

The “twoness” of learn 2.0: Challenges and prospects of a would-be new learning paradigm

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Introduction

The aim of our talk today is to outline our view of the ideal of “2.0” and to put it into a broad social and educational context. We will describe the scale of the challenge we think the ideal faces, and then draw on our own practice to identify some of the concessions that have been crucial to our being able to work in the way we do. This will raise the question of how to pursue such concessions within the day to day context of school and/or how to try to create spaces to push towards realizing principles and practices of Learn 2.0 in the absence of concessions being “given” -- which, we think, they will *not* be to any great extent in the short term.

The ambiguity of 2.0

The first point to be made about the 2.0 of Learn 2.0 is that it stands for a new paradigm, not just an “upgrade”. When Microsoft moved its operating system from Dos to Windows it made a paradigm shift. When it went from Windows 95 to 98, to 2000 to XP and now to Vista it has pretty much stayed with the same paradigm and simply upgraded and refined and added to the existing platform.

By contrast, when people talk about Web 2.0 in contrast to Web 1.0 which, of course, and unlike Windows 95 was never *named* as such, they are very much talking about a new paradigm: something that has significantly different underlying principles from what has been conceptualized post hoc as Web 1.0.

As such, Learn 2.0 could be used to denote almost any kind of new paradigm that seemed to build on significantly different underlying assumptions and principles from conventional classroom learning (whatever we might see that to consist in).

When put like this, there are all kinds of things “Learn 2.0” could *potentially* denote, depending on how we defined “Learn 1.0”. In lots of ways we might be seen as already having witnessed all kinds of alternative paradigms to certain constructions of “School Learning”, and that it is just a matter of none of them yet having “taken” in place of classroom-based, subject-oriented, teacher-led, decontextualized and desk-bound instruction. After all, “Progressivism” was supposed to constitute an alternative paradigm to “Traditional” schooling. If ever there was a Learn 2.0 to set against a Learn 1.0, surely it would have Progressivism against Traditionalism.

On the other hand, we can go further back and think of Learn 1.0 as vernacular, situated, in the world learning (much as how children learn their first language, or as people learn to live in new surroundings or under dramatically new conditions – in direct contact with their world and environment and interacting with it in situ. This would make Learn 2.0 that strange phenomenon invented centuries ago of removing learning from the world and relocating it to places called classrooms.

In fact, if we dwell on this conception of Learn 1.0 and 2.0 a little, it becomes quite interesting, since a

lot of what people are mooting at present in the way of new approaches to learning is, precisely, to try and make classroom-based learning approximate more closely to the situated and less formal approaches that typify so much learning – Ivan Illich (1971) would say the great majority of all human learning – that occurs outside of school settings.

As it happens, of course, talk of Learn 2.0 and, even, School 2.0 follows hard on the heels of people conceptualizing Web 2.0 as a new paradigm defined against Web 1.0. In this talk we will stay close to what we see as the “twoness” of Web 2.0, as something inherently different from the “oneness” of Web 1.0 and see where it takes us.

The “twoness” of 2.0

2.0 has become a shorthand for what we can see as an entire ethos, worldview or *modus operandi* at the level of “doing life”. In the concept of Web 2.0, the “2.0” stands in opposition and contrast to 1.0 as an entire “logic of life”. Web 2.0 represents a vastly different way to understanding, approaching, and operating on the Web from that which characterized the original social construction of the Web.

To see what this means it is useful to go back to the origins of talk of Web 2.0. After the dotcom crash of 2001 Tim O’Reilly, of O’Reilly Media, convened a working conference to explore and analyze a phenomenon that had occurred to people like O’Reilly (Lankshear and Knobel 2006). This was the belief that some of the enterprises that had best survived the dotcom crash and that were thriving in the wake of the crash seemed to differ in character from the archetypal enterprises of the original Web. The nature and extent of the differences were rendered graphically by O’Reilly and others in the following kind of way:

Web 1.0 vs Web 2.0 slide

As is now well-recognised, the enterprises that interested O’Reilly and that became the bases for distilling the concept of Web 2.0 were outfits that were not producing specialized commodities, or goods, or artifacts for sale to private consumers (in many cases to be downloaded to their desktops) but, rather, that were providing enabling services that lived “on the Web” -- were part of our “webtops” -- rather than on private machines. They made money, but often in less direct and obvious ways than through the sale of tangible commodities. Think: How does Google, or Facebook, make money? – since there is no question that they are hugely valuable in monetary terms.

