Looking for black cats and lessons from Charlie: exploring the potential of public click pedagogy

Chris Bigum

Griffith Institute for Educational Research, Griffith University, cbigum@gmail.com

Leonie Rowan

Griffith Institute for Educational Research, Griffith University, cbigum@gmail.com

Mary Hamilton

Department of Educational Research, Lancaster University, m.hamilton@lancaster.ac.uk

Steve Wright

Department of Educational Research, Lancaster University, s.t.wright@lancaster.ac.uk

Ailsa Haxell

School of Interprofessional Health Studies, Faculty of Health and Environmental Sciences, Auckland University of Technology, <u>ailsa.haxell@aut.ac.nz</u>

Abstract

This paper is about a slow hunch. A hunch that a modest interference in networked learning, that we have called *public click pedagogy* (PCP), may, in some instances, usefully open up a side of networked learning that is often glossed. Learning new material, developing new skills, making new discoveries can be complicated, and messy. Few of us go from inexperienced to skilled or novice to master in anything like a simple, tidy or routine manner. We often learn more from our mistakes than our successes. We sometimes find ourselves in blind alleys or chasing down rabbit holes that appear to take us nowhere.

What learners *actually* do when they try to come to terms with a new domain via formal or informal means, tends to be *secret learner business*. What is commonly made visible is how successful they are in coming to terms with the domain, something which is judged by people who have demonstrated knowledge and expertise in the domain. Our hunch is that a modest exploration of secret learner business by *making public* the fuzzy, pragmatic and messy business of learning may work as a useful complement to those elements of learning already made public. The label PCP draws attention to three characteristics of this work: that it is made public, that 'aha' or click moments which in a glossed account masquerade as the product of acute insight are traced carefully, and that accounts of these practices may operate pedagogically, for the learner, and perhaps, other learners.

To explore the *doing* of networked learning we draw parallels with the *doing* of science as it has been studied by scholars in the field of science, technology, and society (STS). Looking at how scientists actually *do* science, STS scholars came to see that accounts of science as products of the scientific method glossed the messiness, noncoherence and fuzziness of what went on in the laboratory. To Bruno Latour, in the early days of STS, science was Janus-like, with two contradictory faces: science in the making and ready made science. More recently, John Law with others have extended this line of argument to examine the performativity of noncoherence.

Drawing on this work, we examine three empirical cases, one of which is the preparation of this paper. We trace the negotiation of the ideas and arguments, our learning in the making, and the noncoherences which we partially domesticate through dialogue.

Keywords

Public click pedagogy, actor-network theory, learning in the making, ready made learning.

R N (Red Notebook)

- no. mad dogs. Azores. although kept in numbers. p. 124. Webster Consult W. Parish & Azara about dry season[.] 1791. seen commonly bad over whole world. {(Was it so in Sydney, consult History? Phillips.} 1826.27.28 get. drought at sydney. which caused Capt. Sturt expedition.— Another one in 1816 (?). (Darwin & Herbert, 1980, p. 63)
- wide limits of Waders: Ascension. Keeling: at sea so commonly seen. at long distances; generally arrives first:—

 New Zealand rats offering in the history of rats, in the antipodes a parallel case.—

 Should urge that extinct Llama owed its death not to change of circumstances; reversed argument. knowing it to de a desert.— Tempted to believe animals created for a definite time:—not extinguished by change of circumstances: (Darwin & Herbert, 1980, p. 66)

These are two excerpts from the *Red Notebook* of Charles Darwin. His notebooks are commonly enacted (Mol, 2002) as the records of a scientist puzzling across a large range of natural phenomena, including geology, paleontology and biology. In this paper, we enact them as a trace of Darwin *learning*, an inscription that records his points of puzzling, his theoretical speculations, one of his logs of observations. It is not our purpose here to revisit the scholarly work that has carefully organised the artifacts that Darwin left as a basis for reconstructing the steps he took to arrive at a theory of what we now call evolution (Darwin, 1859), rather, we are interested in his notes.

