The Peeragogy Handbook

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Text in SMALL CAPS corresponds to links in the online version of the book, which is at HTTP://PEERAGOGY.ORG.

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Part I

Introduction

CHAPTER 1

WELCOME TO THE PEERAGOGY HANDBOOK, A RESOURCE FOR SELF-ORGANIZING SELF-LEARNERS*

Welcome to the Peeragogy Handbook!

This book, and accompanying website, is a resource for self-organizing self-learners.

With YouTube, Wikipedia, search engines, free chatrooms, blogs, wikis, and video communication, today's SELF-LEARNERS have power never dreamed-of before. What does any group of self-learners need to know in order to self-organize learning about any topic? The Peeragogy Handbook is a volunteer-created and maintained resource for bootstrapping peer learning.

This project seeks to empower the worldwide population of self-motivated learners who use digital media to connect with each other, to co-construct knowledge of how to co-learn. Co-learning is ancient; the capacity for learning by imitation and more, to teach others what we know, is the essence of human culture. We are human because we learn together. Today, however, the advent of digital production media and distribution/communication networks has raised the power and potential of co-learning to a new level.

If you want to learn how to fix a pipe, solve a partial differential equation, write software, you are seconds away from know-how via YouTube, Wikipedia and search engines. Access to technology and access to knowledge, however, isn't enough. Learning is a social, active, and ongoing process.

> *What does a motivated group of self-learners need to know to agree on a subject or skill, find and qualify the best learning resources about that topic, select and use appropriate communication media to co-learn*

it? In particular, what do they need to know about peer learning?

This handbook is intended to answer these questions, and in the process, build a toolbox for co-learning.

Our experience within this project has been that flattened hierarchies do not necessarily mean decisions go by consensus. The handbook is in part a collaboration? and in part a collection of single-author works. Often the lines and voices are blurred. One constant throughout the book is our interest in making something useful. To this end, the book comes with numerous activities, and is available under non-restrictive legal terms (you can reuse portions of it however you see fit it has been given a CC Zero 1.0 Universal Public Domain Dedication). For those who seek more evidence-based, scholarly scaffolding for learning practices, we also maintain a literature review of learning theories that pertain to self-organized peer learning.

Finally, we also include instructions on how to join us in further developing this resource.

Sincerely, The Peeragogy Team

CHAPTER 2

HOW TO USE THIS HANDBOOK

Author: Howard Rheingold

This document is a practical guide to online co-learning, a living document that invites comment and invites readers to join the community of editors; the document does not have to be read in linear order from beginning to end.

If you and a group of other people want to use digital media and networks to co-learn together, this handbook is a practical tool for learning how to self-organize peer learning – what we call "peeragogy." Material about conceptualizing and convening co-learning – the stuff about getting started – is located toward the top of the table of contents. Material about assessment, resources, use cases is located toward the bottom of the TOC. But you don't have to read it in sequential order. Hop around if you'd like. We think – and some research seems to support – that understanding how co-learning works will help you do co-learning more effectively. So we've included material about learning theories that support peer learning or that reveal useful characteristics of successful peer learning. For those who want to delve more deeply into the empirical research and scholarship, we've linked to a sister document – a literature review of learning theory related to peeragogy. For those who want to study more deeply about the aspects of peer learning we summarize in our articles, we provide a list of links to related handbook articles, and a set of resources for further study. Think of our pages as both places to start and as jumping off points.

The short videos, most of them under one minute long, at the very beginning of many articles are meant to convey a sense of what the article and its supporting material is meant to convey.

This is a living document. If you want to join our community of editors, contact howard@rheingold.com (If you want to see how we go about creating a handbook entry, see our guide for newcomers.) If you don't want to go as far as joining the com-

munity of editors, please feel free to use the comment thread attached to each page to suggest changes and/or additions.

See also

- Guide to getting started
- The Table of Contents
- Our list of resources
- Our literature review

Part II

Peer Learning

CHAPTER 3

OVERVIEW

This part of the book offers our most important insights into peer learning. A number of earlier theories and experiments have focused on various aspects of collaborative, connective, and shared, non-didactic learning systems. There's a rumbling among several well-known thinkers that when combined with new technologies, peer learning strategies could have a big impact on the way educational institutions work in the future. Our aim here is just to make the basic ideas concretely understandable and immediately applicable. The best course is to try it out and see how it works for you.

Peeragogy is about peers learning together and helping each other learn. The idea is that each person contributes to the group in their own way. The contribution of each peeragogue depends on a healthy sense of self-awareness. You ask yourself, "What do I have to offer?" and "What do I get out of it?" We think you'll come up with some exciting answers to those questions!

Our first strategy for peer learning invites you to engage in a self-assessment of your motivations. Here you take into account things like the learning context, timing and sequence of learning activities, social reinforcements, and visible reward. Our view is that learning is most effective when it contains some form of

enjoyment or satisfaction, or when it leads to a concrete accomplishment.

Indeed, this is the kind of learning that you choose to do, whether you're being "trained" or not. You're in charge! Furthermore, this kind of learning is usually fun. Indeed, as we'll describe below, there are deep links between play and learning. We believe we can improve the co-learning experience by adopting a playful mindset. Certainly some of our best learning moments in the Peeragogy project have been peppered with humor and banter.

Apart from self-assessment and playfulness, here are two key factors to keep in mind:

"Personal" supports "peer": We can consciously cultivate living, growing, responsive webs of information, support, and inspiration that help us be more effective learners. This is a "personal learning network". We'll offer tips on how to build these networks – and we'll also explain how strong personal learning networks can evolve into even stronger *peer* learning networks.

"Peer" supports "personal": As we work together to develop shared plans or "roadmaps" for our collective efforts in group projects, we usually can find places where we have something to offer, and places where we have something to learn. Furthermore, if we are willing to ask for some help and offer our help to others, then we can really learn a lot! This is why building effective *inter*personal learning strategies should be part of your personal learning plan.

In the following sections, you can read some more about these strategies, or you can skip ahead to Part III to start looking at techniques you can use to build your own peer learning group.

Peer learning through the ages

The new term, "peeragogy," that we use in this book is a riff on the word pedagogy — the art, science, or profession of teaching. Pedagogy has a somewhat problematic story of origin: it comes from the ancient Greek tradition of having a child (paidos) be supervised (agogos) by a slave. Greek philosophers dis-

agreed with each other as to the best way for individuals to gain knowledge (and even more so, wisdom). Socrates, who insisted that he was not wise, also insisted that his interlocutors join him in investigating truth claims, as peers. The most famous of these interlocutors, Plato, on a more pedagogical bent, spoke of an enlightened few, whose responsibility it was to show others the light of knowledge (illustrated by his famous allegory of "The Cave").

In more recent centuries, various education theorists and reformers have challenged the effectiveness of what had become the traditional teacher-led model. Most famous of the early education reformers in the United States was John Dewey, who advocated new experiential learning techniques. In his 1916 book, *Democracy and Education*[1], Dewey wrote, "Education is not an affair of 'telling' and being told, but an active and constructive process." Soviet psychologist Lev Vygotsky, who developed the concept of the Zone of Proximal Development, was another proponent of "constructivist" learning. His book, *Thought and Language*, also gives evidence to support collaborative, socially meaningful, problem-solving activities over solo exercises [2].

Within the last few decades, things have begun to change very rapidly. In *Connectivism: A Learning Theory for the Digital Age*, George Siemens argues that technology has changed the way we learn, explaining how it tends to complicate or expose the limitations of the learning theories of the past [3]. The crucial point of connectivism is that the connections that make it possible for us to learn in the future are more relevant than the sets of knowledge we know individually, in the present. Furthermore, technology can to some degree and in certain contexts, replace know-how with know-where-to-look.

If you want more details on the history, theories, and recent experiments related to peer learning, we have a more extensive LITERATURE REVIEW available. We've also adapted it into WIKIPEDIA PAGE, which you can edit as well as read.

Figure 3.1: Platon Cave Sanraedam (1604). By Jan Saenredam [Public domain], via Wikimedia Commons

What makes learning fun? (Or boring, as the case may be!)

Individuals learn by doing in a continuous process. This is most effective when it contains some form of enjoyment, satisfaction, or accomplishment. So for each peer-learning participant, there's a simple question: "What makes learning fun for *me*?"

Two learning stories

1. A study group for a tough class in neuropsychology convenes at at the library late one night, resolving to do well on the next day's exam. The students manage to deflect their purpose for a while by gossiping about college hook-ups and parties, studying for other classes, and sharing photos. Then, first one member, then another, takes the initiative and as a group, the students eventually pull

their attention back to the task at hand. They endure the monotony of studying for several hours, and the next day, the exam is theirs.

2. A young skateboarder spends hours tweaking the mechanics of how to make a skateboard float in the air for a split second, enduring physical pain of repeated wipeouts. With repetition and success comes a deep understanding of the physics of the trick. That same student cannot string together more than five minutes of continuous attention during chemistry class and spends even less time on homework for the class before giving up.

Which is more fun, skateboarding or chemistry?

Peer-learning participants succeed when they are motivated to learn. Skateboarding is primarily intrinsically motivated, with some extrinsic motivation coming from the respect that kids receive from peers when they master a trick. In most cases, the primary motivation for learning chemistry is extrinsic, coming from parents and society's expectations that the student excel and assure his or her future by getting into a top college.

The student very well could be intrinsically motivated to have a glowing report card, but not for the joy of learning chemistry, but because of the motivaton to earn a high grade as part of her overall portfolio. Taken a different way, what is it about chemistry that's fun for a student who *does* love the science? Perhaps she anitcipates the respect, power and prestige that comes from announcing a new breakthrough; or Or, she may feel her work is important for the greater good, or prosperity, of humanity; or she may simply thrill to see atoms bonding to form new compounds.

Learning situations frequently bore the learner when extrinsic motivation is involved. Whether by parents or society, being forced to do something, as opposed to choosing to, ends up making the individual less likely to succeed. In some cases it's clear, but trying to figure out what makes learning fun for a a

Figure 3.2: Photo of Dmitri Mendeleev (1834-1907). Found on The Guardian's Notes & Theories blog. Public domain.

group of individual humans can be very difficult. Often there is no clear-cut answer that can be directly applied in the learning environment. Either way, identifying the factors that can make learning boring or fun is a good start. Perhaps learning certain skills or topics is intrinsically boring, no matter what, and we have to accept that.

Learning patterns

One way to think about fun learning is that it's fun to learn new patterns. Jürgen Schmidhuber wrote: "A separate reinforcement learner maximizes expected fun by finding or creating data that is better compressible in some yet unknown but learnable way, such as jokes, songs, paintings, or scientific observations obeying novel, unpublished laws" [4]. So the skateboarder enjoyed coming across new patterns (novel tricks) that he was *able* to learn; tricks that challenged his current skill level.

Learner, know thyself: A self-evaluation technique

When joining the Peeragogy project, I did a brief self-evaluation about what makes me turn on to learning:

- *Context.* I resist being groomed for some unforseeable future rather than for a purpose.

- *Timing and sequence.*I find learning fun when I'm studying something as a way to procrastinate on another pressing assignment.

- *Social reinforcement.*Getting tips from peers on how to navigate a snowboard around moguls was more fun for me than my Dad showing me the proper way to buff the car's leather seats on chore day.

- *Visible reward.* In high school, it was not fun in the moment to sit and compose a 30-page reading journal for Frankenstein. But owing in part to those types of prior experiences, writing is now fun and it's a pleasure to learn how to write better.

The role of metacognition in peer learning

The profile of each individual participant, both from the perspective of self-awareness, as well as from the perspective of maximal value of contribution to the group endeavor, becomes a metacognitive inquiry into each peeragogue's skills, talents, subject matter expertise, socialization and suitability for the array of roles and positions required to achieve a communally defined and framed goal or output. "Metacognitive" means that the peeragogue is practicing awareness of how he or she is thinking and attending. The short form is "*Deliberate self-awareness of one's thinking processes.*"

Since in principle there is no authority figure or leader to exercise judgment or discretion regarding the above, it becomes a necessary self-evaluative examination and declaration in regard to the group, enabling participating individuals to maximize their engagement and contribution to the undertaking.

Possible Roles

- Leader, Manager, Team Member, Worker

- Content Creator, Author, Content Processor, Reviewer, Editor
- Presentation Creator, Designer, Graphics, Applications
- Planner, Project Manager, Coordinator, Attendee, Participant
- Mediator, Moderator, Facilitator, Proponent, Advocate, Representative, Contributor

Possible Contributions

- Create, Originate, Research, Aggregate
- Develop, Design, Integrate, Refine, Convert
- Write, Edit, Layout

We find it useful to build in a brief pause at the commencement of the project for each peeragogue to honestly self-define and declare to the group what he thinks he can bring to the table as a function of his knowledge, skills, capacities, and preferences. This process primes the group for cohesion and success.

Personal Learning Networks and Peer Learning Networks

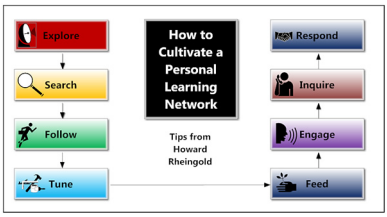
Personal Learning Networks are the collections of people and information resources (and relationships with them) that people cultivate in order to form their own learning networks — living, growing, responsive sources of information, support, and inspiration that support self-learners.

> **Howard Rheingold**: *When I started using social media in the classroom, I looked for and began to learn from more experienced educators. First, I read and then tried to comment usefully on their blog posts and tweets. When I began to understand who knew what in the world of social media in education, I narrowed*

my focus to the most knowledgeable and adventurous among them. I paid attention to the people the savviest social media educators paid attention to. I added and subtracted voices from my attention network, listened and followed, then commented and opened conversations. When I found something I thought would interest the friends and strangers I was learning from, I passed along my own learning through my blogs and Twitterstream. I asked questions, asked for help, and eventually started providing answers and assistance to those who seemed to know less than I. The teachers I had been learning from had a name for what I was doing — "growing a personal learning network." So I started looking for and learning from people who talked about HOW to grow a "PLN" as the enthusiasts called them.

Strong and weak ties

Your PLN will have people and sites that you check on often – your main sources of information and learning – your 'strong ties'. Your 'weak ties' are those people and sites that you don't allow a lot of bandwidth or time. But they may become strong over time, as your network grows or your interests expand. This is a two-way street – it is very important that you are sharing what you learn and discover with those in your network and not just taking, if you want to see your network expand.



Peer Learning Networks

Later in the handbook we'll talk more about how to develop and share "PEERAGOGICAL PROFILES" – in other words how to ad-

vertise what you want to learn, and what you'd be interested in helping teach others. A network of people who share their profiles and work together to learn/teach/heal/communicate/etc. is a "Peer Learning Network". You'll also find more information about building a PLN in our article on PEERAGOGY FOR K-12 EDUCATORS (the article is also useful even if you're not formally employed a teacher).

Personal Learning Plans and Peer Learning Plans

A PLP is designed to develop a learner's learning and teaching capabilities. Learners learn how to develop, implement, review, and adjust personal learning goals. The PLP supports learners in developing knowledge and skills that will enable them to:

1. Identify appropriate future options;
2. Review their strengths and areas for development;
3. Identify goals and plans for improvement;
4. Monitor their actions and review and adjust plans as needed to achieve their goals.

Steps in making the PLP

1. *Learning needs:*What do you most need to learn about in the time ahead?
2. *Learning activities:* What are the best ways you learn, what learning activities will meet your learning needs, what help will you need and how long will it take?
3. *Evidence of learning:*What will you put into your personal portfolio to demonstrate your learning progress and achievements?

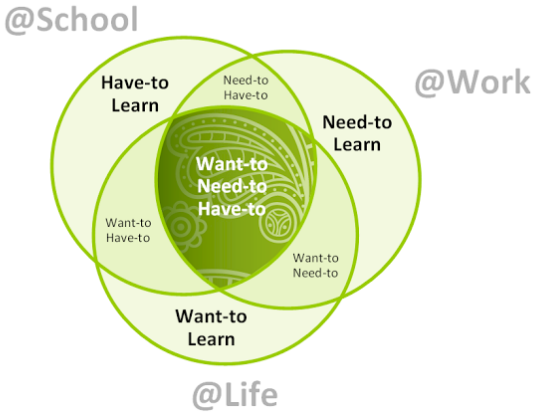


Figure 3.3: "I think because of the tremendous changes we see in education and at work, the sets (attitudes) are beginning to overlap more and more," said Joachim Stroh of the Google+ community, Visual Metaphors. (Used with permission)

Peer Learning Plans

On the same page where we talk about "peeragogical profiles", we also talk about how to build a "SHARED ROADMAP" for your peer learning project. Indeed, the idea of a "roadmap" is really a central pattern that comes up in this book again and again.

From training to learning

The idea we develop here relates back to the question "what makes learning fun for me." In short, if it's not something that you choose, it's not as likely to stick. However, dozen years ago, the words *training* and *learning* were interchangeable, but today *learning* is revered and *training* is in the dog house. What's the difference? Training is something that's pushed on you; someone else is in charge. Learning is something you choose to do, whether you're being trained or not. You're in charge.

And think of all the people we learn from who aren't nec-

essarily trainers! Parents, grandparents, aunts, uncles, brothers, sisters, playmates, cousins, Little Leaguers, Scouts, school chums, roommates, teammates, classmates, study groups, coaches, bosses, mentors, colleagues, gossips, co-workers, neighbors, and our kids…

This has ramifications for the way people manage. To extract optimal performance from workers, managers must inspire them rather than command them. Antoine de Saint-Exupéry put it nicely: "If you want to build a boat, do not instruct the men to saw wood, stitch the sails, prepare the tools and organize the work, but make them long for setting sail and travel to distant lands." Knowledge workers of the future will have instant, ubiquitous access to the Net. The measure of their learning is an open-book exam. "What do you know?" is replaced with "What can you do?".

> **Jay Cross**: If I were an instructional designer in a moribund training department, I'd polish up my resume and head over to marketing. Co-learning can differentiate services, increase product usage, strengthen customer relationships, and reduce the cost of hand-holding. It's cheaper and more useful than advertising. But instead of just making a copy of today's boring educational practices, build something based on interaction and camaraderie, perhaps with some healthy competition thrown in. Again, the emphasis should always be on learning in order to do something!

Play and learning

Once more we're back to the question, "What makes learning fun?" There are deep links between play and learning. Consider, for instance, the way we learn the rules of a game through playing it. The first times we play a card game, or a physical sport, or a computer simulation we test out rule boundaries as well as our understanding. Actors and role-players learn their roles through the dynamic process of performance. The result-

ing learning isn't absorbed all at once, but accretes over time through an emergent process, one unfolding further through iterations. In other words, the more we play a game, the more we learn it.

In addition to the rules of play, we learn about the subject which play represents, be it a strategy game (chess, for example) or simulation of economic conflict. Good games echo good teaching practice, too, in that they structure a single player's experience to fit their regime of competence (cf. Vygotsky's zone of proximal learning, a la Gee [5]). That is to say a game challenges players at a level suited to their skill and knowledge: comfortable enough that play is possible, but so challenging as to avoid boredom, eliciting player growth. Role-playing in theater lets performers explore and test out concepts; see Boal [6]. Further, adopting a playful attitude helps individuals meet new challenges with curiousity, along with a readiness to mobilize ideas and practical knowledge. Indeed, the energy activated by play can take a person beyond an event's formal limitations, as players can assume that play can go on and on [7].

> **Douglas Thomas and John Seely Brown**: "All systems of play are, at base, learning systems." [8]

Games have always had a major social component, and learning plays a key role in that interpersonal function. Using games to build group cohesion is an old practice, actually a triusm in team sports.

It is important to locate our peeragogical moment in a world where gaming is undergoing a renaissance. Not only has digital gaming become a large industry, but gaming has begun to infiltrate non-gaming aspects of the world, sometimes referred to as "gamification." Putting all three of these levels together, we see that we can possibly improve co-learning by adopting a playful mindset. Such a playful attitude can then mobilize any or all of the above advantages. For example,

- Two friends are learning the Russian language together. They invent a vocabulary game: one identifies an object

in the world, and the other must name it in Russian. They take turns, each challenging the other, building up their common knowledge.

- A middle-aged man decides to take up hiking. The prospect is somewhat daunting, since he's a very proud person and is easily stymied by learning something from scratch. So he adopts a "trail name", a playful pseudonym. This new identity lets him set-aside his self-importance and risk making mistakes. Gradually he grows comfortable with what his new persona learns.

- We can also consider the **design** field as a useful kind of playful peeragogy. The person *playing the role* of the designer can select the contextual frame within which the design is performed. This frame can be seen as the *rules* governing the design, the artifact and the process. These rules, as with some games, may change over time. Therefore the possibility to adapt, to tailor one's activities to changing context is important when designing playful learning activities. (And we'll look at some ways to design peer learning experiences next!)

From Peer Learning to "Peeragogy"

The idea that we needed a new theory (which we called *paragogy*) arose out of the challenges we faced doing peer learning. Specifically, we were particularly interested in the conditions that were required for volunteer contributors to drive an learning-focused organization's agenda, and improve things for participating learners and teachers. How could the organization itself "learn" and grow, while participants were also learning and becoming better contributors?

As this idea took form, we reflected more on how learning and organizations work. Just like it would be rare for a business to be successful if it does not take into account the needs and interests of its clients, it is unlikely for a learning project to be successful if the act of learning is not somehow relevant for the people doing it.

So, paragogy became *a set of proposed principles* for understanding learning (and working) together. In particular, we focused on the way in which co-learners shape their learning context together. Paragogy is not a recipe: its ideas can grow and change to suit the needs of the moment; as it has matured, it has become more of an "approach" than it is a set of set-in-stone principles. It's also riff on the word "andragogy", which comes from Malcolm Knowles. He wrote:

> *[A]ndragogy is simply another model of assumptions about adult learners to be used alongside the pedagogical model of assumptions, thereby providing two alternative models for testing out the assumptions as to their 'fit' with particular situations. Furthermore, the models are probably most useful when seen not as dichotomous but rather as two ends of a spectrum , with a realistic assumption (about learners) in a given situation falling in between the two ends* [9] (p. 43).

We also tried, at least at first, to be similarly non-oppositional with respect to andragogy:

> *[T]he most important initial condition in andragogy seems to be that an adult educator or facilitator is part of the picture. In a peer-based setting, that may not be the case: we can easily find examples of learning environments where there is no "teacher" in the "classroom"; where, for example, the task of facilitation is shared among all participants or even encoded in the learning materials or supportive technologies. Not that one way is more desirable than another: we simply mean to highlight the fact that the most basic features of a given learning environment will influence everything else.* [10]

"Paragogy" is intended to be a broad, inclusive, and purposefully ambiguous term. "Peeragogy" by contrast attempts to make the idea more concrete and immediately understandable:

peeragogy is about peers learning together, and teaching each other. In the end, the two words are actually synonyms. If you prefer to go merrily into theory-building mode, feel free to spell it "paragogy". If you want to be a bit more down to earth, use "peeragogy."