The economic success/profitability of classic Web 2.0 services is not of concern to us here. What is important is that Web 2.0 was initially conceived as a business model that constituted a paradigm shift. Now people are beginning to appropriate the “twoness” of Web 2.0 to begin conceptualizing a learning model that will have the status of a paradigm. Of course, business is different from education, even though policy developments have tried to remake education increasingly along business lines for decades now. The question becomes: how do we build on the features of 2.0 to build a constructive and educationally appropriate learning paradigm conceived as Learn 2.0?

Accordingly, we are interested in the key defining features of Web 2.0 as it was articulated in business and, especially, in the *modus operandi* of Web 2.0 enterprises; in the overarching worldview they enact. We will describe some of their features in ways that seem to apply most pertinently to thinking about *educational* teaching and learning.

First, the enabling services of Web 2.0 are not packages, or artifacts, or consumables. Rather, they are

resources that have to be *performed*: “things” like search engines, or wikis, or blog services, or user-content management services like youtube.com, or photosharing facilities like Flickr, etc. You don’t get any product *per se* when you register with and access such services. Rather, you get an opportunity to “drive them” and what you get from them depends on how you perform them. The value derived from them by users is a function of how (well) these users perform them, or how much users value the uses to which these services can be put.

Second, the efficiency, efficacy, or value-producing capacity of these enabling services or resources is largely a function of *leverage*. What makes Google’s search engine great is not just that it is user friendly or convenient, or whatever but, rather, that so many people use it and in doing so they have built the data base upon which Google draws. Google does not have to employ clerks and data entry workers in order to create the database from which searches results are derived. This is a pure by-product of people using the resource. The more people who search and who select certain, most pertinent-to-their-needs sites identified by the search, and so on, the more efficient and “better” Google’s search service is. It gets better as a result of being used more – it automatically *leverages* added value because being continually improved is a “natural” consequence of the kind of facility it is. Unlike most commodities that get worse and wear out from use, facilities based on leverage improve with use.

Third, the Web 2.0 services identified early on by O’Reilly and others were ones that facilitated and mobilized *participation* and *collaboration*, often involving literally millions of people whose contributions added up to something massive – as in the case of Amazon.com’s bibliographic data base, Wikipedia’s information base as a searchable source, and various peer-to-peer sharing facilities (some of which were destroyed by copyright regulations and punitive action).

Fourth, the archetypal Web 2.0 resources were also seen as building on distributed intelligence and expertise – drawing on what is sometimes referred to as “the long tail of the web”. Rather than seeing expertise and intelligence as concentrated and top down (e.g., Britannica Online), Web 2.0 services build from a broad inclusive base, and leave it to the wisdom of crowds, peer use, ratings, open editing processes and the like to shape what becomes most visible, what survives, what gets most appreciative recognition, and so on. But the foremost operating principle is inclusion, and everything else proceeds from there.

Slide here re Britannica Online and Wikipedia

Since the time that Web 2.0 was mooted as a business model based on an alternative way of doing business and creating value and wealth, the concept has widened to accommodate widespread social interaction and collaborative relatedness among people who “meet and interact on the webtop”. Practice thus has migrated from the desktop to the webtop (where more and more of one’s personal media and other documents are stored online, rather than on one’s hard drive); is two way rather than “push” or broadcast and “read only”. The logic is peer-to-peer, interactive, collaborative, and participatory. Web 2.0 embraces all manner of affinity spaces (Gee 2004), social networking spaces, interactive and collaborative production spaces, peer-to-peer sharing spaces, collaborative online working/production spaces and so on. (Examples range from AMV.org, to eBay.com, to flickr.com, to fanfiction.net to Google docs, to YouTube, etc.).