When you read the *Red Notebook*, wonderfully annotated and edited by Sandra Herbert, you get a glimpse into the range of his interests, his grasp of the work of others in the many fields in which he was engaged. What also strikes you is the messiness of and a kind of jumpiness in the notes. In the second excerpt, for example, we skip from waders to rats to extinct Llamas in a few lines. Scholars of Darwin are better placed to write about the transformation of notes, diagrams, samples into the text that appears in his *On the Origin of the Species*, but, in these notes we have a trace of his musings, the ideas that came to the fore when prompted by his observations, the peripatetic manner of his recorded thoughts.

What Darwin did, is of course not unusual for scientists, nor for most writers and scholars. Keeping notebooks or journals is common for most scholars, researchers and many students. What is interesting to us about Darwin's work is that it has been made available online. It is *public*.

Mary: I agree that this is fantastic resource - but only *after* the tidied up version was released, circulated and accepted. The timing is an important factor, isn't it?

Chris: It is. We are using what is clearly an *ideal* case here to think about the value of making things like notebooks public. The notebooks allow us to get a little closer to Darwin learning. We have an inscription of learning that is now public. We can examine the inscription. We can follow the articulations other scholars have made from these notes but not the notes they worked on as they made their articulations. Through their work, we can, in a sense, peer over Darwin's shoulder, working in his various laboratories, and trace his accumulation of other inscriptions, samples and artifacts. One of the end products of this is, of course, the production of papers and books (Latour & Woolgar, 1979).

When you juxtapose Darwin's collection of inscriptions, samples and artifacts with his finished work you have an instance of the distinction Latour (1987, p. 4) makes between *ready made science* and *science in the making*. We have just, in a single sentence, collapsed a long and detailed argument made by Latour in a two hundred and seventy page book. Latour uses the two-faced Roman god Janus to represent ready made science, a bearded face looking to the past and a non-bearded face, science in the making, looking to the future. Ready made science is, in Latour's (1987, p.4) words, "certain, cold, unproblematic black boxes". He argues that if you make a flashback to the recent past, these black boxes appear as uncertainty, open controversies, science in the making. Further, he advises that we need to get used to "a strange acoustic phenomenon. The two faces of Janus talk at once and they say entirely different things that we should not confuse" (p. 7). There is a both/and quality then to doing science. We want to make an argument that a similar two-facedness might usefully be applied to learning.

Steve: So if I understand you here, you're arguing that there's a similarity between the messy practices of science and how these are then cleaned up in the *ex post facto* accounts of those practices, and the messy practices and jumps of learning and the final reports of that submitted for assessment (as assignments in formal learning for example) or review (for papers like this one for a conference or journal)?

Chris: Yes.

Steve: So how does this relate to networked learning?

Mary: I think the argument has clear benefits for researchers and designers of networked learning but also for learners themselves who can be amazed to discover the extent of drafting and redrafting that goes into other peoples' published papers.

Chris: There is also Schaverien and Alexander's (2008) argument (my emphasis):

The emergent field of networked learning depends for its survival, at least at two levels, on the development of robust learning theory. First, if networked environments are to succeed in supporting learning, there is a need for principled learning design. Second and much less widely recognised, *research itself is a paradigm case of learning*.

Leonie: So, if learning and researching are terms that are entwined, that is in conducting research the researcher learns new things and in learning something new, the learner is for all intents and purposes, researching. Then there is an even greater importance in looking at the links between the two.

Ailsa: And, I would add into this mix that such learning and researching also points to knowledge itself as a network effect and therefore be subject to contention, something we will examine further in the next section.

Where is Paris?

In pre-Internet days and in the early years of our schooling, some of us were taught how to use an atlas. We practised drawing maps of countries and continents, colouring them in and locating important features on them. These were practices associated with doing school Geography. We learned how to locate Paris on a map. A great deal of the chains of association that allow a representation of Paris as a black filled in circle in a coloured space on a map of a region called Europe which bears, in large letters, the word France were hidden.