Different ways to analyze the learning process

Since we are interested in how students (and others) can collaborate in learning, bringing to their own particular experiences, strengths, and weaknesses to bear, we ask: "How can each participant contribute to a group in their own way? Which kind of activities can we design to foster "multi-modal" collaborative learning, and how do we assess the outcomes?" One approach is to look at the "multiple different social roles" which people take on in educational contexts:

> *[W]e use [Ken] Wilber's terms to describe a given social role in terms of its constituent actions. So for example, the role of "being a student" might be described as follows: "*I*go to class,* we*do a class project, the objects of concern ("*Its*") are things I can add to my portfolio or work-record; and fundamentally,* it*is all about gaining a skill." This simple background story gives us a notion of role, persona, or identity: a role that is defined by its constituent actions, relative a given social context. And here, context is conceived of, after Nishida, as a "shared context in motion."* [11]

After doing some personal reflection on the roles you want to take on and the contributions you want to make (as we discussed above), you may also want to work together with your learning group to analyze the learning process in more detail. There are many different phases, stages, and dimensions that you can use to help structure and understand the learning experience: we list some of these below.

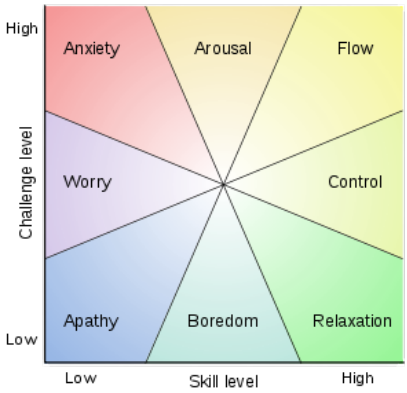


Figure 3.4: Challenge vs. Skill. By w:User:Oliverbeatson (w:File:Challenge vs skill.jpg) [Public domain]

- *Guidance & Support*, *Communication & Collaboration*, *Reflection & Demonstration*, *Content & Activities* (from Gráinne Conole)
- *Forming*, *Norming*, *Storming*, *Performing* from Bruce Tuckman.
- The "five-stage e-moderating model" from GIlly Salmon
- *Assimilative, Information Processing, Communicative, Productive, Experiential, Adaptive*(from Oliver and Conole)
- Multiple intelligences (after Howard Gardner).
- The associated "mental state"(after Csíkszentmihályi; see picture)
- Considered in terms of "Learning Power" (Deakin-Crick, Broadfoot, and Claxton).

Further reading

A word list for your inner edu-geek

- Constructivism

- Social constructivism
- Radical constructivism
- Enactivism
- Constructionism
- Connectivism

On fun and boredom

- *The Contribution of Judo to Education* by Kano Jigoro
- *Pale King*, unfinished novel by David Foster Wallace,

On Paragogy

- Joe Corneli's "Implementing Paragogy" lesson plan, on Wikiversity
- Joe Corneli and Charlie Danoff's "Paragogy Papers", on paragogy.net

on Learning vs Training

- Hart, Jane. Is it time for a BYOL (Bring Your Own Learning) strategy for your organization?

on PLNs

- Shelly Terrell: Global Netweaver, Curator, PLN Builder, blog post, with video
- Will Richardson and Rob Mancabelli, Personal Learning Networks: Using the Power of Connection to Transform Education
- Howard Rheingold's PLN links on Delicious

Exercises to help cultivate a playful attitude

- Use the Oblique Strategies card deck (Brian Eno and Peter Schmidt, 1st edition 1975, now available in its fifth edition) to spur playful creativity. Each card advises players to change their creative process, often in surprising directions.

- Take turns making and sharing videos. This online collaborative continuous video storytelling involves a group of people creating short videos, uploading them to YouTube, then making playlists of results. Similar to Clip Kino, only online.

- Engage in theater play using Google+ Hangout. e.g. coming together with a group of people online and performing theatrical performances on a shared topic that are recorded.

References

1. Dewey, J. (2004). *Democracy and education.* Dover Publications.

2. Vygotsky, L. S. (1986). *Thought and language.* MIT press.

3. Siemens, G. (2005). Connectivism: A learning theory for the digital age. *International Journal of Instructional Technology and Distance Learning*, 2(1), 3-10.

4. Schmidhuber, J. (2010). Formal theory of creativity, fun, and intrinsic motivation. *Autonomous Mental Development (IEEE)*, 2(3), 230-247.

5. Gee, J. P. (1992). *The social mind: Language, ideology, and social practice.* Series in language and ideology. New York: Bergin & Garvey.

6. Boal, A. (1979). *Theatre of the oppressed.* 3rd ed. London: Pluto Press.

7. Bereiter, C. and Scadamalia, M. (1993). *Surpassing ourselves, an inquiry into the nature and implications of expertise.* Peru, Illinois: Open Court.

8. Douglas Thomas and John Seely Brown (2011), *A New Culture of Learning: Cultivating the Imagination for a World of Constant Change.* CreateSpace.

9. Knowles, M. S. (1980). The modern practice of adult education: From pedagogy to andragogy. Chicago: Follett.

10. Corneli, J. and Danoff, C.J. (2011), Paragogy: Synergizing individual and organizational learning. (Published on Wikiversity.)

11. Corneli, J., & Mikroyannidis, A. (2012). Crowdsourcing education on the Web: a role-based analysis of online learning communities, in Alexandra Okada, Teresa Conolly, and Peter Scott (eds.), *Collaborative Learning 2.0: Open Educational Resources*, IGI Global.

Part III

Convening A Group

CHAPTER 4

BUILDING YOUR CO-LEARNING GROUP

Authors: Gigi Johnson and Joe Corneli

So you want to try peer learning? Maybe you've already found a few people who will support you in this effort? Congratulations! It's time now to focus your thinking – how will you convene others to form a suitable group? How will you design a learner experience which will make your project thrive? In this chapter we suggest a variety of questions that will help you to make your project more concrete for potential new members. There are no good or bad answers - it depends on the nature of your project and the context. Trying to answer the questions is not something you do just once - at various stages of the project, some or all of those questions will get new meanings - and probably new answers.

> FABRIZIO TERZI: *"There is a force of attraction that allows aggregation into groups based on the degree of personal interest; the ability to enhance and improve the share of each participant; the expectation of success and potential benefit."*

Who are "we"?

Note that there are many groups that may not need to be "convened", since they already exist. There is a good story from A. T. ARIYARATNE in his COLLECTED WORKS in which he does "convene" a natural group (namely, a village) - but in any case, keep in mind at the outset that the degree of group-consciousness that is necessary for peer learning to take place is not fixed. Here we suppose you (whoever you are!) are just at the point of kicking off a project. What steps should you take? We suggest you take a moment to ponder the following questions first!

Five W's and a How, and six clusters of Very Good Questions

Those taking the initiative should ask themselves a quick traditional who, what, where, when, why, and how. (Simon Sinek suggests to begin with Why, and we touched on "Who" above!). In doing so, preliminary assumptions for design and structure are established. However, in peer learning it is particularly important to maintain a healthy degree of openness, so that future group members can also form their answers on those questions. In particular, this suggests that the design and structure of the project (and the group) may change over time. Here, we riff on the traditional 5W's+H with six clusters of*Very Good Questions* –which will help you focus your thinking about the project.

Expectations for participants

Do you see an initial "division of labor" that would suggest the formation of teams or task groups?

1. What are some of the roles that people are likely to fall into (e.g. Newcomer, Wrapper, Lurker, Aggregator, etc.)?

2. How likely is it that participants will stick with the project? If you expect many participants to leave, how will this effect the group and the outcome?

3. Do you envision new people joining the group as time goes by? If so, what features are you designing that will support their integration into an existing flow?

4. Will the project work if people "dip in and out?" If so, what features support that? If not, how will people stay focused?

Nature of the project

1. What skills are required? What skills are you trying to build?

Figure 4.1: Engraving of Rudyard Kipling (1865-1936). "I keep six honest serving-men (They taught me all I knew)"

2. What kinds of change will participants undergo? Will they be heading into new ground? Changing their minds about something? Learning about learning?

3. What "social" or "productive" (etc.) objective, if any, is the project aiming to achieve?

Time management

1. What do you expect the group to do, from the moment it convenes, to the end of its life-span, to create the specific

outcome that will exist at the conclusion of its last meeting? (C. Gersick.) Note that what people ACTUALLY do may be different from what you envision at the outset, so you may want to revisit this question (and your answer) again as the project progresses.

2. Keeping in mind that at least one period of is inertia is very likely (C. Gersick), what event(s) do you anticipate happening in the group that will bring things back together, set a new direction, or generally get things on track? More generally, what kinds of contingencies does your group face? How does it interface to the "outside world"?

3. What pre-existing narratives or workflows could you copy in your group?

4. How much of a time commitment do you expect from participants? Is this kind of commitment realistic for members of your group?

5. What, if anything, can you do to make participation "easy" in the sense that it happens in the natural flow of life for group members?

6. Does everyone need to participate equally? How might non-equal participation play out for participants down the line?

Thinking backwards

1. What structures will support participants in their journey to the end result(s) you (or they) have envisioned? What content can you use to flesh out this structure?

2. Where can the structure "flex" to accomodate unknown factors as things progress?

Parameters of tool/platform choice

1. What tools are particularly suited to this group? Consider features like past experience, the need for centralization (or de-centralization), cultural expectations related to group work, sharing, and leadership, etc.

2. Is there an inherent "draw" to this project for a given population, or are you going to have to do a lot of work to keep people involved? How might your answer influence your choice of tools?

3. How do you prioritize "easy entry", "diverse uses", and "high ceilings for sophisticated expansion"?

4. Unless you are working with an existing group, or re-using an existing modalitiy, participation is not a habit for anyone here. What's the "hook"?

(Non-) Linearity vs Messiness

1. How will your group manage feedback in a constructive way?

2. Why might participants feel motivated to GIVE feedback?

3. How firm are the "social contracts" for this group? How extensively do they apply? (Do they apply to everyone equally, or are some "more equal than others"?)

4. What do people need to know at the start? What can you work out as you go along? Who decides?

5. How welcome are "meta-discussions"? What kinds of discussions are not likely to be welcome? Do you have facilities in place for "breakout groups" or other peer-to-peer interactions? (Alternatively, if the project is mostly distributed, do you have any facilities in place for coming together as a group?)

Cycles of group development

The above questions remain important thoughout the life of the project. People may come and go, particpants may propose fundamentally new approaches, people may evolve from lurkers to major content creators or vice versa. The questions we suggest can be most effective if your group discusses them over time, as part of its workflow, using synchronous online meetings (e.g., Big Blue Button, Adobe Connect, Blackboard Collaborate), forums, Google docs, wikis, and/or email lists. Regular meetings are one way to establish a "Heartbeat" for the group.

In thinking about other ways of structuring things, note that the "body" of the peeragogy handbook follows a Tuckman-like outline (*Convening a Group* is our "forming", *Organizing a Learning Context* is our "storming and norming", *Co-working/Facilitation* is our "performing", and *Assessment* is our "adjourning"). But we agree with Gersick (and Engeström) that groups do not always follow a linear or cyclical pattern with their activities!

Nevertheless, there may be some particular stages or phases that you want *your* group to go through! Do you need some "milestones", for example? How will you know when you've achieved "success"? Etc.

Dealing with chaos or conflict

In closing, it is worth reminding you that it is natural for groups to experience conflict, especially as they grow or cross other threshold points or milestones - or perhaps more likely, when they don't cross important milestones in a timely fashion (ah, so you remember those milestones from the previous section!). Nevertheless, there are some strategies can be used to make this conflict productive, rather than merely destructive (see Ozturk and Simsek).

Recommended Reading

1. Engeström, Y. (1999). Innovative learning in work teams: Analyzing cycles of knowledge creation in practice. In Y. Engeström, R. Miettinen & R.-L-. Punamäki (Eds.), *Perspectives on activity theory*, (pp. 377-404). Cambridge, UK: Cambridge University Press

2. Gersick, C. (1988). Time and transition in work teams: Toward a new model of group development. *Academy of Management Journal* 31 (Oct.): 9-41.

3. Mimi Ito's observations about MANGA FAN GROUPS CO-LEARNING JAPANESE

4. Rheingold U, MINDAMP GROUPS

5. Shneiderman, B. (2007). CREATIVITY SUPPORT TOOLS: ACCELERATING DISCOVERY AND INNOVATION. *Commun. ACM* 50, 12 (December 2007), 20-32. doi:10.1145/1323688.1323689,

6. Tomlinson, B., Ross, J., André, P., Baumer, E.P.S., Patterson, D.J., Corneli, J., Mahaux, M., Nobarany, S., Lazzari, M., Penzenstadler, B., Torrance, A.W., Callele, D.J., Olson, G.M., Silberman, M.S., Ständer, M., Palamedi, F.R., Salah, A., Morrill, E., Franch, X., Mueller, F., Kaye, J., Black, R.W., Cohn, M.L., Shih, P.C., Brewer, J., Goyal, N., Näkki, P., Huang, J., Baghaei, N., and Saper, C., MASSIVELY DISTRIBUTED AUTHORSHIP OF ACADEMIC PAPERS, *Proceedings of Alt.Chi, Austin Texas, May 5–10 2012* (10 page extended abstract), ACM, 2012,

7. David de Ugarte, Phyles. (SUMMARY) (BOOK)

8. Scheidel, T. M., & Crowell, L. (1964). Idea development in small discussion groups. *Quarterly Journal of Speech*, 50, 140-145.

9. Scheidel, T. M., & Crowell, L. (1979), *Discussing and Deciding - A Desk Book for Group Leaders and Members*, Macmillan Publishing

10. Ozturk and Simsek, "Of Conflict in Virtual Learning Communiities in the Context of a Democratic Pedagogy: A paradox or sophism?," in *Proceedings of the Networked Learning Conference, 2012, Maastricht.*

11. Paragogy Handbook, How to Organize a MOOC.

CHAPTER 5

K-12 PEERAGOGY

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Summary

Teachers have a reputation of working in isolation, of keeping their learning to themselves and on their own islands. They are also known for generously sharing resources with one another. It is this latter trait that is becoming increasingly important as the role of the educator continues to expand. As educational technology research specialist Stephen Downes OBSERVES, the expectations on teachers have grown from "being expert in the discipline of teaching and pedagogy...[to needing to have] up-to-date and relevant knowledge and experience in it. Even a teacher of basic disciplines such as science, history or mathematics must remain grounded, as no discipline has remained stable for very long, and all disciplines require a deeper insight in order to be taught effectively." It is no longer possible for an educator to work alone to fulfil each of these roles: the solution is to work and learn in collaboration with others. This is where peer-based sharing and learning online, connected/networked learning, or peeragogy, can play an important role in helping educators.

Becoming a connected/networked learner

The following steps are set out in 'phases' in order to suggest possible experiences one may encounter when becoming connected. It is acknowledged that every learner is different and these 'phases' only serve as a guide.

Phase 1: Taking the plunge

To help educators begin to connect, the Connected Educator's Starter Kit was created during Connected Educator's Month in August 2012. In the kit, educators will learn the distinction between connected 'educator' and connecter 'learner.' The kit also outlines wide range of Web 2.0 tools like, Twitter, Facebook, wikis, blogs and social networking to help support the educator-learner through the phases of connected learning.

The key to becoming a successful 'connected educator-learner' involves spending the time needed to learn how to learn and share in an open, connected environment. Each stage, tool and community has a learning curve and nuances of its own. In order to successfully complete each phase, connected educator-learners will need to reach out and ask for support from other learners they encounter. In turn, these new connected educator-learners will need to reciprocate by sharing learning openly. Not only will it support others' learning but it helps to foster the conditions necessary for a healthy online learning community.

Phase 2: Lurking

We all begin as lurkers. A learner can be considered a true 'lurker' after reviewing the starter kit, establishing a digital presence (through a blog or a wiki) or signing up for Twitter and creating a basic profile containing a photo. In this phase, lurkers will begin to 'follow' other users on Twitter and observe educational Twitter 'chats'. Lurkers will also begin to seek out other resources through blogs, Facebook, Edmodo and LinkedIn groups.

Phase 3: Entering the fray

The lurker begins to develop into a connected educator-learner once he or she makes the decision to enter into a dialogue with another user. This could take the form of a personal blog post, participation on an education-related blog or wiki or a an exchange with another Twitter user. Once this exchange

takes place, relationships may begin to form and the work towards building a Personal Learning Network (PLN) begins.

One such site where such relationships can be built is Classroom 2.0, which was founded by Steve Hargadon. Through Classroom 2.0, Steve facilitates a number of free online learning opportunities including weekly Blackboard Collaborate sessions, conferences, book projects and grassroots cross-country educational-transformation tours. Classroom 2.0 also offers a supportive Social Ning—a free, social learning space that provides online conferences and synchronous and recorded interviews with inspirational educators—for connected educator-learners around the world.

Phase 4: Building and shaping your PLN

Just as not every person one meets becomes a friend, it is important to remember that not every exchange will lead to a co-learning peeragogy arrangement. It may be sufficient to follow another who provides useful content without expecting any reciprocation. It is dependent on each educator-learner to determine who to pay attention to and what learning purpose that individual or group will serve. It is also up to the learner-educator to demonstrate to others that he or she will actively participate.

There are a number of strategies one can use when shaping the PLN to learn. However, one of the best ways educators can attract a core of *peeragogues* is by sharing actively and demonstrating active and open learning for others.

There are a number of sites where a new educator-learner can actively and openly learn. In addition to personal blogging and wikis, other professional development opportunities include open, online courses and weekly synchronous online meetings through video, podcasts or other forms of media. Examples of these opportunities are: Connected Learning TV, TechTalkTuesdays, VolunteersNeeded, SimpleK12, K12 Online, CEET, and EdTechTalk. Alternatively, courses are offered with P2PU's School of Education or a wide variety of other opportunities collected by TeachThought and Educator's CPD online. Peggy George, the co-faciliator of the weekly Classroom

2.0 LIVE Sessions, created a livebinder package of free 'PD On Demand' connected professional development online options for peeragogy enthusiasts.

Stage 5: Extending the digital PLN and connecting face-to-face

Over time, once the connected educator-learner has established a refined PLN, these peeragogues may choose to shift their learning into physical learning spaces. Some options available for these educator-learners would include the new 'grassRoots unconferences', which include examples such as: EduCon, EdCamps, THATcamp and ConnectedCA. These conferences are free or extremely low-cost and focus on learning from and with others. These 'unconferences' are typically publicized through Twitter, Google Apps, and Facebook. Connecting face-to-face with other peeragogues can strengthen bonds to learning networks and help to promote their sustainability.

Building personal capacity for Education 2.0

Given the large number of roles now expected of connected educators, through peeragogy, K–12 educators can now each distribute the load of the learning among networks. Although learning to connect takes time and practice, a support network is a natural accompaniment of relationship-building and open learning. Numerous online sites and social platforms exist for K–12 educators to connect and learn together as peeragogues; though the ways in which connections develop are unique. It is up to each educator to discover a passion and share it with others!

Postscript

Sylvia Tolisano, Rodd Lucier and Zoe Branigan-Pipen co-created the infographic below, which explores experiences individuals may encounter in the journey to become connected

learners. It is not only a helpful entry point for new learner-educators seeking to become peeragogues, but it also serves as a wonderful example of peeragogy at work.

Seven Degrees of Connectedness
& Your Personal Learning Network
An introduction to the concept of a personal learning network. Making sense of the wide range of relationships educators are building with online colleagues.
Stage 1: Lurker
"Hey other people are sharing some cool ideas on their blogs."
"So many people are saying things I agree with..."
"I follow folks on Twitter, but I'm too shy to say anything"
"I don't feel I have anything worthwhile to add."
"How do I get people to follow me back?"
Stage 2: Novice
"When I join in on the conversation people actually talk back to me."
"I love when other people agree with what I'm saying."
"I like to read a few blogs."
"I participate in a few live chats."
"I comment on blog posts every now and then."
Stage 3: Insider
"The same names keep coming up in my stream."
"I'm beginning to know many of these familiar names and faces."
"I am part of a PLN."
"When I'm offline, I feel like I'm missing out."
"I follow conference hashtags and have refined twitter lists."
Stage 4: Colleague
"I love when I meet people face-to-face at a conference or event."
"I sometimes begin conversations by sharing my TwitterID."
"I have degrees of relationships within my PLN."
"I rely on my network for the most important news."
"I have included the same people in more than one network."
"Would you join my class for a presentation on _____ ?"
Stage 5:Collaborator
"Why don't we start a Google Doc to share our ideas?"
"Want to put in a workshop proposal with me?"
"I'll see you at the tweet-up before the conference."
"Can you help me with a project with my students?"
"Let's get our students collaborating on a blog!"
"How about a weekly Math Challenge between our classes?"
"Our class wants to learn about your country."
"Sure, I'll add a post to that collaborative blog!"
Stage 6: Friend
It feels like we've known one another for a long time."
"At conferences, I'd rather meet face-to-face with my online colleagues than attend workshops."
"I am comfortable to ask my PLN for help or advice about my work."
"I know some of the personal details about the people in my network."
"I care about the well-being of these people."
Stage 7: Confidant
I wish the people in my school were as helpful as you are."
"Can you proof-read my latest blog post?"
"Would you like to meet for lunch?"
"When are you coming to town? We have to get together!"
"How are you feeling?" "Do you want to talk about it?"
"I have an idea, can we Skype?"
"I would rather talk to you in person, can you just call me."
Framework developed by Rodd Lucier-@thecleversheep http://thecleversheep.blogspot.com/
with Assistance from Zoe Branigan-Pipe-@zbpipe http://pipedreams-education.ca/
Infographic created by Silvia Rosenthal Tolisano-@langwitches http://langwitches.org/blog

(The image is licensed as CC By-NC-SA, from Flickr)

Consider taking the plunge into the different stages of a Networked/Connected Educator today.

Additional resources

amazing technology tools for your classroom:

- Richard Byrne
- Sylvia Tolisano
- Caitlin Tucker
- Vicki Davis

How to develop your PLN:

- Degrees of Connected Teaching by Rodd Lucier
- TeachThought

Theory & philosophy of connnected learning for classroom transformation:

- David Truss
- Steven Downes
- Will Richardson

CHAPTER 6

RESEARCHING PEERAGOGY

This section addresses RESEARCH PRACTITIONERS. At a high level, the questions are:

- How can we understand peer learning better?
- How can we do research "the peeragogical way"?
- How do we bring research into our peer learning activities?

We'll outline three different lines of detailed questioning that expand on these points. These could be studied in many different ways.

Question A. Which activities have the biggest payoff for learners, in terms of our learning model?

The preliminary question is, what is the learning model? For example, our CONCEPT MAP provides one model of "peeragogy" as a subject, but to make this into a "learning model", we would have to do some further work. What will we accept as evidence of learning or progress?