So, while early pundits like O’Reilly very much focused on Web 2.0 as embodying sound business principles for online companies (e.g., provide services rather than products, look to advertising revenue for profits rather than sales, focus on user-generated “content” over expert-defined content), the

concept of Web 2.0—at least as we see it—has gone on to have a much wider usefulness as a concept for describing what is currently taking place within people’s everyday lives with respect to how they use and engage with online services and affinity spaces. This expanded notion of “Web 2.0” is thoroughly relational and interactional. Social network sites like Facebook and MySpace are a case in point. Both relationship services are not interested in being “information” brokers per se; they **are** interested in brokering relationships and connections of countless kinds among friends and friends-of-friends. An entire stratum of Web 2.0 enterprises and social practices built around them now exist, and they interface increasingly seamlessly with the larger lives of millions of people around the globe.

Web 2.0 also draws into play a range of formal and informal ratings systems that act as recommendations or even filters for deciding what web content to spend time on, or for helping to make decisions about who to collaborate or exchange ideas with etc. Of course, these ratings and recommendation systems are not imposed by experts, but rather, develop out of collaborative ratings or feedback that collectively acts to rank and sort online content. For example, Digg.com and Reddit.org both operate on user-recommended online news, with registered users of the services “voting” the most interesting/noteworthy links to the top of the list. While the range of items posted to both aggregation services are a mixed bag (and span humorous finds, as well as news events and serious social issues), both services nonetheless provide an excellent sense of what their users currently find worth their attention online. For readers whose interests and affinities are similar to those of regular popular posters to these forums, the rankings also act as a filter, enabling them to keep up with latest trends and news in a range of interest areas. Other examples of ratings systems at work in brokering content and trust relationships include eBay and its buyer/seller ratings, and Amazon.com and its customer/reviewer ratings, to name only a few. These ratings and trust systems built on the wisdom of crowds (cf., Surowiecki 2005) are considered *formal* because they are built deliberately into each of these services as a key operating feature of each.

Informal ratings and ranking systems also abound in Web 2.0 spaces. These systems are included in the design of Web 2.0 services, but are not necessarily used by the service to rank order content or to establish a trustworthiness metric. These informal systems include the favourite lists and subscription services offered by YouTube, the number of reviews attached to a posted narrative on Fanfiction.net, the collaboratively constructed tag clouds that act as useful indices to current trends and interests on Flickr (the online photosharing service) and Technorati (the blog search engine), friend-of-a-friend connections leveraged by social network sites like Facebook and Friendster, comment counts appended to blog posts (and which are often used to evaluate the “impact” of a post), the views or hits a page or video receives (and used as an informal marker of popularity), number of downloads a work attracts (e.g., download counts for AMV on AMV.org), among many others. These evaluative systems are very much grounded in Web 2.0 ethos in that the wisdom of the crowd prevails. That is, over time, cumulative “votes” by a diverse group of people will find a balance that typically ends up being more accurate or useful than votes by any individual made under the same circumstances (Surowiecki 2005). Celebrating—even leveraging—this phenomenon is decidedly a key feature of Web 2.0.

An expanded notion of Web 2.0 also places heavy emphasis on the importance of Web services that facilitate working collaboratively with friends and strangers across time and distance. Specific examples of Web 2.0 applications that encourage such collaboration include sites like Google Docs that support truly collaborative writing, Fanfiction.net and the recursive role reviews can play there with respect to authors improving their narrative writing through input from friends and strangers, voice over internet services that enable free conference calls across widely dispersed physical locations, to name just a few. These services and functions often coalesce around shared interests or passions, where expertise is not necessarily tied to age or formal training, and where peers and experts regularly learn

from each other (cf., art and drawing affinity spaces like DeviantArt.org; remix sites like Machinima.com; video editing and narrative spaces like AMV.org; writing spaces like Fanfiction.net). Simply having a keen interest—or even a piqued interest—in some *thing* typically is sufficient for entrée into these spaces. No-one is excluded from such spaces until they prove themselves to be unusually annoying or bothersome.