For the learner facing the task of locating Paris, there is relief, I have found Paris! I can locate it on a map. For the learner, the reduction of uncertainty about how to locate Paris on a map can be thought about as ready made learning. For the moment, learning appears settled, but, as Wittgenstein (1969, p. 21) reminds us,

When we first begin to believe something, what we believe is not a simple proposition, it is a whole system of propositions. (Light dawns gradually over the whole.)

Our imagined learner might be prompted to think about, for example, why the city was located where it is, how it came to be called Paris, why is it the capital of France and so on. As Latour (1987, p. 131) argues in his account of science in action, the chains of association that support a fact being turned into a black box can be traced back to the assembling of sets of inscriptions, back further to laboratory notebooks and so on. What is important to note about the face of Janus we saw most in those pre-Internet days was that it was largely of ready made learning. The materiality of learning, of school atlases, texts and perhaps globes provided a limited set of resources for teachers and students to follow the chains of association linked with Paris.

Fast forward to today and the task of locating Paris can be done using classic Google Maps. An initial search for the word Paris generates these suggestions:

Paris

Paris, France

Paris Street, West End, Queensland

Parish Road, Caboolture, Queensland

Paris-Charles de Gaulle Airport, Roissy-en-France, France

Paris-Orly Airport, Orly, France

The algorithm locates Paris-like locations in Australia, where some of us reside, as well as Paris and Parisrelated locations in France. Further investigation of Paris via Wikipedia, indicates that there are actually fourteen other locations with the name in the USA. A search of other countries locates a village called Paris in Russia. Some of these locations may have been marked in more detailed atlases in our pre-Internet scenario. The databases and search algorithms available to users of the Net significantly multiplies the chains of association that can be followed. Thomas and Brown (2011, p. 92) make a similar point in their account of a new culture of learning:

In 2006, a survey conducted by Roper Public Affairs for the National Geographic Society found that 63% of Americans aged 18 to 24 could not find Iraq on a map of the Middle East. Robert Pastor, a professor of international relations at American University, described the problem as "geographic illiteracy". Two years later, one of us replicated the survey with a smaller sample and a slight variation.

Doug recruited 18 undergraduate students, also between the ages of 18 and 24. But instead of providing a map, he sat them down in front of a computer and said, "Find Iraq." One hundred per cent of the students were able to do so--and more. They asked, "Street view or aerial?" Do you want to focus on any particular region or the whole country?" Should I turn the satellite imaging on or do you want it in map form?"

The Janus-like faces of learning: just get the facts straight (where is Iraq on a map?)—get rid of all the useless facts (what view of Iraq do you want?) speak at the same time as Latour (1987, p. 7) notes.

Mary: And whose view?

Ailsa: A really good question Mary. The colloquial description of how some of the authors of this paper come from "down-under" points to how knowledge is itself stabilized and contested. Despite our understanding of the world being situated within a universe with no top nor bottom, knowledge becomes stabilized, and other knowledge(s) marginalized. Compartmentalizing of such knowledges leads me to further examples of whose knowledge matters, do I write such words with s or with z's?

Mary: Coming from minutely visualised land of maps I remember the shock of seeing a map of an only partially mapped country for the first time (Nicaragua). The blank spaces begged so many questions. This was also a military map which are often full of concealed and restricted spaces.

Leonie: Steven Johnson (2010a), whose work on Darwin we have drawn on, spoke of giving a presentation to the American intelligence community in Washington DC about his then, new book (Johnson, 2010b). He explained that they phoned him to say they'd have to send a special car to pick him up because the building in which he was speaking was not visible on Google maps.

Steve: So one of the things we're trying to do here is to show the construction of this paper and the messiness that led to it which would conventionally be written out?

Chris: Yes. This is the Darwin's notebooks part of the argument. The second part is simply to point to the resources a Darwin would now have available via the Net and that the new practices they allow. We have traced, on a wiki, the messiness of the production of this paper. Even here, choices have been made as to what to record, as you do in a notebook. At this point we hope we have developed a modest exploration of our hunch, that there may be some value in making public the learning that takes place as a novel domain is explored. We are not suggesting that this way of working is for *all* learners/researchers but that, as a *small experiment*, it is worth considering.