This is to do with whether we think of learning as something that can happen conceptually, or only "in practice". In the peeragogy project, we follow the latter view, which is in line with what Peter Sloterdijk says about learning through direct participation:

> *The consequences of Foucault's suggestions will only be appreciated if there is one day a fully worked-out form of General Disciplinics – which would probably*

> *take a century to develop. Its implantation would require a suitably contemporary transformation of universities and colleges, both in the structuring of the so called 'subjects' or 'courses' and in the basic assumptions of academic pedagogy – which, against its better judgement, still clings to the briefcase-and-box theory, where teaching and learning is nothing but transferring knowledge from the professor's briefcase to the students' file boxes, even though it has long been known that learning can only take place through a direct participation in the disciplines. Establishing an academic system with discipline-based content and methods would at once be the only realistic way to counteract the atrophy of the educational system, founded on a reformed idea of the subjects and tasks of a Great House of Knowledge.*[1]

In general, a discipline will "come with" its own learning model and its own sense of "progress". Given that we can get ahold of the learning model in our discipline of choice, then we can start to address this first question.

An hypothesis

A study plan that puts learners into contact with new concepts and techniques in such a way that they are not overwhelmed, and yet are continually challenged will be the best. For example, this could be done by solving progressively harder problems (and going back to easier ones when you get stuck).

An experiment

Look at different interaction histories and "add up" the concepts learned and the heuristics used. There are some features of social interaction (like asking questions) that we could use to guess how much people knew in advance.

Question B. Does our instrumentation of the learning model have reasonable fidelity?

In the best possible scenario, we have a detailed model of learning that indicates clearly what people know, and how they got there, where they can go next, and what steps are required. In practice, the model will probably be a bit more sloppy.

An hypothesis

The quality of the learning model will be determined by the quality of our underlying representation of "domain" or "disciplinary" knowledge.

An experiment

If we have a computer-based peeragogy platform that can support "standard" coursework, and a teacher who is willing to run a course using this platform, then we can see whether our instrumentation predicts "traditional" measures of success in the course.

Question C. Which interventions have the biggest payoff?

An hypothesis

We should be able to use models of learning effects to test out a wide range of possible interventions.

An experiment

Make the given intervention, and measure the total impact on learning across the population. (This requires a fairly sophisticated learning model and research apparatus!)

Some further reflections

How you decide to learn, and how you decide to do research, will have some significant influence on the sort of group you convene! If you plan to follow a clearly delineated pre-existing course, maybe you don't "need" peeragogy. On the other hand, if you're aiming to build peer support that works, you will definitely want to put some thought into your learning model!

Reference

1. Sloterdijk, P. (2013). *You Must Change Your Life*, Polity Press. (Tr. Wieland Hoban)

Part IV

Organizing a Learning Context

CHAPTER 7

INTRODUCTION TO ORGANIZING CO-LEARNING

This section about organizing Co-Learning rests on the assumption that learning always happens in a context, whether this context is a structured "course" or a (potentially) less structured "learning space". For the moment we consider the following division:

- *Organizing Co-learning Contexts*
  - Courses (= "learning linked to a timeline or syllabus")
  - Spaces (= "learning not necessarily linked to a timeline or syllabus")

This section focuses on existing learning contexts and examines in detail how they have been "organized" by their (co-)creators. (See also: THE STRUCTURAL DIMENSIONS OF GROUP FORMATION.)

At a "meta-level" of media, we can talk about this parallel structure:

- *Building Co-learning Platforms*
  - Development trajectories (e.g. "design, implement, test, repeat")
  - Platform features (e.g. forums, wikis, ownership models, etc.)

A given learning environment with have both time-like and space-like features as well as both designed-for and un-planned features. A given learning platform will encourage certain types of engagement and impose certain constraints. The question for

both "teachers" and "system designers" – as well as for learners – should be: *what features best support learning?*

The answer will depend on the learning task and available resources.

For example, nearly everyone agrees that the best way to learn a foreign language is through immersion. But not everyone who wants to learn, say, French, can afford to drop everything to go live in a French-speaking country. Thus, the space-like full immersion "treatment" is frequently sacrificed for course-like treatments (either via books, CDs, videos, or ongoing participation in semi-immersive discussion groups).

System designers are also faced with scarce resources: programmer time, software licensing concerns, availability of peer support, and so forth. While the ideal platform would (magically) come with solutions pre-built, a more realistic approach recognizes that problem solving always takes time and energy. The problem solving approach and associated "learning orientation" will also depend on the task and resources at hand. The following sections will develop this issue further through some specific case studies.

Case study 1 (pilot, completed): **"Paragogy" and the After Action Review.**

In our analysis of our experiences as course organizers at P2PU, we (Joe Corneli and Charlie Danoff) used the US Army's technique of After Action Review (AAR). To quote from OUR PAPER [2]:

> As the name indicates, the AAR is used to review training exercises. It is important to note that while one person typically plays the role of evaluator in such a review [...] the review itself happens among peers, and examines the operations of the unit as a whole.
>
> The four steps in an AAR are:

1. Review what was supposed to happen (training plans).
2. Establish what happened.
3. Determine what was right or wrong with what happened.
4. Determine how the task should be done differently the next time.

> The stated purpose of the AAR is to "identify strengths and shortcomings in unit planning, preparation, and execution, and guide leaders to accept responsibility for shortcomings and produce a fix."

We combined the AAR with several principles (see Discussion section below), which we felt described effective peer learning, and went through steps 1-4 for each principle to look at how well it was implemented at P2PU. This process helped generate a range of advice that could be applied at P2PU or similar institutions. By presenteding our paper at the Open Knowledge Conference (OKCon), we were able to meet P2PU's executive director, Philipp Schmidt, as well as other highly-involved P2PU participants; our feedback may have contributed to shaping the development trajectory for P2PU.

In addition, we developed a strong prototype for constructive engagement with peer learning that we and others could deploy again. In other words, variants on the AAR and the paragogical principles could be incorporated into future learning contexts as platform features [3] or re-used in a design/administration/moderation approach [4]. For example, we also used the AAR to help structure our writing and subsequent work on paragogy.net.

Case Study 2 (in progress): **"Peeragogy".**

Our particular focus in the interviews was on drawing out and emphasizing the relational dimension of students, learning experiences within their environment and, consequently, on inferring from their accounts a sense of how they perceived and

indeed constituted their environment. We asked them who they learned with and from and how. A further question specifically focused on whom they regarded as their peers and how they understood their peers as a source and a site for learning." [1]

In this section, we will interview and/or survey members of the Peeragogy community with questions similar to those used by Boud and Lee [1] and then identify strengths and shortcomings as we did with the AAR above. These questions are derived from the AAR.

Questions (discussed on an ETHERPAD; revisions to the original set of questions are marked in italics):

1. Who have you learned with *or* from in the Peeragogy project? *What are you doing to contribute to your peers' learning?*

2. How have you been learning during the project?

3. Who are your peers in this community, and why?

4. What were your expectations of participation in this project? *And, specifically, what did you (or do you) hope to learn through participation in this project?*

5. What actually happened during your participation in this project (so far)? *Have you been making progress on your learning goals (if any; see prev. question) – or learned anything unexpected, but interesting?*

6. What is right or wrong with what happened (Alternatively: how would you assess the project to date?)

7. How might the task be done differently next time? (What's "missing" here that would create a "next time", *"sequel", or "continuation"?*)

8. *How would you like to use the Peeragogy handbook?*

9. *Finally, how might we change the questions, above, if we wanted to apply them in your peeragogical context?*

Reflections on participants' answers

The questions were intended to help participants reflect on, and change, their practice (i.e. their style of participation). There is a tension, however, between changing midstream and learning what we might do differently next time. There is a related tension between initial structure and figuring things out as we go. Arguably, if we knew, 100%, how to do peeragogy, then we would not learn very much in writing this handbook. Difficulties and tensions would be resolved "in advance" (see earlier comments about "magical" technologies for peer production).

And yet, despite our considerable collected expertise on collaboration, learning, and teaching, there have been a variety of tensions here! Perhaps we should judge our "success" partly on how well we deal with those. Some of the tensions highlighted in the answers are as follows:

1. *Slow formation of "peer" relationships.* There is a certain irony here: we are studying "peeragogy" and yet many respondents did not feel they were really getting to know one another "as peers", at least not yet. Those who did have a "team" or who knew one another from previous experiences, felt more peer-like in those relationships. Several remarked that they learned less from other individual participants and more from "the collective" or "from everyone". At the same time, some respondents had ambiguous feelings about naming individuals in the first question: "I felt like I was going to leave people out and that that means they would get a bad grade - ha!" One criterion for being a peer was to have built something together, so by this criterion, it stands to reason that we would only slowly become peers through this project.

2. *"Co-learning", "co-teaching", "co-producing"?* One respondent wrote: "I am learning about peeragogy, but I think I'm failing [to be] a good peeragog. I remember that Howard [once] told us that the most important thing is that you should be responsible not only for your own learning but for your peers' learning. [...] So the question

is, are we learning from others by ourselves or are we [...] helping others to learn?" Another wrote: "To my surprise I realized I could contribute organizationally with reviews, etc. And that I could provide some content around PLNs and group process. Trying to be a catalyst to a sense of forward movement and esprit de corps."

3. *Weak structure at the outset, versus a more "flexible" approach.* One respondent wrote: "I definitely think I do better when presented with a framework or scaffold to use for participation or content development. [...] (But perhaps it is just that I'm used to the old way of doing things)." Yet, the same person wrote: "I am interested in [the] applicability [of pæragogy] to new models for entrepreneurship enabling less structured aggregation of participants in new undertakings, freed of the requirement or need for an entrepreneurial visionary/source/point person/proprietor." There is a sense that some confusion, particularly at the beginning, may be typical for peeragogy. With hindsight, one proposed "solution" would be to "have had a small group of people as a cadre that had met and brainstormed before the first live session [...] tasked [with] roles [and] on the same page".

4. *Technological concerns.* There were quite a variety, perhaps mainly to do with the question: how might a (different) platform handle the tension between "conversations" and "content production"? For example, will Wordpress help us "bring in" new contributors, or would it be better to use an open wiki? Another respondent noted the utility for many readers of a take-away PDF version. The site (peeragogy.org) should be "[a] place for people to share, comment, mentor and co-learn together in an ongoing fashion."

5. *Sample size.* Note that answers are still trickling in. How should we interpret the response rate? Perhaps what matters is that we are getting "enough" responses to make an analysis. One respondent proposed asking questions in a

more ongoing fashion, e.g., asking people who are leaving: "What made you want to quit the project?"

With regard to Points 1 and 2, we might use some "icebreaking" techniques or a "buddy system" to pair people up to work on specific projects. The project's "teams" may have been intended to do this, but commitment or buy-in at the team level was not always high (and in many cases, a "team" ended up being comprised of just one person). It does seem that as the progress has progressed, we have begun to build tools that could address Point 3: for example, the Concept Map could be developed into a process diagram that would used to "triage" a project at its outset, help project participants decide about their roles and goals. Point 4 seems to devolve to the traditional tension between the "good enough" and the "best": we have used an existing platform to move forward in an "adequate" way. And yet, some technological improvements may be needed for future projects in pæragogy. (Furthermore, note that our choice to use a CC0 license means that if other people find the content useful, they are welcome to deploy it on their own platform, if they prefer.) Finally, Point 5 is still up in the air (more answers more be coming in shortly - I think I have sent around enough reminders). Hopefully the questionnaire will be useful to the group even with a not-100% response rate! Points 4 and 5 are related, in that an ongoing questionnaire for people leaving (or joining) the project could be implemented as a fairly simple technology, which would provide feedback for site maintainers. Gathering a little information as a condition of subscribing or unsubscribing seems like a safe, light-weight, way to learn about the users (tho there is always the possibility that rather than unsubscribing, non-participating users will just filter messages from the site).

An underlying tension (or synergy?) – between learning and producing – was highlighted in our earlier work on paragogy. If we learn by producing, that is good. However, I have argued in [4] that paragogical praxis is based less on producing and more on reusing. If downstream users of this handbook find it to, indeed, be useful, we may have done enough. *For all we know, we are the "cadre" (see above) charged with determining how best*

*to do things in "subsequent rounds"!*And, with this, we turn to a third case study, where our work so far is reapplied in an offline educational context.

Discussion

We reconsider the appropriateness of the AAR and the paragogy principles in contexts beyond P2PU, using Lisewski and Joyce as a guide to our (meta-)critique and analysis.

> *In recent years, the tools, knowledge base and discourse of the learning technology profession has been bolstered by the appearance of conceptual paradigms such as the 'five stage e-moderating model' (Salmon, 2000) and the new mantra of 'communities of practice' (Wenger, 1998). This paper will argue that, although these frameworks are useful in informing and guiding learning technology practice, there are inherent dangers in them becoming too dominant a discourse. The main focus will be on the 'five stage e-moderating model' as providing an exemplar of a discourse which is in danger of forming a 'grand narrative' (Lyotard, 1984) or totalizing explanation of how to design and deliver online training programmes.* – Lisewski and Joyce

In a sense, the more reified a pattern, the less we learn by deploying it (SEE THESE COMMENTS). If we were trying to validate the paragogy model simply by fitting feedback to it (Case Study 2), that would be an act of intellectual dishonesty. Nevertheless, the act of fitting data to this model, as a constructive and creative act, is in fact useful – and a sign that we are still learning about what makes paragogy work. Not only on a theoretical level (summed up below), but also on a technological level (see THIS PAGE).

This table seems to suggests that paragogy is less of a grand narrative and more of a patchwork collection of tricks or heuristics for group work. Rather than narrativizing peer learning,

paragogy itself provides a non-linear interface that we can plug into and adapt where appropriate (like we adapted our questionnaire's questions in Case Study 2). Instead of one grand narrative, we see a growing collection of "USE CASES". The more we share our practice and experience having to do with co-organizing learning or building platforms for the same, the more robust and useful paragogy will become. It may never become a"rigorous discipline"! But if not, that is OK.

References

1. Boud, D. and Lee, A. (2005). 'PEER LEARNING' AS PEDAGOGIC DISCOURSE FOR RESEARCH EDUCATION. *Studies in Higher Education*, 30(5):501–516.

2. Joseph Corneli and Charles Jeffrey Danoff, PARAGOGY, in Sebastian Hellmann, Philipp Frischmuth, Sören Auer, and Daniel Dietrich (eds.), *Proceedings of the 6th Open Knowledge Conference, Berlin, Germany, June 30 & July 1, 2011*,

3. Joseph Corneli and Alexander Mikroyannidis (2011). PERSONALISED AND PEER-SUPPORTED LEARNING: THE PEER-TO-PEER LEARNING ENVIRONMENT (P2PLE), *Digital Education Review*, 20.

4. Joseph Corneli, PARAGOGICAL PRAXIS, to appear in *E-Learning and Digital Media* (ISSN 2042-7530), Volume 9, Number 3, 2012

5. Lisewski, B., and P. Joyce (2003). Examining the Five Stage e-Moderating Model: Designed and Emergent Practice in the Learning Technology Profession, *Association for Learning Technology Journal*, 11, 55-66.

Paragogical Principles...

1. *Changing context as a decentered center.* We interact by changing the space
2. *Meta-learning as a font of knowledge.* We interact by changing what we kn
3. *Peers provide feedback that wouldn't be there otherwise.* We interact by char
4. *Learning is distributed and nonlinear.* We interact by changing the way thir
5. *Realize the dream if you can, then wake up!* We interact by changing our ob

CHAPTER 8

ADDING STRUCTURE WITH ACTIVITIES

In the introduction to "ORGANIZING A LEARNING CONTEXT", we remarked that a"learning space" is *only potentially* less structured than a "course". For example, a library tends to be highly structured, with quiet rooms for reading, protocols for checking out books, a cataloging and shelving system that allows people to find what they are looking for, as well as rules that deter vandalism and theft. (Digital libraries don't need to play by all the same rules, but are still structured.)

But more structure does not always lead to better learning. In a 2010 Forbes article titled, "The Classroom in 2020," George Kembel describes a future in which "Tidy lectures will be supplanted by messy real-world challenges." The Stanford School of Design, (or "d.school" – which Kemble co-founded and currently directs) is already well-known for its open collaborative spaces, abundant supply of post-it notes and markers, and improvisational brainstorm activities – almost the opposite of traditional lecture-based learning.

One "unexpected benefit" of dealing with real-world challenges is that we can change our approach as we go. This is how it works in peer learning: peers can decide on different structures not just once (say, at the beginning of a course), but throughout the duration of their time together. This way, they are never "stuck" with existing structures, whether they be messy or clean. At least… that's the ideal.

In practice, "bottlenecks" frequently arise. For example, in a digital library context, there may be bottlenecks having to do with software development, organizational resources, community good will, or access to funding – and probably all of the above. In a didactic context, it may be as simple as one person knowing something that others do not.

While we can't eliminate scarcity in one stroke, we can design activities for peer learning that are "scarcity aware" and that

help us move in the direction of adaptive learning structures.

Planning Peer Learning Activities

We begin with two simple questions:

- How do we select an appropriate learning activity?
- How do we go about creating a learning activity if we don't find an existing one?

"Planning a learning activity" should mean planning an *effective* learning activity, and in particular that means something that people can and will engage with. In short, an appropriate learning activity may be one that you already do! At the very least, current activities can provide a "seed" for even more effective ones.

> *Here's a little trick to help you keep focused on things you're trying to do. Get a bunch of index cards and do this every day: 1. Sit down and write down all the things you think you need to do right then. [...] Write them as short little notes like a "to do list". 2. Then, take the first thing that you can do right now and do it. Get it done then cross it off the card. 3. Keep doing this, and if you think of something else you need to do, put it on a card. Just keep filling them up. 4. At the end of the day, go back through your card and find any unfinished things and remove any that you'll honestly never do. 5. The next day, take all the things you didn't do from the day before and copy them onto a new card, then start with #1 again.*
> – Zed Shaw, in the LEARN PYTHON THE HARD WAY FORUMS

But when entering unfamiliar territory, it can be difficult to know where to begin. And remember the bottlenecks mentioned above? When you run into difficulty, ask yourself: WHY IS THIS HARD? You might try adapting Zed Shaw's exercise, and

make a list of limiting factors, obstacles, etc., then cross off those which you can find a strategy to deal with (add an annotation as to why). For example, you might decide to overcome your lack of knowledge in some area by hiring a tutor or expert consultant, or by putting in the hours learning things the hard way (Zed would particularly approve of the latter choice). If you can't find a strategy to deal with some issue, presumably you can table it, at least for a while.

Strategic thinking like this works well for one person. What about when you're planning activities for someone else? Here you have to be careful: remember, this is peer learning, not traditional "teaching" or "curriculum design". The first rule of thumb for *peer learning* is: don't plan activities for others unless you plan to to take part as a fully engaged participant. Otherwise, it might be a peer learning activity, but it's not yours. (Perhaps your engagement is just as "designer" – that's OK. But if you don't plan to "get" as well as "give", you're not really a peer – which is perfectly OK, but you might find other reading material that will serve you better than this handbook in that case!)

In short, it would be useful to walk through the "what do you need to do" and "why is it hard" exercises from the point of view of all of the participants, keeping in mind that they will, in general, assume different roles. To the extent that you can do so, spell out what these roles are and what activities comprise them.

For example, in a mathematics learning context, you would be likely to find people…

- solving textbook-style problems
- finding and sharing new problems
- asking questions when something seems too difficult
- fixing expository material to respond to critique
- offering critique and review of proposed solutions
- offering constructive feedback to questions (e.g. hints)

- organizing material into structured collections
- working on applications to real-world problems
- doing "meta" research activities that analyse "what works" for any and all of the above

Each one of those activities may be "hard" for one reason or another. In particular, as a system the different activities tend to depend on one another. If you have people working in a "student role" but no one who can take on a "TA role", things will be more difficult for the students. As a (co-)organizer, part of *your* job is to try to make sure all of the relevant roles are covered by someone (who may in the end wear many hats).

You can further decompose each role into specific concrete activities. They might come in the form of instructions to follow: "*How to write a good critique*" or "*How to write a proof*". They might come in the form of accessible exercises (where"accessible" depends on the person"):"*Your first geometry problem*" or "NINETY-NINE LISP PROBLEMS", etc. Depending on the features of the learning context, you may be able to support the written instructions or exercises with live/in-person feedback (e.g. meta-critique to coach and guide novice critics, a demonstration, etc.).

Our immediate scenario: building activities for the Peeragogy Handbook

Adding a bunch of activities to the handbook won't solve all of our usability issues, but we've agreed that they will help a lot. So at this point, we are revisiting the TABLE OF CONTENTS and thinking about each article or section from this perspective:

1. When looking at this piece of text, what type of knowledge are we (and the reader) trying to gain? Technical skills (like learning how to edit Final Cut Pro), or abstract skills (like learning how to make sense of data)? What's the takeaway? I.e., what's the point?

2. What's difficult here? What might be difficult for someone else?

3. What learning activity recipes might be appropriate? (See below.)

4. What customizations do we need for this particular application?

As a quick example: designing a learning activity for the current page

1. We want to be able to come up with effective learning activities to accompany a "how to" article for peer learners. These activities will extend the "how to" aspect from the written word to the world of action.

2. It might be difficult for some of us to "unplug" from all the reading and writing that we're now habituated to doing. But peer learning isn't just about the exchange of text: there are lots and lots of ways to learn.

3. Like Neo (in one of our use cases), it could be useful to "become more aware of the peer learning we do every day". And to think about "How do you learn best?"

4. So, the proposed handbook activity is to step away from the handbook for a while. In fact, why not take a media fast for a given period of time and look at peer learning as a basic human activity. (Hey, it just sounds to me like you might need to unplug, man!)

Resources for identifying a dozen or so "Learning Activity Recipes":

- KS ToolKit

- Designing Effective and Innovative Sources (See the section on "Teaching Strategies for Actively Engaging Students in the Classroom")

- Each of our PATTERNS AND HEURISTICS suggest various activities, like "practicing the heuristics", "finding examples of the patterns", etc.

- Our USE CASES provide many hypothetical examples of "peeragogy in action".

Recommended Reading

THE D.SCHOOL BOOTCAMP BOOTLEG (CC-By-NC-SA) includes lots of fun activities to try. Can you crack the code and define new ones that are equally cool?

CHAPTER 9

THE STUDENT AUTHORED SYLLABUS

Authored By Suz Burroughs

In either formal learning, informal learning or models which transition between the two, there are many opportunities for learners to co-create the syllabus and/or outline their own course of action. The *sage on the stage* of formal instruction must become at the most *a guide on the side* who acts as a coach appearing only when needed rather than as a lecturer who determines the content that the learners need to master. In the following inspirational but certainly not prescriptive examples, we will focus on co-learning methods drawn from a Social Constructivist perspective, which fits nicely here.

We offer a few examples below to show a range of learner centered approaches. They all are based on co-learners hosting each other for one of a number of digestible topics in the larger subject area or domain that the group formed in order to explore. This can take place across a number of media and timelines.