Web 2.0 services are marked by the ways in which they often deliberately provide spaces in which to tinker with or “mash up” one service with another. For example, Facebook encourages users to create their own applications and make them available for others to use within the Facebook network (this includes applications that embed blog post summaries, list one’s online Del.icio.us bookmarks, etc.). the Google Maps application is regularly “mashed up” with other services to create a new service or function often entirely unimagined by any of the original designers (cf., Google map mashups with Flickr, Twitter, Wikipedia; see <http://googlemapsmania.blogspot.com>). There is a celebration of *affinities* (i.e., people like me who are interested in this particular thing or engagement that I like), transferability, ease of movement across different Web spaces and a sense that most things online are up for grabs with respect to purpose and function within an expanded notion of Web 2.0.

More than applications: A worldview

It is important to recognize some ambiguity or “smudging” in the concept of Web 2.0 that has implications for thinking about Learn 2.0. Most broadly, the ambiguity is across “applications” and “ethos”. It is possible to use a lot of Web 2.0 applications without necessarily participating in Web 2.0 ethos. Just because blogs are an example of a Web 2.0 service or application, it does not mean that using blogs for classroom/school learning purposes is necessarily 2.0 in ethos; any more than using classic 1.0 applications in the early days of the web meant that anything significant had changed in school practices. As we know, much of it was “old wine in new bottles”.

So, when we talk about Learn 2.0 in terms of worldview, or ethos, or an entire orientation toward learning that is based on the “twoness” of 2.0, we mean that the kinds of applications that typify the webtop are being appropriated in ways that partake of the 2.0 ethos: there is extensive collaboration, participation, distribution of expertise and “intelligence”, emphasis on performance, far-flung access to human, informational and other kinds of resources pertinent to learning, that networks can be very long, that affinities are fundamental and are based on interests, and that anything or anyone that can contribute to learning will presumptively be pertinent.

For example, Rebecca Black (2008) has documented the ways in which a 16-years-old girl— Tanaka Nanako—who emigrated from China to Canada used fan fiction writing to not only hone her written English-language skills through practice and feedback from reviewers, but to explore her own Chinese cultural history through her deep interest in anime and other popular culture resources (e.g., novels, movies). Her stories have gone on to become enormously popular with anime fanfic readers on Fanfiction.net (with some stories garnering over 6,000 reviews). Nanako explained that her fanfic writing is also an opportunity for her to “learn more about [her] own culture and history” because she often must do research to effectively represent the social and historical details in her fictions” (Black, 2006, p. 16). Such authorial dispositions, processes, and commitments to polished writing are very much valued in schools and beyond, and are practiced as a matter of course within fanfiction affinity spaces.

In a similar vein, Kevin Leander documented Steve Mills’ account of how at 13 years of age he began

collaborating with others online to design and build a massively multiplayer game (Leander and Mills 2007). He teamed with Jake (then aged 9), a British friend he'd met online, and the pair recruited others from the U.S., England and Australia to form a core of 4 game builders and a peripheral crew of three additional designers and builders, along with free access to an experienced programming consultant. Their game, "Perathnia", was modeled on successful online roleplaying games like Runescape. Mills involvement in the project saw him teaching himself C++ programming language, 3D digital modeling (including developing and adding a wide range of textures to the models etc.). The project also required him and his collaborators to develop strategies for working on a complex project where not everyone had the same access to the same software needed for developing the game (Leander and Mills 2007). The latter included using screen shots to comment on effects gone awry in texturized models, tracking down free or trial versions of software that could be used to cobble together needed elements, and so on. These are precisely the kinds of skills and processes tech teachers aim at teaching their students in schools, but which rarely pan out in real-world applications (ibid.).

Both the cases of Nanako and Steve are not unusual (see also, for example, Burn 2008, Lam 2000, Chandler-Olcott and Mahar 2003, Thomas 2008); but they do underscore how the ethos of Web 2.0—collaboration, drawing on distributed and varied levels of expertise, learning just-in-time and just-in-place, participating in shared affinity spaces, pursuing interests, etc.—is very often part and parcel of what young people do and how they learn online.