Steve: So where did this come from then?

Beginnings

All ideas have origins. Our thinking about this hunch began when we came across Steven Johnson's (2010b) study of innovation. While his book is replete with rich accounts of learning in the making, it was his account of the writing of the book that caught our attention. He made public the path he followed, the things that piqued his curiosity, the questions he asked in his blog and in his the gave to Authors@Google. He shared not only the steps along the way to producing the book but his mistakes and what he learned from them.

Johnson's account resembles accounts produced by STS scholars. What struck him, and became what he terms a *slow hunch* for him, was the widespread desire to tell stories of innovation that were simple, tidy and attributed the break through to an 'aha' moment by a solitary genius. In a manner similar to Latour's (1988) retelling the story of the work of Pasteur, Johnson's exploration of a large number of stories of innovations traces the fuzziness of innovation, the formation of networks, the recruitment of allies, human and non human albeit not in ANT terms. What then of this *bias to purity* as Law et al. (2014) describe it? Why is it that the fuzzy and noncoherent is enacted as coherent, of a single logic, one which efficiently and tidily accounts for what has

taken place. We see an instance of such a tidying in Darwin's account of how the theory of the origin of the species came to him. His eureka moment was reading a book by Malthus on population (Johnson, 2010b, p. 78).

The elegant, tidy account of how the breakthrough happened survived till the 1970s when Howard Gruber (1981) examined Darwin's notebooks. It was clear from Gruber's work that Darwin had put the pieces of the theory together over a year before. More interestingly, the day after his aha moment, it is as if nothing of note has taken place. What now appears to have been a long, slow and at times fuzzy move towards his account of the origin of species was collapsed to a single *click* moment. Science in the making is given voice by Gruber after ready made science had been speaking for over one hundred years.

Steve: What strikes me in looking at Darwin is everything that is written out - Alfred Russell Wallace for a start!

Leonie: If I can interrupt briefly, what is intriguing is that in Johnson's account, Wallace also attributes his breakthrough to reading Malthus.

Steve: That is interesting. The availability of his notebooks helps us see that these ideas were around earlier and were constructed in connection and competition with others. The Wikipedia 'talk' pages re the death and legacy of Charles Darwin indicate a more complex and tentative account of the process leading up to the publication of the book. The generally accepted account elides the complexity, the theory becomes a singular product of the genius mind, removing the "collective construction of scientific genius" (Mukerji, 1996). I see strong parallels with this in the way that Fox (1997) explores the tensions and differences between "traditional cognitive theory" which informs so much education, contrasted with "situated learning theory" where the learner is always in a sociomaterial network and knowledge and ideas emerge and reconfigure those networks rather than being isolated from them. So where should we be looking at learning and developing theories of it then?

Mary: Though we are aware that the learner is always part of a sociomaterial network even in this discussion we tend to focus on the individual and the individual quest for enlightenment – whether it is opening a window onto the 'great' mind or the 'novice' mind. Perhaps recovering the secret learning of the network is an even bigger challenge?

Leonie: That brings Clough's (2000) notion of the 'technological unconscious', to mind. It seems to me Mary that we are probing something that gestures to the kind of agenda Thrift (2004) has begun to develop around different kinds of materiality. Thinking about learning as a mattering (Edwards, 2011; Mulcahy, 2011), something that is always both social and material is at the nub of what we are discussing. I'd like to come back to Steve's question about where to look and add the additional question of *who* is doing the looking. **Chris**: There has been interest in the work of Antoine Hennion (2007) in this symposium (Wright, 2014). Hennion, like Steve and Mol (2008) is interested in taste. What I think is important about taste which Hennion and Guggenheim (2011) draw attention to is the difficulty in turning taste into inscriptions. It seems to me that learning might more usefully be thought about like taste, something that is not easily turned into inscriptions.

