circular rather than cumulative or progressive. This is registered in many of the varying and contradictory contemporary interpretations of the 'no significant difference phenomenon' result in e-learning: Some indicate that this repeated result is associated with a lack of rigor in e-learning research, thereby making such studies unusable for decision making in policy and practice (e.g. Ungerlieder & Burns, 2002; Lou et al, 2006). Others insist that the result of 'no significant difference' *does* contribute to metanarratives of progress, simply because it indicates that technology is not *detrimental* to educational development and improvement and that it may be less expensive than more labor-intensive forms of amelioration (Russell, 1999). Still others say that the 'no significant difference phenomenon' result and the kind of research associated with it is too narrow in its focus and needs to be complemented with other research methods and emphases (e.g. Oblinger & Hawkins, 2006).

In this context, Lisa's story is significant, because it stands as an example of a type of narrative that Lyotard invokes in diametric opposition to the single monolithic metanarrative of historical progress. This narrative type has been labeled *micro narratives* or *mini narratives*. These are stories which are 'provisional, contingent, temporary, and relative' (Barry, 2002, p. 87), and they are referred to in the *plural* because multiple, provisional stories of these kinds are seen as existing simultaneously and as being closely interwoven, rather than being subsumed to a single narrative or account. Such micro-narratives, like Lisa's and possibly like many other teacher-narratives or 'personal curricula', are local and situated rather than universal and absolute.

But to suggest that examples of educational research can be understood as micro narratives is not simply to affirm or celebrate plurality or idiosyncrasy for its own sake. To emphasize the potential of micro-narratives is instead to recognize that these narrative forms present a mode of understanding and inquiry that possesses its own 'criteria' and 'operating principles' and that may be more sensitive or better attuned to the heterogeneous and local nature of classroom teaching and learning. To understand educational research in this way is also to regard it in a manner consistent with Lyotard's own description of our current historical situation, which he famously defines as a 'postmodern condition':

> Simplifying to the extreme, I define [the] postmodern as incredulity towards metanarratives ...
> The [meta]narrative function is losing its functions, its great hero, its great dangers, its great
> voyages, its great goal. It is being dispersed in clouds of narrative language elements ... Each of us
> lives at the intersection of many of these. (Lyotard, 1984, p. xxiv)

Lyotard is in some sense describing here a way in which e-learning research itself can be understood: Given the difficulties of providing answers and findings concerning technology and education that are consistent with the 'grand narratives' of historical and technical progress, e-learning research can instead be considered as providing a multiplicity of intersecting, interwoven micro-narratives. These multiple, intersecting narratives and narrative elements bring different perspectives on and accounts of the significance of technology in education.

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