The following methods will result in each co-learner gaining deep knowledge in a specific topic and moderate knowledge across several topics. The unique joy of this approach is that no two cohorts will ever be the same. The content will always be fresh, relevant, and changing. A group can even reconvene with slightly or dramatically different topics over and over using the same underlying process.

The appropriateness of the learner-created syllabus technique depends on two factors: 1) the involvement of experts in the group and 2) the level of proficiency of the group. In general, novices who may or may not have a deep interest in the subject matter benefit from more structure and experts who point to key concepts and texts. An example of this is the university survey course for first or second year students who, we assume, need more guidance as they enter the subject matter. Graduate seminars are generally much more fluid, open dialogues between

motivated experts require little structure or guidance.

We also need effective methods for groups which contain novices, experts, and everyone in between. In groups with a wide range of expertise, it is important that each co-learner chooses to focus their deep inquiry on a topic that they are less familiar with. This will *even out* the expertise level across the cohort as well as ensure that a co-learner is neither bored nor dominating the dialogue.

3 example designs to structure the learning

Weekly topics structure

One way to structure the course is to have each co-learner host a topic each week. Perhaps multiple students host their topics in the same week. This progression provides a rotation of presentations and activities to support the entire group in engaging with the topics and challenges to the thinking of the presenters in a constructive and respectful manner.

Pro: co-learners have discrete timelines and manageable chunks of responsibility.

Con: the format may become disjointed, and the depth of inquiry will likely be somewhat shallow.

Milestone based structure

In this structure, each co-learner host their topics in parallel with similar activities and milestones that the whole group moves through together. Milestones can be set for a certain date, or the group can *unlock* their next milestone whenever all participants have completed the previous milestone. This second milestone timeline can be great for informal groups where participation levels may vary from week to week due to external factors, and the sense of responsibility and game-like levels can be motivating for many co-learners.

Each co-learner may start with a post of less than 500 words introducing the topic on a superficial level. When everyone has done this, the group might move on to posting questions to the

post authors. Then, there may be a summary post of the activity so far with critical recommendations or insights.

Pro: co- learners have more time to digest a topic, formulate a complex schema, and generate deeper questions.

Con: it will be a few weeks before the topic level schema can form into a broader understanding of the subject matter or domain (seeing the big picture takes longer).

Relay learning structure.

This is similar to the milestone structure. However, co-learners rotate topics. If one learner posts an introductory write-up on a topic the first cycle, they may be researching questions on another topic in the next cycle, posting a summary in a third, and then posting a summary on their original topic in the fourth.

Pro: co-learners can experience responsibility for several topics.

Con: co-learners may receive a topic that is poorly researched or otherwise neglected.

Content

A vast number of topics

Within a subject of mutual interest to a group, there are a considerable number of topics or questions. What is important is that each co-learner can take responsibility for a reasonably narrow area given the duration of the course or the timeline of the group. Areas that are too broad will result in a very superficial understanding, and areas that are too narrow will result in a dull experience. For example, in marine biology, topics such as "the inter-tidal zone" may be too broad for a course cycle of a few weeks. Narrowing to one species may be too specific for a course over a few months.

Learner generated topics

Most cohorts will have some knowledge of the shared area of interest or an adjacent area. It is a good idea to respect the

knowledge and experience that each member of the group brings to the table. A facilitator or coordinator may generate a list of potential topic areas, setting an example of the scale of a topic. We suggest that the participants in the group are also polled for additions to the list. In large courses, sending out a Google Form via email can be an effective way to get a quick list with a high response rate.

Expert informed topics

If there is no expert facilitator in the group, we suggest that the cohort begin their journey with a few interviews of experts to uncover what the main buzz words and areas of focus might be. One way to locate this type of expert help is through contacting authors in the subject matter on social networks, reviewing their posts for relevance, and reaching out with the request.

We recommend two people interview the expert over video chat, for example in a Hangout. One person conducts the interview, and one person takes notes and watches the time. We strongly suggest that the interview be outlined ahead of time:

Warm up: Who are you, what are your goals, and why do you think this interview will help?

Foundational questions: Ask a few questions that might elicit shortt answers to build rapport and get your interviewee talking.

Inquiry: What people say and what they do can often be very different. Ask about topics required for mastery of the subject matter (e.g. What are the areas someone would need to know about to be considered proficient in this subject?). Also, ask QUESTIONS THAT REQUIRE STORYTELLING. Avoid SUPERLATIVE or CLOSE-ENDED QUESTIONS.

Wrap up: Thank the interviewee for their time, and be sure to follow up by letting them know both what you learned and what you accomplished because they helped you.

Shared goals and group norms

Choosing useful outputs

Getting together for the sake of sharing what you know in an informal way can be fairly straightforward and somewhat useful. Most groups find that a common purpose and output that are explicitly defined and documented help to engage, motivate, and drive the group. For the examples above, the group may decide to create a blog with posts on the various topics or create a wiki where they can share their insights. Other outputs can include community service projects, business proposals, recommendations to senior management or administration, new products, and more. The key is to go beyond sharing for sharing sake and move toward an output that will be of use beyond the co-learning group. This activity is best described in Connectivist theory as the special case of networked learning where we find evidence of learning in collective action and/or behavioral change in groups rather than a psychological or neurological process in individuals.

Group cohesion (a.k.a. the rules of the road)

One challenge of this kind of collaboration is that each group will need to decide on norms, acceptable practices and behaviors. Culturally diverse groups in particular may run into communication or other issues unless there is a way to create shared expectations and communicate preferences.

One way to do this is with a team charter. This is a living document where the initial rules of engagement can live for reference. The group may add or edit this document over time based on experience, and that is a welcome thing! This documentation is a huge asset for new members joining the group who want to contribute quickly and effectively. Any co-editing word processing program will work, but we strongly recommend something that can be edited simultaneously and that lives in the cloud. (Google Docs is convenient because you can also embed your Charter into another site.)

Try starting with the following three sections, and allow some time for the group to co-edit and negotiate the document between icebreakers and kicking off the official learning process.

Mission: Why are you forming the group? What do you want to accomplish together?

Norms: Use NETIQUETTE? No FLAMING? Post your vacation days to a SHARED CALENDAR? Cultural norms?

*Members:*It is useful to include a photo and a link to a public profile such as Twitter, Google+ or Facebook.

Assessments and feedback loops

Co-authored assessment rubrics

Tests. Quizzes. Exams. How can the co-learning group assess their performance?

These types of courses benefit from an approach similar to coaching. Set goals as individuals and a group in the beginning, define what success looks like, outline steps that are needed to achieve the goal, check in on the goal progress periodically, and assess the results at the end of the course against the goal criteria. Goals may include domain expertise, a business outcome, a paper demonstrating mastery, a co-created resource, or even the quality of collaboration and adherence to shared group norms.

Learner created assessments

Another effective way to create an assessment is to decide on an individual or group output and create a peer assessment rubric based on the goals of the individual or group.

One way to create a rubric is to spend some time defining the qualities you want your output to have based on positive examples. Perhaps a group wants to create a blog. Each person on the team may identify the qualities of a great blog post based on examples that they admire. They can use that example to create a criteria for assessment of co-learner authored blog posts. We recommend that the criteria have a 0 to 5 point scale with 0 be-

ing non-existent and 5 being superb. Writing a few indicators in the 1, 3, and 5 columns helps to calibrate reviewers.

Create a SHARED DOCUMENT, perhaps starting with a list of criteria. Collapse similar criteria into one item, and create the indicators or definitions of 1, 3, and 5 point performance. Agree on the rubric, and decide on how the co-learners will be assigned assessment duties. WIll everyone review at least two others? Will each co-learner product need at least 3 reviewers before it goes live? Will you use a SPREADSHEET or a FORM to collect the assessments?

In a university setting, the instructor of record may wish to approve a peer assessment rubric, and it is sometimes a good idea to have a few outside experts give feedback on criteria that the group may have missed.

Outside assessments

It is possible that an instructor of record or similar authority will create the assessment for performance. In these cases, it is crucial that the co-learners have access to the grading rubric ahead of time so that they can ensure their activities and timeline will meet any requirements. In this case, it may be possible to require that the co-learners self-organize entirely, or there may be intermediary assignments such as the charter, project plan or literary review.

Cyclical use of these models

So much more to learn

As mentioned above, the joy of this type of learning is that no two groups will ever do it the same. Their process, goals, and outcomes can all be unique. As designers and facilitators of this type of learning environment, we can say it is a wild ride! Each class is exciting, refreshing, and on trend. The co-learners become our teachers.

If a group generates more topics than it is possible to cover at one time given the number of group members or if a group

has plans to continue indefinitely, it is always possible to set up a system where potential topics are collected at all times. These unexplored topics can be harvested for use in another learning cycle, continuing until the group achieves comprehensive mastery.

Risks

This format is not without its own unique pitfalls: some challenges are learner disorientation or frustration in a new learning structure with ambiguous expectations and uneven participation. Some groups simply never gel, and we do not know why they have failed to achieve the cohesion required to move forward. Other groups are the exact opposite. Here are a few risks to consider if you would like to try the methods suggested here and how to mitigate them.

Uneven expertise: Ask co-learners to be responsible for topics that are new to them.

Uneven participation and cohesion: Ask co-learners what they want to do to motivate the group rather than imposing your own ideas.

Experts/facilitators that kill the conversation: In the charter or other documentation, explicitly state that the purpose of the discussion is to further the conversation, and encourage experts to allow others to explore their own thinking by asking probing (not leading) questions.

Ambiguous goals: Encourage the group to document their mission and what they will do as a team. This can change over time, but it is best to start out with a clear purpose.

Conclusion

Make mistakes. Correct course. Invite new perspectives. Create a structure that everyone can work with. Change it when it breaks. Most of all, have fun!

CHAPTER 10

CONNECTIVISM IN PRACTICE — HOW TO ORGANIZE A MOOC

Summary

Massive Open Online Courses (MOOCs) are online learning events that can take place synchronously and asynchronously for months. Participants assemble to hear, see, and participate in backchannel communication during live lectures. They read the same texts at the same time, according to a calendar. Learning takes place through self-organized networks of participants, and is almost completely decentralized: individuals and groups create blogs or wikis around their own interpretations of the texts and lectures, and comment on each other's work; each individual and group publicises their RSS feed, which are automatically aggregated by a special (freely available) tool, gRSShopper. Every day, an email goes out to all participants, aggregating activity streams from all the blogs and wikis that engage that week's material. MOOCs are a practical application of a learning theory known as "connectivism" that situates learning in the networks of connections made between individuals and between texts.

Introduction

Traditionally, scholars distinguish between three main CATEGORIES OF LEARNING THEORIES: behaviorism, cognitivism and constructivism. Some would add a fourth one: CONNECTIVISM, but this is DISPUTED. One interesting application of connectivism, a learning theory and practice for the digital era, is the Massive Open Online Course.

A learning theory for the digital age

The connectivist theory describes learning as a process of creating connections and developing networks. It is based on the premise that knowledge exists out in the world, rather than inside an individual's mind. Connectivism sees the network as a central metaphor for learning, with a node in the network being a concept (data, feelings, images, etc.) that can be meaningfully related to other nodes. Not all connections are of equal strength in this metaphor; in fact, many connections may be quite weak.

On a practical level, this approach recommends that learning should focus on where to find information (streams), and how to evaluate and mash up those streams, rather than trying to enter lots of (perishable) information into one's skull. Knowing the pipes is more important than knowing what exactly each pipe contains at a given moment.

Stephen Downes and George Siemens promote the idea of connectivism. They also practice it, by organizing Massive Open Online Courses (MOOCs): for instance, Change11. People are free to participate at will. Each week a subject is discussed during synchronous sessions, which are recorded and uploaded for reference on the Change11 website. The site also includes an archive of daily newsletters and RSS-feeds of blog posts and tweets from participants.

MOOCs tend to be very learner-centered. People are encouraged to pursue their own interests and link up with others who might help them. But the distributed and free nature of the projects also leads to complaints; participants often find it confusing when they attempt to follow up on all the discussions (the facilitators say one should not try to follow up on *all* the content).

Stephen Downes explains in What Connectivism Is: "This implies a pedagogy that (a) seeks to describe 'successful' networks (as identified by their properties, which I have characterized as diversity, autonomy, openness, and connectivity); and (b) seeks to describe the practices that lead to such networks, both in the individual and in society (which I have characterized as modeling and demonstration (on the part of a teacher)

and practice and reflection (on the part of a learner)."

George Siemens says connectivism is a "LEARNING THEORY FOR THE DIGITAL AGE."

Connectivism in practice

One example of a MOOC that claims to embody the connectivist theory is CHANGE.MOOC.CA. The "HOW IT WORKS" section of the site explains what connectivism means in practice.

The MOOC organizers developed a number of ways to combine the distributed nature of the discussions with the need for a constantly updated overview and for a federated structure. So, if your team wants to organize an open online course, these are five points to take into consideration:

There is no body of content the participants have to memorize, but the learning results from activities they undertake. The activities are different for each person. A course schedule with suggested reading, assignments for synchronous or asynchronous sessions is provided (using Google Docs spreadsheets internally, Google Calendar externally - one could also use a wiki), but participants are free to pick and choose. Normally there is a topic, activities, reading resources and often a guest speaker for each week. One should even reflect upon the question whether a start- and end date are actually needed. It is crucial to explain the particular philosophy of this kind of MOOC, and this right from the outset, because chances are learners will come with expectations informed by their more traditional learning experiences.

1. It is important to discuss the "internal" aspects, such as self-motivation: what do the participants want to achieve, what is their larger goal? And what are their intentions when they select certain activities (rather than other possibilities)? Everyone has her own intended outcome. Suggest that participants meditate on all this and jot down their objectives. And how can they avoid becoming stressed out and getting depressed because they feel they cannot "keep up with all this?" The facilitators should

have a good look at these motivations, even if it's impossible to assist every participant individually (for large-scale MOOCs).

2. Ideally, participants should prepare for this course by acquiring the necessary digital skills. Which skills are "necessary" can be decided by the group itself in advance. It's all about selecting, choosing, remixing - also called "curating". There are lots of tools which you can use for this: blogs, social bookmarks, wikis, mindmaps, forums, social dashboards, networks such as Twitter with their possibilities such as hashtags and lists. Maybe these tools are self-evident for some, but not necessarily for all the participants.

3. The course is not located in one place but is distributed across the web: on various blogs and blogging platforms, on various groups and online networks, on photo- and video-sharing platforms, on mindmaps and other visualization platforms, on various tools for synchronous sessions. This wide variety is in itself an important learning element.

4. There are weekly synchronous sessions (using Blackboard collaborate, or similar group chatting tool). During these sessions, experts and participants give presentations and enter into discussions. Groups of participants also have synchronous meetings at other venues (such as Second Life). Try to plan this well in advance!

5. Many participants highly appreciate efforts to give an overview of the proceedings. Specifically, the Daily Newsletter is a kind of hub, a community newspaper. In that Daily there is also a list of the blog posts mentioning the course-specific tag (e.g. "Change11"), also the tweets with hashtag #change11 are listed in the Daily. Of course, the MOOC has a site where sessions, newsletters and other resources are archived and discussion threads can be read.

From the very beginning of the course, it's necessary to explain the importance of tagging the various contributions, to suggest a hashtag.

For harvesting all this distributed content, Stephen Downes advocates the use of gRSShopper, which is a personal web environment that combines resource aggregation, a personal dataspace, and personal publishing (Downes developed it and would like to build a hosted version - eventually financed via Kickstarter). The gRSShopper can be found on a registration page, which is useful primarily for sending the newsletter. It allows you to organize your online content any way you want, to import content - your own or others' - from remote sites, to remix and repurpose it, and to distribute it as RSS, web pages, JSON data, or RSS feeds. Downes: "For example, the gRSShopper harvester will harvest a link from a given feed. A person, if he or she has admin privileges, can transform this link into a post, adding his or her own comments. The post will contain information about the original link's author and journal. Content in gRSShopper is created and manipulated through the use of system code that allows administrators to harvest, map, and display data, as well as to link to and create their own content. gRSShopper is also intended to act as a fully-fledged publishing tool." (for alternatives, see the technologies section further on).

Alternatives for registrations: Google Groups for instance. But specific rules about privacy should be dealt with: what will be the status of the contributions? In this MOOC the status is public and open by default, for Downes this is an important element of the course.

Technologies

Some MOOCs use Moodle, but Downes dislikes the centralization aspect and it's not as open as it could be, saying "people feel better writing in their own space." Other possibilities: Google Groups, Wordpress, Diigo, Twitter, Facebook page, Second Life; but each course uses different mixtures of the many tools out there. People choose their environment - whether it is

WoW or Minecraft. Students use Blogger, WordPress, Tumblr, Posterous as blogging tools.

Key element is RSS harvesting

Give participants a means to contribute their blogfeed. In "Add a New Feed," Downes explains how to get this structure and additional explanations (via videos) in order to contribute their blog feed. The administrator in this case uses gRSShopper to process the content and put it in a database, process it and send it to other people. Alternatively one can use Google Reader (the list of feeds is available as an OPML file - which can be imported to other platforms). There is also a plug-in for Wordpress that lets you use a Google Doc spreadsheet for the feeds, then Wordpress for the aggregation). Many other content management systems have RSS harvesting features.

Each individual could run her own aggregator, but Downes offers it as a service. But aggregators are needed, whether individual, centralized or both.

Specialized harvesting

Using Twitter, Diigo, Delicious, Google Groups, If This Then That (IFTTT) and Feed43 (take ordinary web page and turn it into an RSS feed).

Synchronous environments

Synchronous platforms include Blackboard Collaborate (used now for Change11); Adobe Connect; Big Blue Button; WizIQ; Fuze; WebX; webcasting; web radio; videoconferencing with Skype or Google Hangout in conjunction with Livestream or ustream.tv. Or take the Skype/Hangout audiostream and broadcast is as webradio. Set up and test ahead of time, but don't hesitate to experiment.

Newsletter or Feeds

Feeds are very important (see earlier remarks about the Daily newsletter). You can use Twitter or a Facebook page, Downes uses email, also creates an RSS version through gRSShopper and sends it through Ifttt.com back to Facebook and Twitter. For the rest of us there is Wordpress, which you can use to CREATE AN EMAIL NEWS LETTER. Downs also suggests this handy guide ON HOW TO DESIGN AND BUILD AN EMAIL NEWSLETTER WITHOUT LOOSING YOUR MIND!

Consider using a content management system and databases to put out specialized pages and the newsletter in an elegant way, but it requires a learning curve. Otherwise, use blogs / wikis.

Comments

Participants are strongly encouraged to comment on each others' blogs and to launch discussion threads. By doing so they practice a fundamental social media skill - developing networks by commenting on various places and engaging in conversations. It is important to have activities and get people to be involved rather than sit back.

For an in-depth presentation, please have a look at FACILITATING A MASSIVE OPEN ONLINE COURSE by Stephen Downes, in which he focuses on research and survey issues, preparing events, and other essentials.

Resources

basics

- HOW THIS COURSE WORKS
- WHAT IS A MOOC
- SUCCESS IN A MOOC
- KNOWLEDGE IN A MOOC
- INTRODUCTION AND INVITATION

Further reading

- Downes & Siemens MOOC site
- What Connectivism Is by Stephen Downes
- An Introduction to Connective Knowledge by Stephen Downes
- Facilitating a Massive Open Online Course, by Stephen Downes
- gRSShopper
- Connectivism: A Learning Theory for the Digital Age by George Siemens
- A Connectivism Glossary
- Rhizomes and Networks by George Siemens
- Rhizomatic Education: Community as Curriculum by Dave Cormier
- Knowing Knowledge, a book by George Siemens
- Net Smart, Howard Rheingold (about internal and external literacies for coping with the 'always on' digital era)
- Massive Open Online Courses: Setting Up (StartToMOOC, Part 1)
- Literature review

Relevant Handbook pages

Personal Learning Networks

CHAPTER 11

PARTICIPATION

Summary

All collaborative work is managed in some way. Methods of managing projects, including learning projects, are ranking from the more formal and structured to the less formal and unstructured.

Participation in business-oriented projects

When we think about project management in an organization, we often relate to well-established tools and processes. For example, we will use the PROJECT MANAGEMENT BODY OF KNOWLEDGE (PMBOK) as a standard. For the Project Management Institute (PMI) and most workers, those standards are the key to project success. In classical project management, tasks and deadlines are clearly defined. We will, for example, use PROGRAM EVALUATION AND REVIEW TECHNIC (PERT) to analyze and represent tasks. We often represent the project schedule using a GANTT CHART. Those are just two of the project management tools that illustrate how project management rests firmly on its engineering background. In those very structured projects, each actor is expected to work exactly as planned and to deliver his part of the work on time; every individual delay potentially leading to a collective delay.

Participation in educational projects

If we look for analogies between project management and education, we can find some similarities in models pedagogy of. In a paper called "MOVING FROM PEDAGOGY TO ANDRAGOGY" by Hiemstra and Sisco, we see how students hold a passive role (on a cognitive level) in the pedagogy model. They are following

a plan or syllabus that has been designed by the instructor and that won't change during the session. Students will have to complete all their tasks on time; in other words, return their exercices to the teacher before the due date. In a peeragogy project, whose roots lie closer to andragogy than in pedagogy, participation to the project is less regulated (see FROM PEER LEARNING TO PEERAGOGY)

As peeragogy projects members expect to break the 90/9/1 RULE and bring on board more than 1% of creators and 9% of editors, they also keep in mind the LONG TAIL rule. "The term Long Tail has gained popularity in recent times as describing the retailing strategy of selling a large number of unique items with relatively small quantities sold of each." In other words, people working in peeragogy should accept that some participants only contribute few ideas (or may be even just one!). Going further, people may even be allowed to just watch a peeragogy project going on without creating or editing, in order to understand its culture before feeling ready to jump in and contribute more actively.

In general, a peeragogy community will constantly adjust as it seeks an equilibrium between order and chaos, allowing everyone to collaborate at their own pace without loosing focus, and in such a manner that the collective can deliver - whether that's a product or a learning experience!.

How to deal with participation in a peeragogy project

- Accept that some people want to watch what is going on before jumping in. This doesn't mean you have to keep them forever. After a while you may un-enroll people who don't add any value to the community. In our Peeragogy project, we've asked people to re-sign up several times (at any given juncture, some proprotion prefer to leave).

- Accept that people may only contribute a little: if this contribution is good it will add value to the whole

- Understand that you can not impose strict deadlines to volunteers
- Let your work be "open" in a sense inspired by Wikipedia's Neutral Point of View policy
- Give roles to participants and define some "energy centers" who will take the lead on specific items in the project
- Organize regular face to face or online meetings to talk about progress and what's needed in upcoming days/weeks
- Ask participants to be clear about when they will be ready to deliver their contributions
- Have clear deadlines, but allow contributions that come in after the deadline – in general, be flexible
- Add a newcomer section on your online platform to help newbies to get started

CHAPTER 12

THE WORKSCAPE, A LEARNING PLATFORM FOR CORPORATIONS

Summary

Cultivating a results-oriented peer-learning program in a corporate learning ecosystem involves a few tweaks of the approach and tools we discussed in relation to more open, diverse networks.