Learn 2.0 and the status quo: Upsides and downsides and the challenges facing Learn 2.0

There are some obvious upsides to a 2.0 approach to learning when we think about it in relation to some current global trends.

Dot point figure of upsides

- Coheres with a range of currently popular social values like inclusion, participation, collaboration, peer-to-peer sharing, etc. that have a strong presence in leisure and non-formal settings
- It is compatible with "deep learning"
- It coheres with a lot of "smart work" and, indeed, with many buzz principles of "the new work order" beyond school.
- It is in tune with current concepts and experiences of "time" and "place"
- It is "ecological" -- it maximizes leverage and "value adding"
- It coheres well with our "primary learning Discourse" -- with how people learn "organically"
- It can potentially enhance quality education for all
- It emphasizes interests and affinities; presumes and builds upon engagement and energies

From this standpoint we can say that Learn 2.0 potentially has a lot going for it. At the same time there are some very obvious "downsides" to a Learn 2.0 project so far as the prevalent systemic approach to mass compulsory formal education is concerned.

On the other hand, it would be blind folly to underestimate the deep social structural impediments that confront any attempts to reform schools in the direction of them becoming more expansive, active, inquiry-oriented, and knowledge-*producing* institutions. The deep grammar of School as a functional institution for the society it serves militates against any easy and short term transition toward Learn 2.0 becoming “hegemonic”.

Dot point figure of downsides

- It contravenes the operating logic of the consumer society (Illich 1971)
- It contravenes many other deep values that serve powerful interests well. It is out of kilter with the social will to:
 - atomize
 - control/manage
 - individualize
 - privatize
 - discriminate and differentiate (to feed the “meritocratic” ideology)
 - to label people/individuals
 - to shape expectations and match them to “what is socially available”
 - to adjust people to industrial time
 - to emphasize exchange values
 - to reify expertise and legitimate elites
 - to imprint authority relations
 - to equate competence with “official credentials”

The active producer/prosumer/creator/DIY ethos of 2.0 flies in the face of the very paradigm of a consumer society. Ivan Illich (1971) spoke of school – Learn 1.0 – as the “reproductive organ of the consumer society”, and of schooling as our profound apprenticeship into confusing values with commodities and seeing the process of achieving our values as a process of consuming goods and services. Think: No Child Left Behind as a market opportunity for curriculum package producers.

As has long been recognized, but is often “forgotten”, Learn 1.0 does other hugely important social work – it is deeply functional in many ways that have served “capitalist-consumerist” ends very well – such as those dot-pointed above.

Hence, anyone wanting to build Learn 2.0 within formal settings under short term conditions is going to face some big challenges. They are going to be flying in the face of a paradigm that is still very deeply established and, despite changes in the business world and in many social practices in the world beyond school, this paradigm shows no signs of going away soon, let alone of lying down and dying.

That does not imply that we shouldn’t try to change this. Rather, it is intended to imply that we should go for it, for all that we are worth; but to do so in full recognition of what this involves and what we will be taking on.

This points toward what will be a key theme in the remainder of this talk: the need to “live moment by moment outside society as we know it/have known it, and to make a life project of this – a life project

in which practising Learn 2.0 as educators becomes a seamless and intuitive extension of our dominant modus operandi/worldview”. This is precisely what the legions of people populating the domains of 2.0 (whether in business or in leisure or in their work or their education) are doing, whether they are aware of it or not. They are pre-figuring 2.0 – building a new boat in the social sea.

We will now describe our own attempt to build a Learn 2.0 approach in our work and discuss the conditions under which we have done it and how we see it as an organic extension of a larger way of doing our lives.

Our approach to Learn 2.0

In our own work with cohorts of graduate students in Canada, we have tried to employ a kind of Learn 2.0 approach in courses that focus on literacy (especially new literacies), learning and research. To date we have based courses around three kinds of inquiry.