Hennion (2007, p. 112) uses the French version of the word *amateur* to describe "any lay-person engaged in a systematic activity, which makes them develop, in various degrees, their sensitivities or abilities in that domain". He goes on to argue (p. 108) that the primary sociologists of taste are the amateurs themselves. He argues that it is *not possible* for the exterior observer, the sociologist, to observe taste in the same way that the amateur does. So too we suggest that like amateurs of taste, learners own understandings of their learning and the practices they deploy to make sense of their learning require respectful attention (p. 98). So our interest in *learning in the making*, is in the practices of the primary sociologists of learning.

In making this case we are not suggesting that attending to what learners actually do is a new idea. What we are arguing is that there is now an opportunity to explore, in selected instances, the value of learners making public what learners do. We use the term learner in much the way Hennion deploys the term amateur, i.e. in its broadest sense: from amateur rock climbers coming to terms with a rock to climb (Hennion, 2007), to learning how to judge the taste of beer (Wright, 2014) to authors writing about how they approach a new topic (Ogle, 2013), to scientists puzzling about the origin of the species. The practices of making public what we do when we are said to learn brings to the fore the connections we make, the materials, the ideas we play with, the ones we discard, the ones we draw on, the mistakes, the blind alleys, misreadings and the moments when things seem to click into place. It is a different enactment of learning than the tidy accounts that, for example, a completed symposium paper offers.

Mary: One interest I have in this is to explore the learner's point of view and their (our?) motivations as they (we) make decisions about what to make public, where to censor. Another is to keep bringing us back to the material circumstances of learning, the physical detail of how learning is accomplished.

Chris: In this paper we have tried to do some of that. As amateurs exploring the practices which led to thinking about the notion of PCP we were conscious that the finished paper tidies away so much of what went on in its preparation. Here, I think it is useful, to return to the parallel we have made between doing science and doing learning to underline the very real sense of *not* knowing how to proceed. Stuart Firestein (2012) captures this well in his account of *ignorance*. He describes the doing of science in these terms:

"It is very difficult to find a black cat in a dark room," warns an old proverb. "Especially when there is no cat."

This strikes me as a particularly apt description of how science proceeds on a day-to-day basis. It is certainly more accurate than the more common metaphor of scientists patiently piecing together a giant puzzle. With a puzzle you see the manufacturer has guaranteed there is a solution (p. 1).

He makes light of the popular view of science as

the nearly 500-year-long systematic pursuit of knowledge that, over 14 or so generations, has uncovered more information about the universe and everything in it than all that was known in the first 5,000 years of recorded human history... That's all very nice, but I'm afraid it's mostly a tale woven by newspaper reports, television documentaries, and high school lesson plans. (p. 1).

Instead he argues, it's not all facts and rules but black cats in dark rooms. Quoting Andrew Wiles (who proved Fermat's last theorem), he writes:

It's groping and probing and poking, and some bumbling and bungling, and then a switch is discovered, often by accident, and the light is lit, and everyone says, "Oh, wow, so that's how it looks," and then it's off into the next dark room, looking for the next mysterious black feline (p. 1).

Working one's way through a series of dark rooms casts not knowing or ignorance less as a deficit and more as a resource, the next step in learning something new, doing research. Firestein (2012) writes of knowledgeable, perceptive and insightful ignorance. Making a similar argument, Schwartz (2008) writes of the importance of *productive stupidity*.

Ailsa: I appreciate this notion of productive stupidity. I hate the connotations of inadequacy associated with being ignorant or getting things wrong.

Chris: There was a lot of getting things wrong in the preparation of this paper. What we are trying to do is to dip into some of the practices associated with its writing, our writing in the making, as opposed to the finished version you are reading now, ready made writing. Making explicit some of the dialogue around the paper gestures to the emergence of the paper and our attempts to keep *open* questions and claims about PCP. **Mary**: Also some of the material circumstances of this dialogue warrant attention. Writing on screen is embodied: right now it sounds as if my house is about to blow away, I'm hungry, my neck aches, my feet are cold...