JAY CROSS *talks about* WORKSCAPES *on* VIMEO.

The Workscape, a platform for learning

Formal learning takes place in classrooms; informal learning happens in *workscapes.* A workscape is a learning ecology. As the environment of learning, a workscape includes the workplace. In fact, a workscape has no boundaries. No two workscapes are alike. Your workscape may include being coached on giving effective presentations, calling the help desk for an explanation, and researching an industry on the Net. My workscape could include participating in a community of field technicians, looking things up on a search engine, and living in France for three months. Developing a platform to support informal learning is analogous to landscaping a garden. A major component of informal learning is natural learning, the notion of treating people as organisms in nature. The people are free-range learners. Our role is to protect their environment, provide nutrients for growth, and let nature take its course. A landscape designer's goal is to conceptualize a harmonious, unified, pleasing garden that makes the most of the site at hand. A workscape designer's goal is to create a learning environment that increases the organization's longevity and health and the individual's happiness and well-being. Gardeners don't control plants; managers don't control people. Gardeners and managers

have influence but not absolute authority. They can't makea plant fit into the landscape or a person fit into a team. In an ideal Workscape, workers can easily find the people and information they need, learning is fluid and new ideas flow freely, corporate citizens live and work by the organization's values, people know the best way to get things done, workers spend more time creating value than handling exceptions, and everyone finds their work challenging and fulfilling.

The technical infrastructure of the Workscape

When an organization is improving its Workscape, looking at consumer applications is a good way to think about what's required. Ask net-savvy younger workers how they would like to learn new skills, and they bring up the features they enjoy in other services:

- Personalize my experience and make recommendations, like Amazon
- Make it easy for me to connect with friends, like Facebook
- Keep me in touch with colleagues and associates in other companies, as on LinkedIn
- Persistent reputations, as at eBay, so you can trust who you're collaborating with
- Multiple access options, like a bank that offers access by ATM, the Web, phone, or human tellers
- Don't overload me. Let me learn from YouTube, an FAQ, or linking to an expert
- Show me what's hot, like Reddit, Digg, MetaFilter, or Fark do
- Give me single sign-on, like using my Facebook profile to access multiple applications

- Let me choose and subscribe to streams of information I'm interested in, like BoingBoing, LifeHacker or Huffpost.
- Provide a single, simple, all-in-one interface, like that provided by Google for search
- Help me learn from a community of kindred spirits, like SlashDot, Reddit, and MetaFilter
- Give me a way to voice my opinions and show my personality, as on my blog
- Show me what others are interested in, as with social bookmarks like Diigo and Delicious
- Make it easy to share photos and video, as on Flickr and YouTube
- Leverage "the wisdom of crowds," as when I pose a question to my followers on Twitter or Facebook
- Enable users to rate content, like "Favoriting" an item on Facebook or +!ing is on Google or YouTube

Some of those consumer applications are simple to replicate in-house. Others are not. You can't afford to replicate Facebook or Google behind your firewall. That said, there are lots of applications you can implement at reasonable cost. Be skeptical if your collaborative infrastructure that doesn't include these minimal functions:

Profiles - for locating and contacting people with the right skills and background. Profile should contain photo, position, location, email address, expertise (tagged so it's searchable). IBM's Blue Pages profiles include how to reach you (noting whether you're online now), reporting chain (boss, boss's boss, etc.), link to your blog and bookmarks, people in your network, links to documents you frequently share, members of your network.

Activity stream - for monitoring the organization pulse in real time, sharing what you're doing, being referred to useful

information, asking for help, accelerating the flow of news and information, and keeping up with change

Wikis - for writing collaboratively, eliminating multiple versions of documents, keeping information out in the open, eliminating unnecessary email, and sharing responsibility for updates and error correction

Virtual meetings - to make it easy to meet online. Minimum feature set: shared screen, shared white board, text chat, video of participants. Bonus features: persistent meeting room (your office online), avatars.

Blogs - for narrating your work, maintaining your digital reputation, recording accomplishments, documenting expert knowledge, showing people what you're up to so they can help out

Bookmarks - to facilitate searching for links to information, discover what sources other people are following, locate experts

Mobile access - Half of America's workforce sometimes works away from the office. Smart phones are surpassing PCs for connecting to networks for access and participation. Phones post most Tweets than computers. Google designs its apps for mobile before porting them to PCs.

Social network - for online conversation, connecting with people, and all of the above functions.

Conclusion

Learning used to focus on what was in an individual's head. The individual took the test, got the degree, or earned the certificate. The new learning focuses on what it takes to do the job right. The workplace is an open-book exam. What worker doesn't have a cell phone and an Internet connection? Using personal information pipelines to get help from colleagues and the Internet to access the world's information is encouraged. Besides, it's probably the team that must perform, not a single individual. Thirty years ago, three-quarters of what a worker need to do the job was stored in her head; now it's less than 10%.

Part V

Co-Facilitation and Co-Working

CHAPTER 13

CO-FACILITATION

Author: Maria Arenas, with contributions by Charlie Danoff

Summary

Co-facilitating emerges when people have to work together in order to complete a task, in environments like schools, universities, shelters, churches, workplaces.

Co-facilitating in peer-to-peer learning

Facilitation is the process of enabling groups to work cooperatively and effectively. Peers co-facilitate by taking and sharing leadership roles to move the peer learning process along faster and/or more efficiently. The main purpose of *co-facilitation* is to offer and receive support from a cohort who is invested in the project. Co-facilitation commonly can be found in specific collaborations between two or more people who need each other to complete a task, for example, learn about a given subject, author a technical report, resolve a problem, or conduct research Dr. Fink writes in *Creating Significant Learning Experiences* (Jossey Bass, 2003) that "in this process, there has to be some kind of change in the learner. No change, no learning". Significant learning requires that there be some kind of lasting change that is important in terms of the learner's life; therefore a way to measure the effectiveness of co-facilitation is if there's been a change in the peer group.

Which roles, competences and skills do we need to co-facilitate?

Co-facilitation roles can be found in groups/teams like basketball, health, Alcoholics Anonymous, spiritual groups, etc.

For example, self-help groups are composed of people who gather to share common problems and experiences associated with a particular problem, condition, illness, or personal circumstance. "Freedom to Learn" is among the learning theories Carl Rogers was known for. Commenting on Rogers' related work, Barrett-Lennard remarked: "…he offered several hypothesized general principles. These included: We cannot teach another person directly; we can only facilitate his learning. The structure and organization of the self appears to become more rigid under threat; to relax its boundaries when completely free from threat…. The educational situation which most effectively promotes significant learning is one in which 1) threat to the self of the learner is reduced a minimum, and 2) differentiated perception of the field of experience is facilitated." Part of the facilitator's role is creating a safe place for learning to take place; but they should also challenge the participants. As John Wooden said of coaching: "Be quick, but don't hurry." John Heron articulated this nature of facilitation well:

> ''Too much hierarchical control, and participants become passive and dependent or hostile and resistant. They wane in self-direction, which is the core of all learning. Too much cooperative guidance may degenerate into a subtle kind of nurturing oppression, and may deny the group the benefits of totally autonomous learning. Too much autonomy for participants and laissez-faire on your part, and they may wallow in ignorance, misconception, and chaos."

Co-facilitating discussion forums

If peers are preparing a forum discussion, here are some ideas from "The tool box", that can be helpful as guidelines for running this type of meetings:

- Explain the importance of collaborative group work and make it a requirement.

- Establish how you will communicate in the forum
- Be aware of mutual blind spots in facilitating and observing others
- Watch out for different rhythms of intervention".

Co-facilitating wiki workflows

A good place to begin for any co-facilitators working with a wiki is Wikipedia's famous "5 Pillars."

- Wikipedia is an encyclopedia
- Wikipedia writes articles from a neutral point-of-view
- Wikipedia is free content that anyone can edit, use, modify, and distribute.
- Editors should interact with each other in a respectful and civil manner.
- Wikipedia does not have firm rules.

Co-facilitating live sessions

Learning experiences in Live Sessions which include Social Media and co facilitating exercise is described in the article" Learning Re-imagined: Participatory, Peer, Global, Online" by Howard Rheingold, we have taken inspiration from his points and re-mixed them slightly.

- Establish roles for co facilitators and participants (moderator, technical recorder, writer to take notes, etc..).
- Provide a reading list – indicating what is really important and what is more "nice to know".
- Ideally before, or when the session begins, take some time to allow participants to familiarize themselves with the tools.

- Introduce yourself and your peers (co-facilitators) and ask the members to make a brief introduction of themselves.
- Review the agenda for the session, both to make sure there *is* an agenda (at the start) and to make sure everything was covered (at the end).
- Online tools like: Mumble, Diigo, Etherpad and chat can be used to communicate and interact in the session. However, consider whether participants are interested in experimenting with lots of tools. Often more tools (and some content) can end up making tasks harder.
- Keep it Simple Stupid, or KISS: Remember you came together with your peers to accomplish something not to discuss an agenda or play with online tools; keep everything as easily accessible as possible to ensure you realize your peer goals.

Paragogical Action Review

Following any co-facilitating session it is essential that the co-facilitators come together and review what happened. A useful framework is the Paragogical Action Review (PAR), based on the U.S. Army's After Action Review, which has four components, to which we have added a fifth. A further difference in the Paragogical Action Review is that it need not take place "after" the action, but can be integrated into the action (accordingly, we use a present tense phrasing).

- Review what was supposed to happen (training plans)
- Establish what is happening
- Determine what's right or wrong with what's happening
- Determine how the task should be done differently in the future
- Share your notes with your other peers for feedback and to improve things going forward

Experiences and experiments in co-facilitating

- Learning Reimagined: Participatory, Peer, Global, Online, by Howard Rheingold
- Research Gate is a network dedicated to science and research, in which members connect, collaborate and discover scientific publications, jobs and conferences.
- Creating and Facilitating Peer Support Groups, by The Community Tool Box
- Facilitation Tips, by Villanova University
- Herding Passionate Cats: The Role of Facilitator in a Peer Learning, by Pippa Buchanan
- Reflective Peer Facilitation: Crafting Collaborative Self-Assessment, by Dale Vidmar, Southern Oregon University Library
- Effective Co-Facilitation, by Everywoman´s Center, University of Massachussetts

Resources

1. Peer Education: Training of Trainers Manual; UN Interagency Group on Young Peoples Health
2. Co Facilitating: Advantages & Potential Disadvantages. J. Willam Pfeifer and John E Johnes
3. A summary of John Heron's model on role of facilitators
4. Carl Rogers, Core Conditions and Education, Encyclopedia of Informal Education
5. Peer Mediation, Study Guides and Strategies
6. Co-Facilitation: The Advantages and Challenges, Canadian Union of Public Employees
7. Bohemia Interactive Community Wiki Guidelines

8. Barrett-Lennard, G. T. (1998) Carl Roger's Helping System. Journey and Substance, London: Sage

9. 5 Pillars of Wikipedia, from Wikipedia

10. Training the Force, *(2002)* US Army Field Manual #FM 7-0 (FM 25-100)

CHAPTER 14

PARAGOGICAL DESIGNS FOR CO-WORKING

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Here our aim is to develop the productive "paragogical" side of peeragogy through a discussion of the strategies, joys, and sorrows of co-working. It complements the CO-FACILITATION page.

These questions could apply to our working group(s) here, and to pretty much any working group in existence:

- How do you pass the ball?
- How do you keep the energy going?
- How do you diagnose where the group is going and make things "intentional" instead of assumed?

And how do we do all of this in a way that takes learning into account? (Thee proposed "allowed list" comes from Simon Sinek, by way of Fabrizo Terzi and the FTG.)

Co-working as the flip side of convening

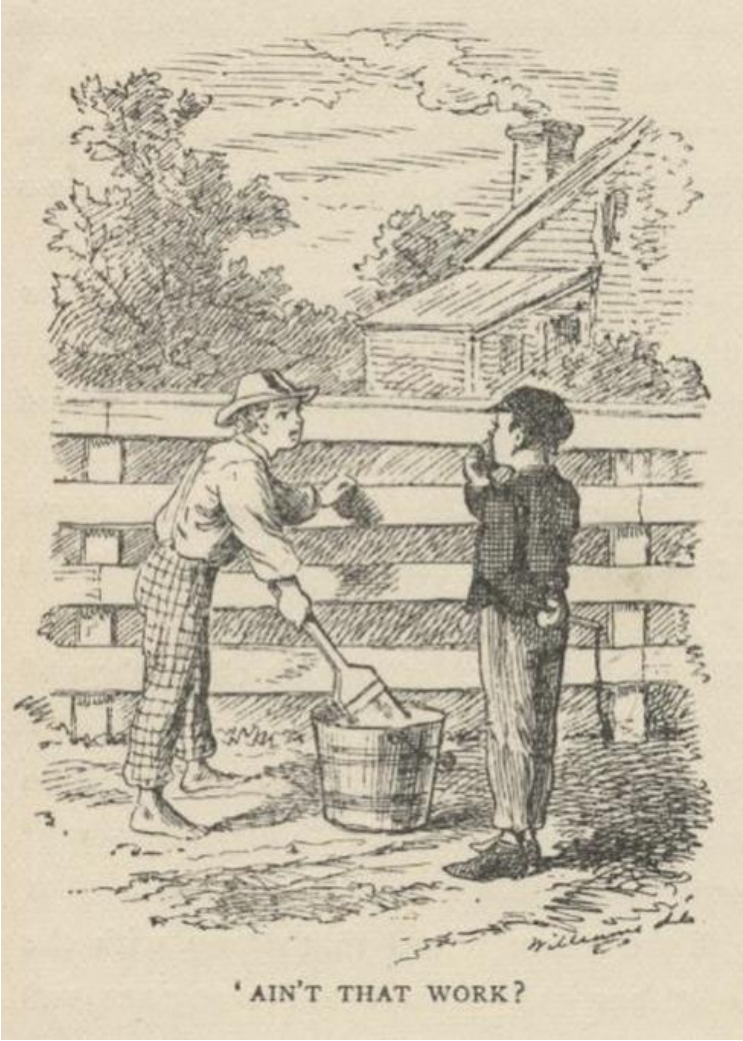
Linus Torvalds, interviewed by Steven Vaughan-Nichols for a Hewlett-Packard publication, had this to say about software

development:

> *The first mistake is thinking that you can throw things out there and ask people to help. That's not how it works. You make it public, and then you assume that you'll have to do all the work, and ask people to come up with suggestions of what you should do, not what they should do. Maybe they'll start helping eventually, but you should start off with the assumption that you're going to be the one maintaining it and ready to do all the work. The other thing–and it's kind of related–that people seem to get wrong is to think that the code they write is what matters. No, even if you wrote 100% of the code, and even if you are the best programmer in the world and will never need any help with the project at all, the thing that really matters is the users of the code. The code itself is unimportant; the project is only as useful as people actually find it.*

It is important to understand your users – and remember that contributors are a special class of "user" with a real time investment in the way the project works. We typically cannot "Tom Sawyer" ourselves into leisure or ease just because we manage to work collaboratively, or just because we have found people with some common interests.

The truth is probably somewhere in between Torvalds and Twain. Many people actively want to contribute! For example, on "Wikipedia, the encyclopedia anyone can edit" (as of 2011) AS MANY AS 80,000 visitors make 5 or more edits per month. This is interesting to compare with the FACT that (as of 2006) "over 50% of all the edits are done by just .7% of the users… 24 people…and in fact the most active 2%, which is 1400 people, have done 73.4% of all the edits." Similar numbers apply to other peer production communities.



A little theory

In many natural systems, things are not distributed equally, and it is not atypical for e.g. 20% of the population to control 80% of the wealth (or, as we saw, for 2% of the users to do nearly 80% of the edits). Many, many systems work like this, so maybe there's a good reason for it.

Let's think about it in terms of "coordination" as thought of by the late Elinor Ostrom. She talked about "local solutions for

local problems". By definition, such geographically-based coordination requires close proximity. What does "close" mean? If we think about homogeneous space, it just means that we draw a circle (or sphere) around where we are, and the radius of this circle (resp. sphere) is small. An interesting MATHEMATICAL FACT is that as the dimension grows, the volume of the sphere gets "thinner", so the radius must increase to capture the same d-dimensional volume when d grows! Based on this, we might guess that the more dimensions a problem has, the more resources we will need to solve it. From another perspective, the more different factors impact a given issue, in some sense, the less likely there are to be small scale, self-contained, "local problems" in the first place.

If we think about networks instead of homogeneous space, and notice that some nodes in the network have more connections than others, then we see the same issue applies to these nodes: they have more complexity in their immediate region than the others. This might suggest that such "central nodes" (e.g. popular films, popular words, popular websites, popular people) would, by definition, be less discriminating in terms of who/what they couple with. On a certain level (weak ties) this is probably true. But on another level (strong ties) I think it must not be true – you can't really have it both ways.

Asking for organizations to work on the "local" level of strong ties when they are "really" all about many low-bandwidth weak ties isn't likely to work well. Google is happy to serve everyone's web requests – but they can't have just anyone walking in off the street and connecting devices their network in Mountain View. (Aside: the 2006 article on Wikipedia quoted above was written by Aaron Swartz, who achieved some NOTORIETY for doing essentially just that, though in his case, it was MIT's network, not Google's.) We might guess that the more institutionally committed someone is, the less likely they are to be able to form deep connections with anyone who is not an integral part of their institution.

Of course, we don't "give up". We aspire to create systems that have both aspects, systems where a "dedicated individual can rise to the top through dint of effort", etc. These systems

are well articulated, almost like natural languages, which are so expressive and adaptive that "most sentences have never been said before". In other words, a well-articulated system does lend itself to "local solutions to local problems" – but only because all words are NOT created equal.

> *My brothers read a little bit. Little words like 'If' and 'It.' My father can read big words, too, Like CONSTANTINOPLE and TIMBUKTU.*

Co-working: what is an institution?

We could talk in this section about Coase's theory of the firm, and Benkler's theory of "Coase's Penguin". We might continue QUOTING from Aaron Swartz. But we will not get so deep into that here: you can explore it on your own!

CHAPTER 15

DESIGNING A PLATFORM FOR PEER LEARNING

Author: Joe Corneli

PLANETMATH is*a virtual community which aims to help make mathematical knowledge more accessible.* I've described my involvement with the project briefly in my "Learn Math(s) the Hard(er) Way" PROJECT PROPOSAL, and at considerably greater depth in my thesis! This article summarizes the main design ideas. It gets a little technical, but don't worry, there's not too much *math*...

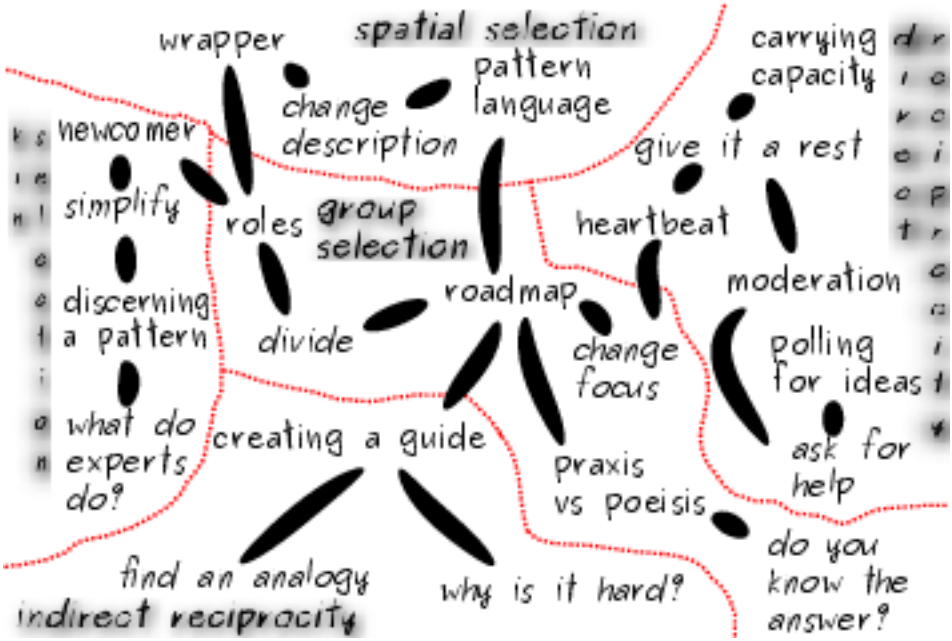
In short: I lumped the different activities that people could do on PlanetMath.org into 5 categories (see the table below). More or less this table just means that on PlanetMath, people write articles and link these articles to other articles, add comments, ask questions, make corrections, and connect problems and solutions to expository material. They also deploy HEURISTICS for solving problems – and they MAKE AND JOIN GROUPS.

Context	Feedback	Quality	Structure	Heuristic
$A \leftarrow A$ $A \overset{\ell}{\leftarrow} A$	$X \leftarrow T$ $X \leftarrow Q$	$A \leftarrow C$	$A \leftarrow P \leftarrow S \leftarrow R$ $L \leftarrow A, P$ $M \leftarrow A$	$G \leftrightarrow U$ $S \leftrightarrow H$ $Q \rightarrow C, W, P$
A article ℓ link	X object T post Q question	C corr.	P problem S solution R review L collection M classific.	G group U user W request H heuristic

Table 15.1: A tentative decomposition of PlanetMath's activities

The five categories (Context, Engagement, Quality, Structure, and Heuristic) come from reflecting on the 5 PARAGOGY PRINCIPLES, and comparing them with the Martin Nowak's 5 RULES FOR THE EVOLUTION OF COOPERATION, then clustering the

actual activities that people can do on PlanetMath (as well as some new planned activities) into these categories. I also drew inspiration from the pattern and heuristic "language" we developed in the peeragogy project. I started by clustering our PATTERN LANGUAGE DIAGRAM into 5 segments, like this:



The "key" that shows how things fit together is as follows:

- **Context** ~ Changing context as a decentered center. ~ **Kin selection**
- **Engagement** ~ Meta-learning as a font of knowledge. ~ **Direct reciprocity**
- **Quality** ~ Peers provide feedback that wouldn't be there otherwise. ~ **Indirect reciprocity**
- **Structure** ~ Learning is distributed and nonlinear. ~ **Spatial selection**
- **Heuristic** ~ Realize the dream if you can, then wake up! ~ **Group selection**

The analogies are not perfect, and are meant to help inspire, rather than to constrain, thoughts on the learning/platform design. It's important to remember that Nowak's formalism is meant to be general enough to describe all different kinds of collaboration –

> *In a "kin selection" regime, we are working in a "generational" modality; we are looking at what is "related", and this helps to define that which is "unrelated" – the other.*

On PlanetMath, the most important senses of "relatedness" apply to elements of the subject domain. Topics that are linked to one another in the encyclopedia are related. These links can either be implicit term references (which are spotted by PlanetMath's autolinker), or more explicit connections added by authors, readers, or editors. Such links can build an implicit context for a "newcomer" who approaches a given topic.