- (a) Learning how to evaluate research articles
- (b) Learning how to conduct a respectable piece of research about some new literacy
- (c) Learning how to research approaches to learning some kind of new literacy.

Some of the courses have been taught as 2 week full-time intensive institutes – face-to-face. Others have been taught over a semester, with 3 face-to-face sessions separated by periods of a month working at distance. All courses are based on teams of participants (usually around 6 in a team) working together as a group to complete the task in question, to produce a formal written report of their work, and then to give a 45 minute formal presentation of their work under conference conditions. Unfiltered wireless networks are the bottom line (we carry base stations with us to maximise our chances of being free of institutional blocks and filters). Participants are encouraged to bring all the toys they want to bring, especially wireless laptops computers.

The motif is “knowledge production” and the courses are task-driven. Participants are given a real task to complete; a task of a kind such that in the *doing* of it they experience knowledge production as mastery of a *complex system*. They are put into the situation of learning to be researchers by working at *being* researchers in an intensive mode and in the company of experienced researchers and writers who know how to simulate a research environment. Proximity to data and documents is ensured (e.g., by researching their own practice; by making critique of documents into a research task). In other words, the environments are such that all the conditions necessary for doing bona fide knowledge production as researchers are present. One of the venues in which we regularly teach is a ski lodge. This lodge becomes, in effect, a wireless environment research centre, with at least the equivalent of what a typical university research centre would have available (funny and all as this might sound).

Examples:

- The robot group (given a task to learn and required to research their learning) and identifying in effect what Gee calls “lucidly functional language” as a significant dimension of how they learned (they mastered the concepts in situ). That is, they in effect identified in their research something that a leading US literacy researcher has recently (and only recently) identified as a significant construct and written about.
- The “differentiated instruction” group using Google Docs (Producing a “mature” academic research report by collaborative writing in a document that grew and self-corrected with each input; the final text was seamless and maintained a consistent “voice” throughout)

- The group writing collaboratively using a data projector (as part of the process of generating their research report). This is precisely the kind of creative functionality that researchers come up with in the course of implementing research projects.
- Milan finding keepvid.com when videodownloader.net wasn't working for their group—then becoming the youtube video download expert for the entire group. (The research equivalent of troubleshooting a problem and developing expertise in that area and becoming the resident expert for that collective, but showing others how at the same time. Shared expertise)
- The two students coming to see how theory works when we pointed out in their writing—as they were writing--that the concept of “learning” meant something quite different for someone operating out of a psychological paradigm compared with someone operating out of a sociocultural paradigm (Drew on their previous reading in prior courses and their own learning experiences to help bring the point home).
- Workshopping research projects from go to whoa meant that groups were able to see when their initial design wasn't working and why it wasn't working and be able to re-design their project into something much more robust etc. and understand what made it more robust (e.g., the video games case study group and collecting a second round of data)
- Developing a range of strategies for obtaining information or help (e.g., drawing on family members' gaming expertise; emailing researchers to ask them particulars about their published study; using a range of search engines and library-like resources online).
- Our emphasis on “give it a go” and see what happens—the Second Life machinima group is a good example here. Teachers having the opportunity to explore their own computers and discover software and other devices (e.g., windows movie maker software, SD card slots) they never knew about before.

Where and how we see Learn 2.0 realized in these examples

(a) “Deep Learning”

James Gee (2007: 172) speaks about *educational* learning as “deep learning” and defines “deep learning” in relation to learning to be, and taking on (new) identities and developing what Donald Schön calls “appreciative systems”. According to Gee, deep learning is learning that can lead to real understanding, and the ability to apply one's knowledge and deploy it in innovation. Such learning requires moving beyond “learning about” and toward “learning to be” in a sense he refers to in terms of becoming “authentic professionals” (2007: 67-8). In learning to be, our learning is only partly about belief, but also is strongly about “design”, in the sense of relating knowledge to purposes and goals.