Leonie: Not to mention the noises of others in the house, the household chores offering a distraction from text wrangling, the warmth of a sunny day...

Attending to practices which produce things like this paper is, as ANT aficionados would recognise, one of the elements of an ANT sensibility (Law & Singleton, 2013). Being sensible to materiality, relationality, heterogeneity and process is what we are trying to do in exploring the notion of PCP. What is less obvious to us, in Guggenheim's (2011) words, is *how to speak truth to materials*, the materiality of learning.

Accounts of learning tend to closure: Ninety-five per cent of all thought is said to be unconscious (Lakoff & Johnson, 1999). We can't do much about that. Let's move on. Hennion (2007, p. 111), from a different position argues that, "Taste effectively depends on everything – another declension of the word 'attachment'." So too, we would argue for learning but we don't want such grand assertions to close things off. We want to argue for the merit, in some instances of listening to the second face of learning, learning in the making. We acknowledge

the impossibility of getting at a good deal of "everything", but want to suggest that exploring learning in the making, the practices, the materiality of the learner/amateur may open up useful *learning realities* that are commonly kept from view.

Steve: So a bit like looking at the talk pages on Wikipedia not just the article?

Mary: Yes!

From learning in public to public click pedagogy

Writing about one's learning is not a new idea. The read/write web provides a medium for representations that are no longer restricted by the cost and size of pieces of paper or other relatively expensive-to-duplicate media. There is evidence online of a growing interest in learning in public (Sisk-Hilton, 2009). Most of these accounts tend to be tidied, *ready made learning*. We are interested in practices that are closer to the messy entanglements of *learning in the making*. For instance, Michelle Cordy, in a <u>thirty second YouTube clip</u> draws a mind map for the book, *Coding Freedom* (Coleman, 2013). The clip is a sped up version of her drawing the map, referring to the book, using post-it notes, multi-coloured markers and so on. Maureen Ogle is an historian. She recently published a piece about the day-to-day work of a practising historian (Ogle, 2013). What is of interest is that her account of how she learns, of how she went about looking for black cats in dark rooms was made public. She included a <u>photo of her workspace</u> at the conclusion of her last project. It is an image of an office and desk. There is a computer, papers and books scattered across the desk and floor, files and post-it notes and so on.

Mary: I love that YouTube clip. I love Ogle link too. Taking photos like this is a part of research we have been doing on academics' writing practices. I have also invited online students to send photos/accounts of the physical spaces from which they access the online site or (often more interesting) for which they *can't* get online access. See also this <u>series of photographs from the Guardian</u> of writers' rooms

Leonie: The online accounts of learning in public are closer to ready made learning than learning in the making. They still simplify. They are unlike the notes in Darwin's notebook, the image of Ogle's office or the mind map sketchings of Cordy. Importantly, we see little account of the mistakes, of abandoned blind alleys, of what is removed along the way as enquiry proceeded. Often absent are the 'aha' or 'click' moments.

Steve: I have a real concern, and I think your acronym PCP is a useful one to draw on as an analogy. PCP also refers to Phencyclidine, colloquially known as angel dust. It is a recreational dissociative drug which may induce feelings of strength, power, and invulnerability. What you seem to advocate with public click pedagogy seems to me to be at least a little reliant on those feelings, you need the confidence and invulnerability not to worry about losing face and showing your mistakes. (I fear this could be one of those "great ideas" white middle-class people come up with without recognising their privileged position to expose such weakness, forgetting (as we so often do) our socio-economic dose of angel dust?

Chris: PCP, the notion we are exploring in this paper, like any different way of doing things, can, in ANT terms "do goods" and "bads" (Law et al., 2014), like PCP the drug. The last thing we would want to do is argue that PCP as a practice is, in and of itself a practice that will always do "goods". To me it is about doing small experiments, always with an eye to the point you made so well.