> *In a "direct reciprocity" regime, we "learning about ourselves" in practice, usually in a social context.*

One of the key legacy features of PlanetMath is that every object in the system is "discussable". You can ask a question about an encyclopedia article, for example, and this will go into a common pool of questions. One of the driving ideas behind the site's (re)design is that every question should help us improve the site, for example, by pointing out a place where the original expository article could be improved. Of course, at the most basic level, we hope that the questions receive good one-off answers (providing a benefit to the initial question-asker). Even the most simple question is a "constructively critical" question. On the level of site semantics, it would be good to keep track of which questions have been answered, and which have not. Questions can be "mutated" into corrections, requests, or mathematical problems to solve.

> *In an "indirect reciprocity" regime, we are building something that may be useful later on.*

Another important legacy feature of PlanetMath is that, unlike Wikipedia, articles are not generally open to the public to edit (though some are). Rather, the typical process of "crowdsourcing" takes place through a corrections mechanism. From an analytical perspective, we might expect corrections to be one of the key ways in which site authors learn from one another. In a sense, the opportunity to get corrections or suggestions pointed out later might be one of the biggest incentives for writing an article in the first place! Offering a correction to someone else is, of course, a way to point out one's own knowledgability (as such, a sort of flip-side of asking questions). Certain behaviors can help one develop a good reputation (though PlanetMath does not model this very explicitly)... and perhaps even more importantly, a high-quality resource "emerges" from such one-to-one interactions.

> *In a "spatial selection" regime, we are again defining an "inside" and "outside", and looking for ways in which the structures that we have identified can fit together.*

One of the features that the legacy version of PlanetMath lacked was any sort of support for "problem solving behavior" – which, in mathematics, is actually a pretty essential thing. Rather, the site was set up as a "reference" tool for people who solved problems elsewhere. By moving support for problems, solutions, and reviews onto the PlanetMath site itself, we expect not only to open the "marketplace" up to new kinds of learners (i.e. people working at a more basic level than encyclopedia authoring OR people working at a fairly advanced level who are more interested in applications than in theory), but also to get significant improvements to the core knowledge resource itself (the encyclopedia). This is because "an article without an attached problem" is not a very practical article from a learning or application standpoint. Similarly, "a problem without a solution" is lacking something, as is "a solution without a review". Building support for this, and support for people to struc-

ture/stage problems with problem sets should help make the site a much more practically useful learning tool.

> *In a "group selection" regime, we are building "sets" of activities and patterns (milestones, roles) which can then act as "selectors" for behavior. (This is why I've combined it with the catch-all "heuristic" category.)*

Another historical weak point of the legacy site was support for "teams." Thus, for example, one effort to improve PlanetMath's coverage of topics in Real Analysis foundered - because there was no way to gather a critical mass to this project. There are social, technical, and knowledge aspects to this problem. Coworking requires people to be able to join groups, and it requires the groups to be able to structure their workflow. In some sense this is similar to an individual's work being structured by the use of heuristics. A person's choice to apply this strategy instead of that one, or to join this group instead of that one, is in the end a somewhat similar choice.

These notes have shown how the paragogical principles, supplimented with very general theories of collaboration, and some practical observations as examined in the Peeragogy Handbook, can help design a space for learning, which is itself a "learning space" in the sense of knowledge building. Although the case study has focused on mathematics learning, similar reflections would apply to designing other sorts of learning spaces (e.g. to the continued development of the Peeragogy project itself!).

Part VI

Assessment

CHAPTER 16

INTRODUCTION TO PEERAGOGICAL ASSESSMENT

Authors: Joe Corneli and David Preston

Summary

This article will be about both (a) assessment in peer learning and (b) an exercise in assessment, as we will try to put our strategy for assessment into practice by evaluating the PEERAGOGY HANDBOOK itself.

Thinking about "contribution"

It is intuitive to say: "learning is adaptation." What else would it be?

Further, since adaptation happens not just on the individual level, but also on the socio-cultural level – anthropologists use the phrase "adaptive strategy" as a synonym for "culture" – we can say that contributions to social adaptation are "paragogical."

Adapting strategies for learning assessment to the peer-learning context

In "EFFECTIVE GRADING: A TOOL FOR LEARNING AND ASSESSMENT," Barbara E. Walvoord and Virginia Johnson Anderson have outlined an approach to grading. They address three questions:

1. Who needs to know, and why?
2. Which data are collected?
3. How does the assessment body analyze data and present findings?

The authors suggest that institutions, departments, and assessment committees should begin with these simple questions and work from them towards anything more complex. These simple questions provide a way to understand - and assess - any strategy for assessment! For example, consider ”formative assessment:

> “...which involves constantly monitoring student understanding through a combination of formal and informal measures. Teachers ask searching questions, listen over the shoulders of students working together on a problem, help students assess their own work, and carefully uncover students’ thinking [and] react to what they learn by adjusting their teaching, thereby leading students to greater understanding.” (Quote from the website for the book “New Frontiers in Formative Assessment”.)

In this context, our answers to the questions above would be:

1. Teachers need to know about the way students are thinking about their work, so they can deliver better teaching.

2. Teachers gather lots of details on learning activities by “listening over the shoulders” of students.

3. Teachers apply (hopefully well-informed) analysis techniques that come from their training or experience – and they do not necessarily present their assessments to students directly, but rather, feed it back in the form of improved teaching.

This is very much a “teacher knows best” model! In order to do something like formative assessment among peers, we would have to make quite a few adjustments.

1. At least some of the project participants would have to know how participants are thinking about their work. We

might not be able to "deliver better teaching," but perhaps we could work together to problem-solve when difficulties arise.

2. It may be most convenient for each participant to take on a share of the work, e.g. by maintaining a "learning journal" (which could be shared with other participants). This imposes a certain overhead, but as we remarked elsewhere, "meta-learning is a font of knowledge"! Outside of self-reflection, details about others' learning can sometimes be abstracted from their contributions to the project ("learning analytics" is a whole topic unto itself).

3. If a participant in a "learning project" is bored, frustrated, feeling closed-minded, or for whatever other reason "not learning", then there is definitely a question. But for whom? For the person who isn't learning? For the collective as a whole? We may not have to ponder this conundrum for long: if we go back to the idea that "learning is adaptation", someone who is not learning in a given context will likely leave, and find another context where they can learn more.

This is but one example of an assessment strategy: in addition to "formative assessment", "diagnostic" and "summative" strategies are also quite popular in mainstream education. The main purpose of this section has been to show that when the familiar roles from formal education devolve "to the people", the way assessment looks can change a lot. In the following section, we offer and begin to implement an assessment strategy for evaluating the peeragogy project as a whole.

Case study in peeragogical evaluation: the Peeragogy project itself

We can evaluate this project partly in terms of its main "deliverable," the Peeragogy Handbook (which you are now reading). In particular, we can ask: Is this handbook useful for its

intended audience? The "intended audience" could potentially include anyone who is participating in a peer learning project, or who is thinking about starting one. We can also evaluate the learning experience that the co-creators of this handbook have had. Has working on this book been a useful experience for those involved? These are two very different questions, with two different targets for analysis – though the book's co-creators are also part of the "intended audience". Indeed, we might start by asking "has working on this book been useful for us?"

For me (Joe) personally, it has been useful:

to see some more abstract, conceptual, and theoretical ideas (paragogy.net) extended into practical advice (which I'm sure I can personally use), with references to literature I would not have come up with in library or internet searches, and with a bunch of ideas and insights that I wouldn't have come up with on my own. I definitely intend to use this handbook further in my work.

It's true; I do see myself as one of the more involved participants to date, which stands to reason since I'm actually paid to research peer learning, and this project is (in my opinion) one of the most cutting-edge places to talk about that topic! If "you get out of it what you put into it" is true, then, again, as a major contributor, I think I "deserve" a lot. And I'm certainly not the only one: quite a large number of person-hours have been poured into this project by quite a number of volunteers. This should say something!

Nevertheless, one does not need to be a "handbook contributor" at all to get value from the project: if it were otherwise, we might as well just get rid of the book after writing it. Actually, our thought is that this work will indeed have "value" for downstream users, and our choice of legal terms around the book reflects that idea. Anyone downstream is free to use the contents of this book for any purpose whatsoever. For all we know, there will be future users who will add much more to the study and practice of paragogy/peeragogy than any of us have so far. This could happen by putting the ideas to the test, feeding back information on the results to the project (PLEASE DO! - the ultimate assessment of the Peeragogy Handbook will be based

on what people actually *do* with it): perhaps further developing the book, developing additional case studies or recipes, and so forth.

In fact, questions about "usefulness" are what we aim to study in our "alpha testing" phase (which is beginning now!).

Conclusion

We can estimate individual learning by examining the real problems solved by the individual. Sometimes those are solved in collaboration with others. If someone only consumes information, they may well be "learning", but there is no way for us to measure that. On the other hand, if they only solve "textbook problems", again, they may be learning and gaining intuition (which is good), but it is still not 100% clear that they are actually learning anything "useful" until they start solving problems that they really care about! So, to assess learning, we do not just measure "contribution" (in terms of quantity of posts or what have you) but instead we measure "contribution to solving real problems". Sometimes that happens very slowly, with lots of practice along the way. Furthermore, at any given point in time, some of the "problems" are actually quite fun and are "solved" by playing! Indeed (as people like Piaget and Vygotsky recognized), if we're interested to know real experts on learning, we should talk with kids, since they learn tons and tons of things.

Recommended reading

- Chris Morgan, Meg O'Reilly, Assessing Open and distance learners (1999), Open University

- Jan Philipp Schmidt, Christine Geith, Stian Håklev, and Joel Thierstein, Peer-To-Peer Recognition of Learning in Open Education

- L.S. Vygotsky: Mind in Society: Development of Higher Psychological Processes

- Reijo Miettinen and Jaakko Virkkunen, Epistemic Objects, Artifacts and Organizational Change, *Organization,* May 2005 ,12: 437-456.

Supplement: An overview of assessment topics

- Diagnostic, formative and summative evaluation
- Competency-based learning
- Experiential learning

UNIT OF ANALYSIS

- individual
- group/team
- class
- course
- program
- organization

Purpose

- diagnostic
- formative
- summative

Feedback source

- peer
- pedadogical authority
- content expert
- group
- public

Models

- Peer assessment
- Self-assessment
- Norm-referenced testing
- Criterion-referenced testing
- Information-referenced testing
- Writing
- Transmedia/e-portfolios

Other considerations

- Suitability to task
- Suitability to learner's desired/expected outcomes (e.g., "If I want to master a skill, I need more expert/critical/constructive feedback than someone clicking a 'like' button.")
- Capital: time, money, energy, ROI
- Future documentary usage
- professional guidelines

Further reading

- Peer and self-assessment (from National Capital Language Resource Center)
- Steven Jay Gould's *The Mismeasure of Man*
- Wikipedia entry on peer and self-assessment
- Assessment as it relates to peer learning in university courses
- Self, peer, and group assessment in e-learning

- New Frontiers in Formative Assessment

CHAPTER 17

FOLLOWING THE MONEY, ASSESSING PROFITABLITY

Summary

The metrics for learning in corporations are business metrics based on financial data. Managers want to know: "Has the learning experience enhanced the workers' productivity?"

Follow the money

When people ask about the ROI of informal learning, ask them how they measure the ROI of formal learning. Test scores, grades, self-evaluations, attendance, and certifications prove nothing. The ROI of any form of learning is the value of changes in behavior divided by the cost of inducing the change. Like the tree falling over in the forest with no one to hear it, if there's no change in behavior over the long haul, no learning took place. ROI is in the mind of the beholder, in this case, the sponsor of the learning who is going to decide whether or not to continue investing. Because the figure involves judgment, it's never going to be accurate to the first decimal place. Fortunately, it doesn't have to be. Ballpark numbers are solid enough for making decisions.

Assessing Workplace Learning from Jay Cross on Vimeo.

The process begins before the investment is made. What degree of change will the sponsor accept as worthy of reinvestment? How are we going to measure that? What's an adequate level of change? What's so low we'll have to adopt a different approach? How much of the change can we attribute to learning? You need to gain agreement on these things beforehand. Monday morning quarterbacking is not credible. It's crazy to assess learning immediately after it occurs. You can see if peo-

ple are taking part or if they're complaining about getting lost, but you cannot assess what sticks until the forgetting curve has ravaged the learners' memories for a few months. Without reinforcement, people forget most of what they learn in short order. It's beguiling to try to correlate the impact of learning with existing financial metrics like increased revenues or better customer service scores. Done on its own, this approach rarely works because learning is but one of many factors that influence results. Was today's success due to learning or the ad campaign or weak competition or the sales contest or something else? The way to assess how people learn is to ask them. How did you figure out how to do this? Who did you learn this from? How did that change your behavior? How can we make it better? Too time consuming? Not if you interview a representative sample. For example, interviewing less than 100 people out of 2000 yields an answer within 10% nineteen times out of twenty, a higher confidence level than most estimates in business. Interviewing 150 people will give you the right estimate 99% of the time.

Part VII

Patterns, Use Cases, and Examples

CHAPTER 18

THINKING ABOUT PATTERNS

Authors: THE PEERAGOGY TEAM

What is a pattern?

A *pattern* is anything that happens over and over again. In the context of peeragogy, we mean repeating things that we *like*, or that we think are useful for some purpose. Thing that happen a lot but are not desirable are called *anti-patterns*!

What is a use case?

A *use case* describes someone (or something) who uses a given system or tool to achieve a goal. When writing a use case, it is presented with a title (which serves as a brief summary), a main actor, and a success scenario. Additional features can be added, such as alternate interaction paths leading to a variation on the result.

What do you get when you put these together?

Combine patterns and use cases and you start to get something called a *pattern language*. See the section on "PATTERNS AND HEURISTICS" for one such representation. That page draws on the relationships between the patterns we've found for organizing peer learning, and some known problem-solving techniques. See the page "RESEARCHING PEERAGOGY" for additional related discussion.

Patterns of peeragogy

Here is our index of the patterns we've found so far (described in more detail after the jump):

- Heartbeat
- Carrying Capacity
- Creating a Guide
- Discerning a Pattern
- Moderation
- Newcomer
- Pattern Language
- Polling for Ideas
- Praxis vs Poeisis
- Roadmap
- Roles
- Wrapper

Use cases for Peeragogy

We also present a variety of hypothetical and not-so-hypothetical use cases:

- Accounting
- C'est la vie
- Distributed Project Management
- Improved adaptivity
- Improving the efficacy of research funding
- Journalist enters the Whispering Gallery
- Judo
- Living the OER dream

- Making our own tools
- Peer Learning on the Technical Edge
- Peer production to peer learning
- Prolegomena to Any Future Math Learning Environment
- Pæragogy helps solve complex problems
- Starting a Company
- Steal This Book
- Strategy as learning
- We are the 1 percent
- Young aspiring blogger wants to avoid starvation

Anti-patterns for Peeragogy

And some "anti-patterns" (things to avoid):

- Isolation
- Magical thinking
- Messy with Lurkers
- Misunderstanding Power
- Navel Gazing
- Stasis
- Stuck at the level of weak ties

Examples

The above use cases and patterns make the "story" abstract – but how about some concrete examples of peeragogy in action? Consider:

- OpenHatch.org, "an open source community aiming to help newcomers find their way into free software projects."
- The Free Technology Guild is a younger project with aspirations similar in some ways to those of OpenHatch, but in this case, oriented not just to pairing newcomers with mentors, but pairing clients with service providers. "The idea is that we as a group will do useful projects for our members or external parties, and on-the-job we mentor and learn and get better." (Since this is a new project, the project building phase is itself a nacent example of paragogy.)
- Many more examples on our examples page!

Further reading

- The Timeless Way of Building, by Christopher Alexander. An elegant work, like most of Alexander's writing. If you want to start out with something smaller, there's a pithy essay by Christopher Alexander called A City is Not a Tree, available online
- Patterns of Software, by Richard Gabriel, who applies the "pattern" idea to software and programming languages.

CHAPTER 19

PATTERNS AND HEURISTICS

This section draws some parallels between certain "Minskian heuristics for problem solving", and the PATTERNS for peeragogy that we came up with. The heuristics (which Marvin Minsky discusses in a series of MEMOS for the One Laptop Per Child project) can be summed up with the following diagram:

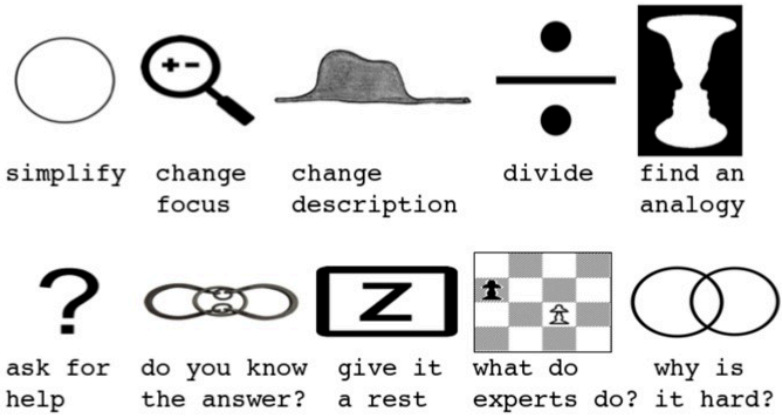


Figure 19.1: Minskian heuristics for problem solving

We can see some relationships to the peeragogy patterns we've identified, first summed up with a picture here, and in text below (some of the nodes in the diagram are clickable, and clicking will take you to the page describing that pattern!):

To elaborate in words:

- We *simplify* things for a **Newcomer**. (In particular, this means that we don't expect the newcomer to use a high processing level.)

- We *change focus* by using a **Roadmap** to guide us from one step to another. In addition, the project's **Heartbeat** leads us to

let go of our focus at one moment, and resume with another point of view later.

- We *change description* first of all by having a **Wrapper** who describes the new state of the project. For the Peeragogy project, that often meant summing up the high points that we saw over a given period of time. It seems possible that with a rich enough **Pattern Language**, the description would itself be made in terms of patterns.

- We *divide* work up not only "horizontally" among different **Roles**, but also "temporally" by using the **Roadmap**. Someone who is moving ahead with the Roadmap is likely to be "working at the cutting edge".

- When we *find an analogy*, we are basically **Creating a Guide** of some sort. This can be used as a form of "exploration", as we look at how one form of engagement may or may not map onto other forms of engagement.

- When we *ask for help*, we may avail ourselves of some **Moderation** service that will decide how to deal with our request. One simple way to ask for help is **Polling for Ideas**. Obviously once we start to get help, we're working in a regime of "collaborative effort".

- If you *know the answer*, then you may be able to reuse it (which is the basic idea described in **Praxis vs Poesis**, though the title is a little bit obscure). Someone who knows the answer and who is good at self-explanation may also have a good idea about how to get from the current state to the goal state; alternatively, this may be broken down into steps in some sub-Roadmap, and moving from step to step would then illustrate "progressive problem solving".

- It is important to *give it a rest* so as not to over-exhaust oneself, busting one's own **Carrying Capacity**, or, alternatively, overwhelming the group.

- It seems that one of the things that *experts do* is **Discerning a Pattern**. This allows them to simplify their processing.

- Finally, again, if we *know why it is hard*, then we may be able to **Create a Guide** that will help get around, or at least better cope with, the difficulty.

CHAPTER 20

PATTERNS

Heartbeat

In the "Collaborative Lesson Planning" course led by Charlie Danoff at P2PU (which I joined twice, and where we first talked through the ideas about paragogy), Charlie wrote individual emails to people who were signed up for the course and who didn't participate. This kept some of us (including me!) on track. Without someone or something acting as the "heartbeat" for the group, energy may dissipate.

Carrying Capacity

> *The carrying capacity of a biological species in an environment is the maximum population size of the species that the environment can sustain indefinitely, given the food, habitat, water and other necessities available in the environment.* – Wikipedia's article on CARRYING CAPACITY

> *If overstimulation at the sensory level increases the distortion with which we perceive reality, cognitive overstimulation interferes with our ability to "think." While some human responses to novelty are involuntary, others are preceded by conscious thought, and this depends upon our ability to absorb, manipulate, evaluate and retain information.* – "Future Shock", by Alvin Toffler

I have been concerned that I might over-contribute and "drown out" other voices here. When I feel like that, I think I should take a step back. That's double true if I start to feel the

symptoms of "burn-out". However, I categorize this as a "pattern", not an antipattern. It is good to know your limits, and the limits of the community you work with. Find the level of engagement that works. Lead by example – but make sure it's someplace people actually want to go!

Creating a Guide

Meaning-carrying tools, like handbooks or maps, can help people use an idea. In particular, when the idea or system is only "newly discovered", the associated meanings may not be well understood (indeed they may not have been created). In such a case, the process of creating the guide can go hand-in-hand with figuring out how the system works. Thus, techniques of KNOWLEDGE CARTOGRAPHY and MEANING MAKING are useful for would-be guide creators. Even so, it is worth noting that "the map is not the territory," and map-making is only one facet of shared human activity.

I've tried to incorporate comments from Bob and Howard into this pattern. I hope it comes across clearly. Many of the patterns suggested here should be refined collaboratively in the wiki. Collaboratively refining a pattern is itself an example of "Creating a Guide" - that is, a pattern description can be thought of as a "micro-map" of a specific activity.

Discerning a Pattern

> *[W]e saw that language use is typically what we have to go on, from an analytical perspective. Generally, if we are not starting with language, we arrive at it soon enough. Language becomes something to pay attention to, in much the same way in which Buddhist practitioners have for centuries spent time watching their breath.* – "PARAGOGICAL PRAXIS" by Joe Corneli

The challenge of discerning a pæragogical pattern typically comes down to the question "What are we doing with lan-

guage?" For example, in building a peer learning profile someone might identify an interest (e.g. gardening, puns). We notice this is a pattern when it keeps happening (most participants have included some interests in their self-introductions). The classic example of a pattern from architecture is **A Place to Wait** – something that comes up in a lot of architectural contexts. Once a (suspected) pattern is found, we give it a title and write down how using the pattern works in a peer learning context. In the current case, Discerning a Pattern helps us build our peer learning "vocabulary" or "repertoire" for peer learners.

Moderation

> "Why is a fishbowl more productive than debate? The small group conversations in the fishbowl tend to de-personalize the issue and reduce the stress level, making people's statements more cogent. Since people are talking with their fellow partisans, they get less caught up in wasteful adversarial games." - the Co-Intelligence Institute

Participation in online forums tends to follow a "power law," with unequal engagement. One remedy for this is simply for the most active participants to step back, and moderate how much they speak (see Carrying Capacity). OWS uses a similar technique in their "progressive stack."