Deep learning requires the learner being willing and able to take on a new identity in the world, to see the world and act on it in new ways. Learning a new domain, whether physics or furniture making, requires learners to see and value work and the world in new ways, in the ways in which physicists and furniture makers do. One ... reason this is so is because, in any domain, if knowledge is to be used, the learner must probe the world (act on it with a goal) and then evaluate the result. Is it “good “or “bad”, “adequate” or “inadequate”, “useful” or “not”, “improvable” or “not”? (Gee 2007: 172).

This means developing value systems of the kinds that are “embedded in the identities, tools, technologies and worldviews of distinctive groups of people – who share, sustain, and transform them – groups like doctors, carpenters, physicists, etc” (ibid.).

In our case participants took on the identity of educational researchers.

(b) “Systems learning”

Two kinds of systems were mastered to varying degrees by participants: intellectual and technical.

Technical: Understanding file downloading and file types in relation to extensions and programs; understanding that some application functions have transferability across applications (e.g., the “timeline” in video and audio editing software); understanding data analysis techniques in relation to data types and in relation to other kinds of techniques; understanding the key components of an effective research design; etc.

Intellectual: Understanding how data collection approaches have to be informed by theories and assumptions and the kind of question being asked, and how these matters impact on what we *produce* as data. Also elements of reverse engineering as research scopes and designs and emphases were re-fitted in light of what could and could not be managed with the resources (time, human, equipment, information, expertise, etc.) available.

(c) Time became more like “geek project time”. The time needed was defined as the time that was required to do the job (keeping in mind the general start and end points of the course itself). People typically did not rush off at the end of the day – they would often keep going until a component or a section or whatever had been completed, or there was a sensible time to break. And we would catch them up late at night putting in extra hours when most people would be asleep. And yet this was Pass/Fail. They got no benefit from the extra time outside of intrinsic satisfaction. Participants overwhelmingly did their share.

(d) Collegial cross-group support, talk, collaboration and eliciting. They behaved like researchers behave – would move around to source expertise, or ring up (using Skype) to clarify something if we were working with another group. They would discuss across groups when similarities seemed to be appearing across different groups and projects. (Key aspects here include also spontaneous sharing of tips, solutions, troubleshooting.

(e) Enactment of distributed intelligence and expertise (implicit in above).

(f) Benefits of situatedness – lucidly functional language (Gee 2007)

Additional thoughts

- Using the internet in multiple ways, such as to search for troubleshooting advice, to find file conversion resources, to find free editing software (e.g., audacity, windows movie maker), to locate how-to guides (e.g., how to use Fraps to record onscreen video/movement)
- Students also brought in additional resources, such as digital voice recorders, using what was to hand to create their projects
- In their final papers, they drew on readings from previous courses within their program so that this course directly built on their previous learning in a coherent way that for many also tied a bunch of understandings together and grounded the theory in their own learning

- Even though groups often conducted a task analysis of the actual project and final paper and allotted “sub-sections” of the task or writing to pairs of participants, we regularly find that all students work hard at getting an overall sense of how something is done (e.g., how to make a music video on their own; how to write a well-structured research report on their own). This runs counter to what typically happens in school classrooms, where students involved in group projects simply deliver on their “bit” and nothing more

The concessions we enjoyed and that cannot be presumed under conventional classroom conditions – indicating things to be fought for on at least some scale or within some spaces.

- No grades – strictly Pass/Fail (alleviates competition)
- No censorship/blocks/filters (except in some schools where the Board would not remove (and we have to use hacks instead – derived from school students via teachers)
- No curriculum as such. More like a program component, with attention to local interests and conditions
- No timetable, periods – time is continuous and as long as it takes; time for participants to “find their own way” through trial and error and tinkering etc. Time for them to visit other groups and see what they’re doing etc.
- No reporting templates or “standards” in the form of norms
- No lockstep page following
- No compulsion
- No remediation – ample in situ support
- Large multi-purpose space within which to work, move around and change and needs changed (e.g., the robot group moved tables to work on the floor—others pushed tables together to make spaces for a number of workstations organized around different laptops and what was being done on each laptop.

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