Mary: I think Steve has put his finger on an important point. Let's look at the different parties named here: "we have tried to argue that there is a useful resemblance between "the learner" and "the scientist" and the "scholar" (that's us?) peering into a dark room looking for signs of a black feline. Resemblance maybe, but doesn't it feel different to be identified with each of these groups? A commonplace of literacy studies is to explore the ways that writing is tied up with identity: whether feelings of strength, power, and invulnerability; or feelings of outsiderness, uncertainty, being misunderstood, unrecognised (see, for example, Le Ha, 2009). Anonymity, privacy offer a low risk space to transgress and trip up without consequences.

Leonie: I agree Mary. Writing for me seems to wobble between the two poles you describe.

Chris: The writing of this paper, for me, definitely moved between those two sets of identifications. What I remain curious about is whether PCP can be useful in some instances.

Mary: Is this modest project the dream of all teachers and scholars? Sometimes yes, I would be really curious to go the distance with someone. But other times I want to say "go away and work it out and tell me when you've got some clarity. I want your learning to be a torch for me not an invitation to stumble around with you in the dark" Students understand this and often hesitate to put un-formed ideas into public spaces, solidified as texts. **Leonie**: Yes. Writing about one's stumblings can often be useful. I think it is a question of whether making that public as we have tried to do in this paper serves a useful purpose

Mary: This point is also understood by people whose job it is to collect the raw testimony from witnesses and assemble them into a coherent public record of evidence (see, for example, Anthonissen, 2006). Typically, these

accounts are highly contextualised and implicit, do not follow narrative conventions, are full of hesitations, asides, contradictions, distancing, "small stories" whose point is hard to fathom by an outsider. As a listener, it is hard to stay with this kind of description of experience, however gripping it may be to the person recounting it. And because it is important that the experience of witnesses and survivors are listened to and taken seriously, these accounts are "tidied up" as they are written down for the public record.

Steve: Seems like some of the older work on the importance and potential of anonymity could be relevant here? All of which seems to have been so left behind by institutional VLEs and learner identification and social technologies

Chris: This is where attending to *particular* cases and, as much as one can, to "everything" (Hennion, 2007) is what is of interest.

Leonie: Our exploration of PCP poses many questions. This is reassuring if we take the advice of Firestein but it is nonetheless unnerving. We also acknowledge that this is not an easy thing to do. Nor, as we have suggested, is it something that is undertaken for *all* learning. It remains something of an experiment, a hunch, a probe that draws from a small number of emerging practices on the Net.

Ailsa: I think too it is important to acknowledge the significant history of pedagogy, how safe is it for a person to expose what is unpolished or incomplete? while reflective writing might be encouraged with students, how are the emotions of vulnerability making to be managed? With a nodding reference to Steve's comment on angel dust, my tangential thinking takes me to Star and Strauss's (1999) paper "Layers of silence, arenas of voice: The ecology of visible and invisible work". Invisibility and visibility are not so much opposed as convoluted. Anonymity, particularly for vulnerable young people (Haxell, 2013), might be usefully considered in obtaining the kind of opening up that seems to be implicit in the notion of PCP.

Chris: You can perhaps see the other side of anonymity in the many discussion forums, like the hot seats for this conference, in which there are a number of people who "lurk". Perhaps it is the case that, in the first instance as we have been exploring, that PCP might be best explored initially by those whom Steve described as having a "socio-economic dose of angel dust". Nonetheless, the kind of detailed research into what learners actually do the materials they assemble, the missteps they make, and the heuristics they deploy when faced with a novel challenge (see, for example Bhatt & de Roock, in press) offers important insights that are, often for pragmatic reasons, black boxed.

There is something incongruous writing about learning in public within the constraints of a paper such as this. It has to be tidy. It has to conform to page limits and paper specifications. It has to appear as ready made learning which is the convention for papers such as this. For the moment, we pretend that the adjacent dark rooms are not there even though we imagine we can hear the faint sounds of a cat. So we have to draw a line. We hope that, at the end of our exploration of PCP, we do not have to write something akin to what Darwin wrote, in large letters, on the back of the red notebook: 'Nothing For any Purpose'.

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