Newcomer

Unless there is a new person to talk to, a lot of the "education stuff" we do could get kind of stale. Many of the patterns and use cases for peeragogy assume that there will be an audience or a new generation of learners - hence things like creating a *guide*. Note that the *newcomer* and the *wrapper* may work together to make the project accessible.

Even in the absence of actual newcomers, we're often asked to try and look at things with a "beginner's mind." Note: Regis

has written PRACTICAL ADVICE for things we can do on behalf of newcomers in this project.

Pattern Language

I use the idea of a *pattern language* as a shorthand for what Christopher Alexander talks about in his KEYNOTE ADDRESS for the IEEE in 1996.

In short, once we have come up with enough patterns (including the pattern of a *pattern language* that I discussing here, and its generalizations per Christopher Alexander), then we will be better able to do both the socio-technical design work associated with planning pæragogical experiences, and, quite likely, enjoy the "actual work" more too.

In this quote from the linked article, C. A. talks about computer programming, but I think the same could go for any other sort of design-and-implementation work:

> *It is a view of programming as the natural genetic infrastructure of a living world which you/we are capable of creating, managing, making available, and which could then have the result that a living structure in our towns, houses, work places, cities, becomes an attainable thing. That would be remarkable. It would turn the world around, and make living structure the norm once again, throughout society, and make the world worth living in again.This is an extraordinary vision of the future, in which computers play a fundamental role in making the world - and above all the built structure of the world - alive, humane, ecologically profound, and with a deep living structure.*

Polling for Ideas

... and then Howard said *"At the beginning, until we all know the ropes well enough to understand when to create a new discussion forum topic and when to add to an existing one, let's talk in*

this topic thread about what else we want to discuss and I will start new topic threads when necessary."

Polling for Ideas can happen at many junctures in a peer learning experience, e.g. we could poll for ideas about "who would we like to join our group?", and "what would be good resources for us to use?"

Praxis vs Poeisis

> "Praxis, a noble activity, is always one of use, as distinct from poesis which designates fabrication. Only the former, which plays and acts, but does not produce, is noble." [1] (p. 101)

There is a tension between "making stuff" and "using stuff". Peer *production*, as the name indicates, is about "making stuff," or POESIS. And stuff is, at least in theory, kinda cool. Furthermore, some of the most familiar examples of peeragogy in practice come from the craft and maker movements. However, we can also try to be aware of just how much "learning" is really "remix" – re-use and recycling of other people's ideas and techniques. Understanding and negotiating the tension between reuse and creativity is key to the art of remix.

Reference

1. Baudrillard, J. (1975). *The mirror of production.* Telos Press

Roadmap

It is very useful to have an up-to-date public roadmap for the project, someplace where it can be discussed and maintained. This helps **newcomers** know where they can jump in. It also gives a sense of the accomplishments to date, and any major challenges that lie ahead. Remember, the Roadmap exists as an artifact with which to share current, but never complete, understanding of the space. Never stop learning!

Examples

In the Peeragogy project, now that the outline is fairly mature, we can use it as a roadmap, by marking the sections that are "finished" (at least in draft), marking the sections where editing is currently taking place, and marking the stubs (possible starting points for future contributors). While this does not provide a complete roadmap for all aspects of the project, it does give editors a sense of what is going on. The Free Technology Guild provides one EXAMPLE.

And also

Note that a shared roadmap is very similar to a PERSONAL LEARNING PLAN, or "paragogical profile". We've made some EXAMPLES of these as we got started working on the Free Technology Guild.

Roles

This may seem like an obvious one, but educational interactions tend to have a number of different roles associated with them. Consider that everything could bifurcate from the "autodidact":

1. Autodidact 2. Tutor-Tutee 3. Tutor-Tutee-Parent 5. Tutor-Tutee #1-Tutee #2-Parent-Principal etc., until we have bursars, librarians, technicians, janitors, editors of peer reviewed research journals, government policy makers, spin-off industrial ventures and partnerships, etc., all involved in Education. Even the autodidact may assume different roles at different points in time - sometimes making a library run, sometimes constructing a model, sometimes checking a proof. The decomposition of "learning" into different phases or polarities could be an endless theoretical task. For the moment, we just note that roles are often present "by default" at the start of a learning process, and that they may change as the process develops.

Wrapper

Charlie Danoff SUGGESTS that someone to take on the "wrapper role", in other words: do a pre/post wrap (e.g. weekly), so that new users know where the state of the project is at any given point in time. The project's MAIN PAGE also serves as a "wrapper", and it should be checked from time to time to make sure that it accurately represents the basic facts about the project.

Note that the "wrapper role" is similar to the integrative function that is needed for commons-based peer production to work (i.e. according to the theory proposed by Yochai Benkler, it is vital to have both (1) the ability to contribute small pieces; (2) some "integrative function" that stitches those pieces together).

CHAPTER 21

ANTIPATTERNS

Isolation

(This is in some ways related to PARTICIPATORY DESIGN VS NAVEL GAZING.) An effort that isolates itself - e.g. through lack of humility - will not have the occasion to draw on other resources. In popular discourse, idiosyncratic or asocial behavior is often casually referred to as "AUTISTIC", which may indeed be a servicable metaphor (tho not without some caveats). As with the symptoms of autism, social isolation (of various forms) may have its roots in*uncomfortably-intense* experiences of sensation.

At the other end of the spectrum: it can of course be fun (and useful) to run into the same people or ideas in different contexts, to make connections in a creative way, to help others succeed. With a too-narrow focus (cf. the notion of "TRANSVERSALITY"), people will bump into each other uncomfortably, or remain isolated; with a too-wide focus, everything is chaotic in other ways (see CO-LEARNING: MESSY WITH LURKERS), motivating a narrowing of focus. From a design point of view: we should be consious of interfaces that are "too loud", and think about how that is compensated for by isolation (of various forms).

Magical thinking

Introduction

While the ideal platform would (magically) come with solutions pre-built, a more realistic approach recognizes that problem solving always takes time and energy. The problem solving approach and associated "learning orientation" will also depend on the task and resources at hand. [...] Arguably, if we "knew", 100%, how to do peeragogy, then we would not stand

to learn very much by writing this handbook. Difficulties and tensions would be resolved "in advance" (see earlier comments about "magical" technologies for peer production).

Magical Thinking is the thief of process

Magical thinking of the kind described above robs a context of its "process" (Nishida might say, its "motion"). It seems possible that the more structure we have "in advance", and the more we can fall back on "traditional" modes of doing things, the less we stand to learn. I quote at length:

> *"Optimization of decision-making processes confers an important advantage in response to a constantly changing environment. The ability to select the appropriate actions on the basis of their consequences and on our needs at the time of the decision allows us to respond in an efficient way to changing situations. However, the continuous control and attention that this process demands can result in an unnecessary expenditure of resources and can be inefficient in many situations. For instance, when behavior is repeated regularly for extensive periods without major changes in outcome value or contingency, or under uncertain situations where we cannot manipulate the probability of obtaining an outcome, general rules and habits can be advantageous. Thus, the more rapid shift to habits after chronic stress could be a coping mechanism to improve performance of well-trained behaviors, while increasing the bioavailability to acquire and process new information, which seems essential for adaptation to complex environments. However, when objectives need to be re-updated in order to make the most appropriate choice, the inability of stressed subjects to shift from habitual strategies to goal-directed behavior might be highly detrimental. Such impairment might be of relevance to understand the high comorbidity between stress-related disorders*

> *and addictive behavior or compulsivity, but certainly has a broader impact spanning activities from everyday life decisions to economics.*" – SCIENCE MAGAZINE

This also has interesting implications when it comes to "detecting learning" (see "RESEARCHING PEERAGOGY"). How do emotions, stress, learning, habit, and adaptation relate?

Messy with Lurkers

> **Gigi Johnson**: *(1) Co-learning is Messy. It needs time, patience, confusion, re-forming, re-norming, re-storming, etc. Things go awry and part of norms needs to be how to realign. (2) Co-learning is a VERY different experience from traditional teacher-led learning in terms of time and completion. It is frustrating, so many people will lurk or just step in and out, the latter of which is very different from what is acceptable in traditonal learning. Online learning programs are painted with the brush now of an "unacceptable" 50% average non-completion rate. Stanford's MOOC AI class, which started out with +100,000 people, had 12% finish. If only 12% or 50% of my traditional class finished, I'd have a hard time getting next quarter's classes approved!*

The second point is similar to the earlier Anti-pattern "MISUNDERSTANDING POWER (LAWS)". People have to join in order to try, and when joining is low-cost, and completion low-benefit, it is not surprising that many people will"dissipate" as the course progresses. The "messiness" of co-learning is interesting because it points to a sort of "internal dissipation", as contributors bring their multiple different backgrounds, interests, and communication styles to bear. In TOMLINSON ET AL., we observed:

> *More authors means more content, but also more words thrown away. Many of the words written*

> *by authors were deleted during the ongoing editing process. The sheer mass of deleted words might raise the question of whether authoring a paper in such a massively distributed fashion is efficient.*

If we were to describe this situation in traditional subject/object terms, we would say that peer production has a "low signal to noise ratio". However, it may be more appropriate (and constructive) to think of meanings as co-constructed as the process runs, and of messiness (or meaninglessness) as symptomatic, not of peer production *itself*, but of deficiencies or infelicities in shared meaning-making and "integrating" features.

Misunderstanding Power

> *Zipf's law states that given some corpus of natural language utterances, the frequency of any word is inversely proportional to its rank in the frequency table. Thus the most frequent word will occur approximately twice as often as the second most frequent word, three times as often as the third most frequent word, etc.*

Zipf's law (or other formulations of the same thing) govern the SIZE OF CITIES, and related formulations describe ENERGY USE: roughly speaking, an elephant has a lower metabolism than a mouse and is more "energy efficient". At that same link, we see the suggestion that creativity in large-scale environments*speeds up! The anti-pattern*: how many times have we been at a conference or workshop and heard someone say (or said ourselves) "wouldn't it be great if this energy could be sustained all year 'round?" Or in a classroom or peer production setting, wondered why it is that everyone does not participate equally. "Wouldn't it be great if we could increase participation?" If you believe the result above, large-scale participation would indeed tend to increase creativity! - But nevertheless, participation does tend to fall off according to *some* power law (see Introduction to Power Laws in THE UNCERTAINTY PRINCIPLE, VOLUME II, ISSUE

3), and it would be a grand illusion to assume that everyone is coming from a similar place with regard to the various literacies and motivations that are conducive to participation. Furthermore, a "provisionist" attitude ("If we change our system we will equalize participation and access") simply will not work in general, *since power laws are inherently an epiphenomenon of networks.* Note that participation in a given activity often (but not always) falls off over *time* as well. This effect seems related but is also not well understood (many people would like to write a hit song / best selling novel / start a religion / etc., but few actually do). See the anti-pattern "Magical Thinking" for more on that. *About the title*: Note that those agents who do post the most in a given collaboration (respectively, the words or ideas that are most common in a given language) will tend to influence the space the most. In this way, we can see some parallels between the Sapir-Whorf Hypothesis and Bourdieu's notion of "symbolic violence". Much as Paul Graham wrote about programming languages – programmers are typically"satisfied with whatever language they happen to use, because it dictates the way they think about programs" – so too are people often "satisfied" with their social environments, because these tend to dictate the way they think and act in life.

Navel Gazing

The difficulty I am referring to breaks down like this:

1. Certainly we cannot get things done just by talking about them.

2. And yet, feedback *can* be useful, i.e., if there are mechanisms for responding to it in a useful fashion.

3. The associated *anti-pattern* is a special case of the prototypical Bateson double bind, "the father who says to his son, go ahead and criticize me - with the strong hint that all effective criticism will be very unwelcome."

Indeed – criticism is not always useful. Sometimes it is just "noise". *The art of paragogical praxis is to make something useful out of what would otherwise just be noise.*

Stasis

Actually, of course, living beings are never *really* in stasis. It just sometimes feels that way. Different anti-patterns like ISOLATION or NAVEL-GAZING have described different aspects of the *experience* of feeling like one is in stasis. Typically, what is happening in such a case is that one or more dimensions of life are moving very slowly.

For instance, it seems we are not able to get programming support to improve this version of the Social Media Classroom, for love or money, since all developer energy is going into the next version. This isn't true stasis, but it can feel frustrating when a specific small feature is desired, but unavailable. The solution? Don't get hung up on small things, and find the dimensions where movement *is* possible. In a sense this is analogous to eating a balanced diet. You probably shouldn't only eat grilled cheese sandwiches, even if you like them a lot. You should go for something different once in a while. This is also related to the pattern that talks about "CARRYING CAPACITY". There is always some dimension on which you can make progress – it just might not be the same dimension you've recently over-harvested!

Stuck at the level of weak ties

Remember this from our article on ORGANIZING A LEARNING CONTEXT?

> *There is a certain irony here: we are studying "peeragogy", and yet many respondents did not feel they were really getting to know one another "as peers". Several remarked that they learned less from other individual participants, and more from "the collective". Those who did have a "team", or who knew*

> *one another from previous experiences, felt more peer-like in those relationships.*

Are weak ties "strong"?

"Weak ties" are often deemed a strength: see for example THIS ARTICLE in Psychology Today, which says:

> *"[S]trong and weak ties tend to serve different functions in our lives. When we need a big favor or social or instrumental support, we ask our friends. We call them when we need to move a washing machine. But if we need information that we don't have, the people to ask are our weak ties. They have more diverse knowledge and more diverse ties than our close friends do. We ask them when we want to know who to hire to install our washing machine."*

The quote suggests that there is a certain trade-off between use of weak ties and use of strong ties. The anti-pattern in question then is less to do with whether we are forming weak ties or strong ties, and more to do with whether we are being *honest with ourselves and with each other about the nature of the ties we are forming* – and their potential uses. We can be "peers" in either a weak or a strong sense. The question to ask is whether our needs match our expectations!

In the peeragogy context, this has to do with how we interact. One of the participants in this project wrote:

> *"I am learning about peeragogy, but I think I'm failing [to be] a good peeragog[ue]. I remember that Howard [once] told us that the most important thing is that you should be responsible not only for your own learning but for your peers' learning. [...] So the question is, are we learning from others by ourselves or are we [...] helping others to learn?"*

If we are "only" co-consumers of information (which happens to "produced" live, by some of the participants), then this

seems like a classic example of a weak tie. We are part of the same "audience" – or anyway, in the same "theater" (even if separated from each other by continuous "4th walls"). On the other hand, actively engaging with other people (whether with "my" learning, with "their" learning, or with the co-production of knowledge) seems to be the foundation for strong ties. In this case our aims (or needs) are more instrumental, and less informational.

People who do not put in the time and effort will remain stuck at the level of "weak ties", and will not be able to draw on the benefits that "strong ties" offer.

CHAPTER 22

USE CASES

From peer production to peer learning

Main actor

Julian, an enthusiastic convert to the power of peer-learning.

Main success scenario

1. Reflecting on the success of STRATEGY AS LEARNING, Julian notes that other housing associations might benefit from this process. He also notes that as most housing association boards are made up of volunteers like himself, there is a very wide variation in background, knowledge and skills, and therefore not only a need for low cost (free) learning opportunities, but a range of skills available to enable them.

2. Julian sets up a peer learning resource on the web, drawing on the experiences in implementing STRATEGY AS LEARNING, and promotes it through industry-specific web forums. He draws attention from an online journalist writing in the housing field who writes a positive article, and as a result a growing number of collaborators come forward.

3. Over a period of a year or so, the core team of active users collaborate to create standards and exemplars in relation to different aspects of housing association governance that become a de facto standard in the sector.

Thoughts

1. Obviously a very specific use case that could easily be generalised

2. Possible patterns to extract? Seeding Peer Communities, Emergent Standards, Emergent Assessment ???

C'est la vie

Main Actors

Pierre and Marie - recently married.

Main Success Scenario

1. They furnished off an apartment from a Sears & Roebuck sale. Their coolerator was crammed with TV dinners and ginger ale. (She couldn't cook.)

2. But when Pierre found work, the little money coming in worked out well. They got a hi-fi phono, and boy, did they let it blast – Seven hundred little EPs, all rock, rhythm and jazz.

3. When the sun went down, the rapid tempo of the music sort of fell (for various reasons).

4. They bought a souped up Mercedes – a cherry red '53 – and drove it down to New Orleans to celebrate their anniversary.

5. "C'est la vie," say the old folks, "It goes to show you never can tell!"

(Après Chuck Berry.)

Thoughts

I tried to use the familiar song to suggest that pæragogy works in personal relationships, too. Compare the above story with this quote from Leopold von Sacher-Massoch…:

> ”That woman, as nature has created her and as man is at present educating her, is his enemy. She can only be his slave or his despot, but *never his companion.* This she can become only when she has the same rights as he, and is his equal in education and work.”

I don’t know if Sacher-Massoch is particularly reliable as a feminist. But it *is* interesting to look at “companionship” (along with membership in the same age cohort) as a criterion for a peer-like and working relationship in the story. It’s unclear as to whether Pierre & Marie have “equal” roles (he found work, but it’s not in any way implied that she was working… so how did she spend her time? Etc.).

Distributed Project Management

Main Actor

Kim, a Ph. D. student in Geography.

Main success scenario

1. Kim has 5 different people on her supervision team: some in her field, others from geology. They all have somewhat different ideas about what she should be doing with her thesis work. None of them are co-located. This situation can be quite frustrating.

2. Kim decides to go spend a few weeks working in close proximity to the one member of the team who she has the most rapport with. This will also give her a chance to be in touch with other students in her field.

3. In the mean time, she establishes contact with yet another researcher whose work is quite closely related to hers. Although he does not have any formal responsibilities or ties to her project, they are already colleagues in an academic sense, and they have more congruent views on what her project is about. After she visits her favorite supervisor, she may plan to spend a month or so visiting this other researcher in his home country.

Note

I think this sort of networking to create an informal supervision team happens fairly frequently for postgrad students in the UK system. Certainly there are other examples of distributed project management - e.g. W3C working groups come to mind.

Improved adaptivity

Main Actor

Madeleine, a student who is trying to learn real analysis.

Main success scenario

1. Madeleine has been using a peer-learning website for mathematics for a while now. When she gets stuck, she asks for help in context, and her request is brought to the attention of the appropriate community member, who improves the pedagogic quality of the material. This help enables her to solve math problems very effectively.

2. Now, however, the system's software is being updated. Instead of being solely a "Web 2.0" system for communicating about the subject, the system can keep track of new concepts that Madeleine is using in the problems she solves and the questions she asks. It can suggest heuristics that have been used by other students solving similar problems. (It knows about these things through a

combination of textual analysis and "tagging" of text by Madeleine and other users, e.g. Natalie, who sometimes gives comments on problems that Madeleine solves.)

3. As the system grows and improves (through efforts of students and mentors), learning mathematics becomes increasingly easy. The material has been gone over by 100s of students and learning pathways are optimized. Madeleine sometimes can get a quick tutoring gig helping out another younger student, and make some money, but mostly she's thinking about what other subjects she will need to add to her portfolio in order to become an architect… by the time she's 23!

Improving the efficacy of research funding

Main actor

Javier, who works for the European Commission.

Main success scenario

1. Javier is interested in research topics like "data analytics" and "emerging topics in ICT" – things that will influence learning technology in the next 5 years. He is also concerned about how best to fund work on new learning and teaching environments.

2. He wonders what the barriers and incentives are in this niche. For example, why does research work frequently not have the broad-scale societal impact that the EC hopes it might?

3. Javier is invited to a pæragogy event, in which some unexpected experts on "broad scale impact" help him understand that intensive funding for research is often not going to have the desired effect, since, for various reasons,

even well-funded research projects are frequently not well connected to actual practice.

4. He starts to build pæragogy into funding calls: smaller pots of money going to projects that connect with what people actually do, working with partners like the Wikimedia Foundation and the Free Software Foundation to multiply effort by involving volunteers. It's time for him to take a well-earned vacation.

Journalist enters the Whispering Gallery

Main actor

Jorge Luis is a journalist for a London business paper.

Main success scenario

1. Jorge Luis writes on a daily and even hourly basis about the eurozone crisis. He uses social dashboards and curating tools and produces lots of curated stories about the causes of the problems, the stupidity of the continental europeans and how it will all end soon in complete and utter disaster. His sources are other journalists, well-known economists and famous bloggers.

2. On his way to the newsroom he usually passes St Pauls cathedral, where Occupy London people protest. He thinks they rather look like losers, except for one very interesting young lady. She tells him where he can find the center of the universe: at the Whispering Gallery of the cathedral. He thinks she is nuts, but also very beautiful and interesting, so he walks the 259 steps from ground level to the Gallery. Once he gets there, he realizes that the girl was right. It IS the center of the universe. There are murmurs to be heard there - it seems they come from everywhere. He hears about guilds and the craftsmen who

built the cathedral. He learns about how proud they were and how they formed communities of practice, educating the uninitiated, teaching each other to create.

3. He returns to ground level. The girl is gone, but yet he feels happy. He realizes he can do more then repackage the social media streams, that there is more than Twitter-the-new broadcast medium. He starts a new journey: finding a guild, a community of practice, but restyled in a 21st century fashion. It will be more open, more connected to others then the old guilds. He will still use a social dashboard and curaring tools, but also he uses wikis, and synchronous communication. And most importantly, he starts building, together with others. For instance, together with the people formerly known as his readers. They will co-create the analysis, the search for solutions and sense-making, rather than helplessly listening to "experts", passively consuming the knowledge and information. Instead, they'll start building their own destiny as a community, and the newsroom will be part of the platform.

Living the OER dream

Main Actor

Charlie, who does tutoring and educational consulting, and who has been doing research on paragogy.

Main success scenario

1. Charlie usually tutors one-on-one but has been putting work into understanding and exploring peer learning and peer production, putting it into practice on P2PU and in courses and projects with Howard Rheingold.

2. X-Y-Z peer learning theory (paragogy?) helps him design learning activities that work well for groups of students

3. He deploys the new model on PARAGOGY.NET as an educational startup, and realizes the "OER dream"!

Making our own tools

Main Actor

Howard runs RHEINGOLD UNIVERSITY and teaches courses at UCB and Stanford.

1. Howard created the peeragogy project, as a place to experiment and learn: "I want to experiment as much as possible with peeragogy, with the group of contributors here, with the co-learners in Rheingold U, and with other groups in the future. I want to personally use the tools we're building. I know something about how to do it, and can make substantial contributions. But I also am learning a lot about how to do it from others, and expect that to continue."

2. Although "bringing a volunteer project to completion [...] isn't a guaranteed slam-dunk", Howard learns by doing: "If I had it to do over again, I would have thought out the work flow and delineated it before we started talking about how to do the project."

3. With both frequent, and other less frequent, but thoughtful, contributors, the project continues to develop, and will indeed complete somehow (even if no one knew quite what to expect in advance). Howard and other contributors have learned a lot in the process - and this will be useful both for the duration of the peeragogy project, and in future projects. As hoped!

Peer Learning on the Technical Edge

Main Actor

Jess, a hacker and engineer who develops new libraries and programs quickly and on the bleeding edge of new technologies.

Main success scenario

1. Jess develops something new and totally cool and drops the source code in GitHub. These tools are developed rapidly and are a much lighter "learning lift" than learning say an entirely new programming language.
2. She creates documentation for her new library and puts it up on a web site for other developers to read.
3. She is trying to find a better way for other developers to learn how to use the new tools and libraries she creates and starts thinking about peer learning.
4. How can she use what tools and processes or methods that are already out there to engage other developers to learn from and with each other digitally? (Jess has no background in learning theory and is not in the educational field.) She finds the peeragogy handbook and a lot of this stuff starts to click.

Prolegomena to Any Future Math Learning Environment

Main Actor

A student, Madeleine, who is trying to learn multivariable calculus.

Main Success Scenario

1. Madeleine is enrolled in an advanced calculus course at university. She learns about PlanetMath from her instruc-

tor who recommends it as a place for extra practice with homework problems. Madeleine creates an account, fills in basic profile information, and starts solving problems that the system supplies based on the information she supplied in her profile.

2. The problems that the system supplies are automatically linked to reference resources in PlanetMath's encyclopaedia. This expository material gives Madeleine easy access to the relevant mathematical concepts, examples, and hints needed for solving the increasingly difficult practice problems. However, she eventually runs into a problem where neither the automatically supplied information, nor her current knowledge of the subject, is sufficient. She's completely stuck on a problem having to do with water flow in a pipe! Madeleine attaches a help request to the problem: "I understand that I have to use the two variables x and y to solve for water flow, but I don't understand what the boundary limits of the equations would be: do I have to convert it to polar coordinates?"

3. This request is noticed by Natalie, a mathematics graduate student who regularly looks at the feed showing "recent requests for help with advanced calculus." She sees that the reference resources linked to Madeleine's problem are probably not sufficient, and that Madeleine's idea about using polar coordinates would work. Natalie makes some changes to the encyclopaedia indicating that converting to converting to polar coordinates can be necessary in pipe flow problems, and sketches an example. Natalie then checks that this information links to Madeleine's problem correctly, and alerts Madeleine to the changes. With this new information, Madeleine is not only able to solve her problem, but can proceed with confidence: she had the right idea after all!

Peeragogy helps solve complex problems

Main Actor

Neo, who is a hacker by night, and an office worker by day (and who reads Baudrillard in his spare time).

Main Success Scenario

1. Neo lives in New York City, and works as a programmer in an office near Wall Street. His day-job involves finding patterns in market data (see Kevin Slavin's TED TALK).

2. He has been walking past ZUCOTTI PARK on his way home and more or less he finds this protest stuff annoying (he has other stuff on his mind). But one of these evenings, one of the protestors catches his attention (she's dressed rather strikingly...). They talk a bit, and he comes away thinking about what she said: "ALL OUR GRIEVANCES ARE INTERCONNECTED." What if all the solutions are interconnected too?

3. Night time: Neo becomes increasingly obsessed with this idea. He's pulling down lots of web pages from OWS activists, from companies, from government websites – again, looking for patterns. What would it take for OWS folks to solve the problems they worry so much about?

4. He eventually stumbles across the idea of pæragogy and it works like the "red pill": it's possible to solve the problems but only by working together. It would be hard to engineer a social media platform that will actually help with this (OWS folks mostly use Tumblr and aren't necessarily all that technologically minded). But he starts working on a TOOL that's geared towards learning and sharing skills, while working on real projects. At first, it's just hackers who are using the tool, but over time they

adapt it for popular use. Then things start to get interesting...

Starting a Company

Introduction

I think that Peeragogy has flavors – learning for learning sake for personal ends in a progression toward learning about the world to take action as a group. The latter gets heavily into Action Research (Stringer, 2007), which I love and work heavily in. It is research in cycles, or loops with feedback to try something, measure it, see how it worked with the real world, then plan the next question and set of actions. In each cycle, the group is Learning. I look with that lens at company start-ups as a perpectual action research cycle. I heard Eric Reis at SXSW talk about the Lean Startup in this mode, including this direction in how he even wrote the book. Hypothesis, experiment, feedback, learn, pivot, next hypothesis... Is the group in this peeragogy learning set knowledge or creating new knowledge? Or through new knowledge making a change in the world? A great spectrum of alternatives! Here, my scenario about a company I was on the board on early on:

Main actors

- Cycle 1: Nick, an MBA student, plus a Computer Science PhD, John, at a major university. John had created a unique technology for identifying video clips and had no idea what to do with it. Nick was an ex-engineer learning about how to launch new businesses.

- Cycle 2: Additional "learners" and co-teachers as board members, each adding new learning elements and expertise.

- Cycle 3+: New learners as investors and clients.

Main success scenario

1. Nick and John used a new business plan competition as the catalyst and structure to experiment with what ideas might be possible to grow this idea. They named it Findable (not the real name; the company did launch with some interesting success, but we'll come to that later). They brought three other MBAs into the initial group, and within the confines of a business plan structure, researched the stereotypical elements of a business plan – addressable market, competition, expense and revenue projections, etc. They knew nothing of the area, and each person did independent research work to provide some primary (interview-based) and secondary (existing text) information about their hypothesis of what the technology could do for what audience in what environment. They worked hard up until the competition deadline, and won the business plan competition, gaining $15,000 in the process plus the attention of some VCs on the judging panel. Each person had learned a lot about the technology, the creative process of writing the business plan, the rituals involved of asking for money, and the flaws in their own plan that they found on its creation. They used fairly traditional technology tools: email, shared Word and Excel files, telephone, search, and a shared file system to store everything that they worked on.

2. Nick and Fred wanted to move forward with this project. Their next hypothesis was that they could launch this in a specific market. They first came to the idea, from the learning from the business plan and lots of feedback from the VCs, that they could start with the advertising market, as they could now identify and "tag" any ad that they could find on cable or the internet. They got seed capital from three interested parties, who become part of their Action Research learning team. They realized to launch that they needed more voices on their learning team, so they added their first 3 employees to design and sell the product. They

also added an advisory board, including yours truly, assuming they would be working in the advertising market. Technologies? Traditional, though they now included all sorts of tech development resources. New information into the mix? They had not put together great resources to optimize their time learning, and spent a lot of energy keeping up with things, information, and opportunities. Learning? Some initial users loved their product, but the market size was smaller than they thought…plus was very entrenched. The companies did not see a real pain point that was being solved.

3. Cycle 3 – what the heck do Nick and Fred do with this? This became the true learning phase. Different companies and advisors saw different needs for their intriguing product set. They spent 4 years (!!!) getting pulled this way and that, using the VC money and needing more. (This is VERY much the learning path I see in many small tech companies.) Technologies? Same stuff. Learning team? Ebbed and flowed with new opportunities and people's patience. My expertise was in the "old" model, so peaceably left the team (but got options!).

4. Cycle 4+ – a major public company "found" them through their learning cycles, and found that they solved a pain point. They invested a sizeable sum into a chunk of the company, and launched their product into that solution. This opened a whole other set of learning doors.

5. Final cycle – Happily, I cashed out my options. Two major media technology companies ended up buying two areas of key technologies in 2011, much to my own pocketbook's happiness. Nick and Fred had moved on earlier, turning the company learning over to specialized managers. I need to see what Nick is up to next….

Thoughts

1. Many great patterns were tucked into many cycles of this use case, often unspoken assumptions in a new business start-up, including environment scanning, codifying specialist knowledge, themes, modeling, etc. Consensus building – an interesting element.

2. For me, the additional elements are (a) the scaffolding of the "norms" of cycles (e.g., business plan creation, a competition, a launch of a product) help provide "norming" frameworks that can help groups achieve as well as limit their looking at the structural norms as anything but "required" and (b) the lens of Action Research Cycles from my own POV. Are we setting a hard limit of providing a hypothesis in our co-creation, so we know when we are "done" and what we have to study? Then once that chunk is done (and CELEBRATED) that another hypothesis can be investigated, explored, proven, and co-created? I believe that having pre-structured points of learning achievement, reflection, and celebration can really help in moving forward.

3. My own brain is rethinking these issues around content creation after hearing Eric Reis speak on how he tested his content creation for his *New York Times* best-selling book.

4. How are we testing this Handbook, other than living through it? :)

Steal This Book

"Obviously such a project as Steal This Book could not have been carried out alone. Izak Haber shared the vision from the beginning. He did months of valuable research and contributed many of the survival techniques. Carole Ramer and Gus Reichbach of the New York Law Commune guided the book through

its many stages. Anna Kaufman Moon did almost all the photographs. The cartoonists who have made contributions include Ski Williamson and Gilbert Sheldon. Tom Forcade, of the UPS, patiently did the editing. Bert Cohen of Concert Hall did the book's graphic design. Amber and John Wilcox set the type. Anita Hoffman and Lynn Borman helped me rewrite a number of sections. There are others who participated in the testing of many of the techniques demonstrated in the following pages and for obvious reasons have to remain anonymous. There were perhaps over 50 brothers and sisters who played particularly vital roles in the grand conspiracy. Some of the many others are listed on the following page. We hope to keep the information up to date. If you have comments, law suits, suggestions or death threats, please send them to: Dear Abbie P.0. Box 213, Cooper Station, New York, NY 10003. Many of the tips might not work in your area, some might be obsolete by the time you get to try them out, and many addresses and phone numbers might be changed. *If the reader becomes a participating researcher then we will have achieved our purpose.*" – Abbie Hoffman (emphasis added)

Strategy as learning

Main actors

The non-executive (Jim, Pamela, Julian) and executive (Clare, Malcolm, Colin & Jenny) directors of a housing association (a not-for-profit organisation building and letting "social" housing for families in housing need) **Main success scenario**

1. The board of the housing association need to set a strategy that takes account of significant changes in legislation, the UK [welfare] benefits system and the availability of long term construction loans.

2. Julian, eager to make use of his new-found peeragogical insights suggests an approach where individuals research specific factors and the team work together to draw out themes and strategic options. As a start he proposes that

each board member researches an area of specific knowledge or interest.

3. Jim, the Chairman, identifies questions he wants to ask the Chairs of other Housing Associations. Pamela (a lawyer) agrees to do an analysis of the relevant legislation. Clare, the CEO, plans out a series of meetings with the local councils in the boroughs of interest to understand their reactions to the changes from central government. Jenny, the operations director, starts modelling the impact on occupancy from new benefits rules. Colin, the development director, re-purposes existing work on options for development sites to reflect different housing mixes on each site. Malcolm, the finance director, prepares a briefing on the new treasury landscape and the changing positions of major lenders.

4. Each member of the board documents their research in a private wiki. Julian facilitates some synchronous and asynchronous discussion to draw out themes in each area and map across the areas of interest. Malcolm, the FD, adapts his financial models to take differet options as parameters.

5. Clare refines the themes into a set of strategic options for the association, with associated financial modelling provided by Malcolm.

6. Individual board members explore the options asynchronously before convening for an all-day meeting to confirm the strategy.

Thoughts

1. This may be a little close to the "peer production" end of peeragogy, but on the other hand, where (if anywhere) do we draw the line?

2. This probably needs to be made a little more abstract to be a useful use case, and in doing so I suspect will start to overlap with Pæragogy helps solve complex problems

3. It looks to me as if there may be some candidate patterns buried in this use case, e.g. Environment Scanning, Codifying Specialist Knowledge, Extracting Themes, Modelling Outcomes, Consensus Building

We are the 1 percent

Main Actor

Trinity, the daughter of a Texas oil magnate.

Soundtrack

You Make Me Like Charity by The Knife

Main success scenario

1. Trinity has spent the last year traveling around the world to join in various #Occupy protests. Her aim is to get people in the movement thinking about how they can empower themselves.

2. It's tricky though, because as much as she knows she has an impact on individuals, she still sees a lot of problems in the world, which, given her manic-depressive tendencies, she tends to find very disturbing.

3. She reaches out to other folks who are privileged in one way or another – and a bunch of "normal folks" – trying not only to bring about political change, but trying to establish a degree of personal friendship and camaraderie, and a feeling of "belonging in the world". For her, this is a constant struggle. She finds that working with other people on concrete tasks keeps her from spiraling into a state of gloom. In the mean time, she's also building a tremendous amount of knowledge about the way social movements and political processes work.

Footnote

"The Knife is now recording a new album to be released in 2012. Lately we have read a lot about the ongoing discrimination of Romani people in Europe which is totally unacceptable. The forced evictions must stop and adequate alternative housing must be arranged. Now!" – The Knife

Young aspiring blogger wants to avoid starvation

Main actor: Simone

Simone is a young media department graduate, who followed the adventures of the journalist Jorge Luis. Jorge Luis was transforming the newspaper operation into a kind of collective learning project, turning the newsroom into a platform for discussion and learning, and inciting the developers to provide an API for external coders. Simone wrote a paper about all this in her last year at the media department. She also runs a blog about tools which empower people to participate in politics (local, nation-wide and international).

Main success scenario

1. Simone loves her blog. She believes verticals and specialization are the future in blogging. However, she needs money to live, and to pay back the debts she made to finance her studies. Her media department was moderately interesting, but nobody ever thought of organizing a course "entrepreneurial blogging/journalism".

2. Posting every day about collaborative online tools such as wikis, forums, blogs, mindmaps, synchronous sessions, social bookmarks, visualization tools, Simone decides to reach out and look online for others who are experiencing the same challenges.

3. As she encounters various other people, they start curating stuff about blogging business models and best practices. They find lots of useful stuff for free at Robin Good's website, and they manage to get access to online resources at a strange group which seems to specialize in "mind amplifying tools" and "literacies of cooperation". They also discover that "entrepreneurial journalism" is taught at various colleges, and invariably the professors and most of the students there indulge in blogging and publishing about their insights and experiments. All that material is being discussed on the collaborative platform Simone built.

4. Simone uses the discussions to blog about her experience. After all, issues about financing media who empower people in order to broaden and deepen the democracy is something which is rather on topic for her own blogging practice. Also, because of her reaching out, her contacts increased considerably. She works together with someone to share a virtual co-working space, and people start noticing her. Some ask her for customized expert advice about collaborative tools and collaboration methodologies. The city council expresses some vague interest and considers hiring her as a consultant.

5. Even though she gets several gigs, Simone realizes it's not easy to earn a living as a blogger. But it seems to open other doors... however, she continues her investigation about business models for collaborative media. As yet we don't know whether Simone's blog will be profitable in itself, but we do see a network around her projects, exchanging insights but also valuable business information and opening more doors.

Thoughts

I had the opportunity to give some seminars at media departments here in Belgium. In my experience, the students were not familiar with curation practices or infotention strategies. They

also lack courses in entrepreneurial journalism. In other words, they're still educated for the big media companies, but they're not prepared to start the next TechCrunch or Huffington Post. Often the students asked me, after the seminar, "how can we learn all this? they won't teach us these things here". I think there is a need for P2P learning about not only curation, infotention, social dashboards, communities and governance of common pool recourses, but also about publishing strategies, social media workflows and business models.

Part VIII

Technologies, Services, and Platforms

CHAPTER 23

INTRODUCTION TO TECHNOLOGIES FOR PEERAGOGY

It is tempting to bring a list of technologies out as a glorious cookbook. We need a 1/2 cup of group writing tools, 2 tsp. of social network elements, a thick slice of social bookmarking, and some sugar, then put it in the oven for 1 hour for 350 degrees.

We have created a broad features/functions list for Handbook readers to reflect upon and consider. The joy of this list is that you can consider alternatives for the way you communicate and work while you are planning the project, or can add in new elements to solve communications gaps or create new tools.

However, too many tools spoil the broth. In the writing of this Handbook, we found that out firsthand. We spent a lot of marvelous energy exploring different tools to collaborate, curate information, do research, tag resources, and adjudicate among all of our points of view. In looking at groups working with the various MOOCs, as another example, different groups of students often camp in different social media technologies to work. In large courses, students often have to be pushed into various social media tools to "co-create" with great protest and lots of inertia. And finally, co-learning groups often come from very different backgrounds, ages, and stages of life, with very different tools embedded in their current lives. Do we have time for three more tools in our busy days? Do more tools help or interfere in our work?

In this section, we'll share with you a few issues:

- What technologies are most useful in peer learning? What do we use them for? What features or functions help our co-learning process?

- How do we decide (a) as a group and (b) for the group on

what tools we can use? Do we decide upfront, or grow as we go?

- How do we coach and scaffold each other on use of tools?
- How much do the tool choices impact the actual outcome of our learning project?
- What are the different roles that co-learners can take in co-teaching and co-coaching the technology affordances/assumptions in the project to make others' lives easier?

Features and Considerations

We will begin below with a discussions of "features" and initial considerations, and then move to a broader "Choose Your Own Adventure"-style matrix of features leading to a wide variety of collaboration-based technology tools online.

Technologies and Features

As we will share in the extensive list below, there are abundant tools now available – both for free and for pay – to bring great features to our co-learning endeavors. It is tempting to grab a group of fancy tools and bring the group into a fairly complex tool environment to find the perfect combination of resources. The challenge: as Adult Learners, we seek both comfort and context in our lives (Schein, 1997, 2004). In choosing tools as Brands and technologies, we can ignore the features themselves and what we need as parts of the puzzle for learning. We also can have anxiety about our self-beliefs around computers and technology, which in turn can limit our abilities (Compeau & Higgins, 1995).

Before we get to Brands and choices, it helps to ask a few questions about the learning goals and environments:

- What do we need as features, and at what stage of the learning process?

- What are we already comfortable with, individually and as a group?
- Do we want to stay with comfortable existing tools, or do we want to stretch, or both?
- What types of learners do we have in this group? Technologically advanced? Comfortable with basics?
- Do we want to invest the time to bring the whole group up to speed on tools? Do all the group members agree on this? Do we want to risk alienating members by making them invest time in new resources?
- We know that our use will migrate and adapt. Do we want to plan for adaptation? Observe it? Learn from it? Make that change intentional as we go?

Researchers over the years have heavily examined these questions of human, technology, and task fit in many arenas. Human-Computer Interaction researchers have looked at "fit" and "adaptive behavior," as well as how the tools can affect how the problem is presented in the work (Te'eni, 2006). Creativity support tools (Shneiderman, 2002) have a whole line of design research, as has the field of Computer-Supported Collaborative Work Systems (CSCW). For co-learners and designers interested in the abundance in this space, we've added some additional links below.

We here will make this a bit easier. For your co-learning environment, you may want to do one or two exercises in your decision planning:

- What **features do you need**? Do you need collaboration? Graphic models? Places to work at the same time (synchronous)? Between meetings (asynchroous)?
- What are the group members **already using** as their personal learning platforms? It also makes sense to do an inventory about what the group already has as their learning platforms. I'm doing that with another learning group

right now. People are much more comfortable – as we also have found in our co-creation of this Handbook – creating and co-learning in tools with which they already are comfortable. Members can be co-teachers to each other – as we have have – in new platforms.

- What **type of tools**, based on the features that we need, shall we start out with? Resnick at al. (2005)looked at technology tools having
  - Low thresholds (easy to get people started)
  - Wide walls (able to bring in lots of different situations and uses) and
  - High ceilings (able to do complex tasks as the users and uses adapt and grow).

What are important features needed for co-creation and **working together**? In other pages above, we talk abundantly about roles and co-learning challenges. These issues also are not new; Dourish & Bellottii back in 1992 for example, shared long-standing issues in computer-supportive collaborative work online about how we are aware of the information from others, passive vs. active generation of information about collaborators, etc. These challenges used to be "solved" by software designers in individual tools. Now that tools are open, abundant, and diverse, groups embrace these same challenges when choosing between online resources for co-learning.

Which of these will be important to your group work? Keep in mind – your needs for tools, plus how the group uses them, will change as the co-learning project moves along. Are you willing to change tools during the project as your needs and users change, or do you want to plan on tools that are great in all these dimensions at the start?

Useful Uses and fancy Features of Technological Tools

From here, we will help you think about what might be possible, linking to features and solution ideas.

We start with ways to ask the key questions: What do you want to do and why? We will start with features organized around several different axes:

- Time/Place
- Stages of Activities and Tasks
- Skill Building/Bloom's Taxonomy
- Use Cases, and
- Learning Functions.

Each will link to pages that will prompt you with features, functionality, and technology tool ideas.

Time/Place

We can further break down tools into whether they create or distribute, or whether we can work simultaneously (synchronous) or at our own times (ascynchronous). To make elements of time and place more visual, Baecker (1995) created a CSCW Matrix, bringing together time and place functions and needs:

Some tools are synchronous, such as Google+ Hangouts, Blackboard Collaborate, and Adobe Connect, while others let us work asynchronously, such as wikis, forums, and Google Docs. We seem to be considering here mostly tools good for group work, but not for solo, while many others are much easier solo or in smaller groups.

Stages of Activities and Tasks

Dan Shneiderman (2002) has simplified the abundant models in this area (e.g., Couger and Cave) with a clear model of 4 general activities and 8 tasks in creation for individuals, which we can lean on as another framework for co-creation in co-learning.

Activities

Tasks

Collect

- Searching
- Visualizing

Relate

- Consulting Others

Create

- Thinking (Free Association)
- Exploring
- Composing
- Reviewing

Distribute

- Disseminating

Tools and functions won't be clear cut between areas. For example, some tools are more focused on being generative, or for creating content. Wikis, Etherpad, Google docs, and others usually have a commenting/talk page element, yet generating content is the primary goal and discursive/consultative functions are in service of that. Some tools are discursive, or focused on working together for the creative element of "relating" above – Blackboard Collaborate, the social media class room forums, etc.

Skill Building (Cognitive, a la Bloom's Taxonomy, see below)

Given that we are exploring learning, we can look to Bloom's Taxonomy (revised, Anderson & Krathwohl, 2001) for guidance as to how we can look at knowledge support. Starting at the bottom, we have:

- Remembering, as a base;
- Understanding,
- Applying,
- Analyzing,
- Evaluating, and then, at the top,
- Creating.

We could put "search" in the Remembering category above. Others [need to re-find and cite] contest that Search, done well, embraces most of the Bloom's elements above. Samantha Penney has created a Bloom´s Digital Taxonomy Pyramid of tools for learning (cc 3.0 – http://www.usi.edu/distance/bdt.htm).

Use Cases (I want to....)

Technologies can be outlined according to the need they serve or use case they fulfill. Examples: If we need to 'curate', Pearl Trees is an option. To 'publish' or 'create', we can look to a wiki or wordpress. Other choices might be great in order to 'collaborate', etc.

One challenge is that tools are not that simple. As we look more closely at the technologies today, we need to reach more broadly to add multiple tags to them. For example Twitter can be used for "Convening a group," for "micro-blogging," for "research," etc.

- Collaborate with a Group

- Create Community
- Curate Information (select content, contextualize, and share it)
- Research
- Publish Information
- Create Learning Activities
- Make Something

These plans get more complex, as you are making a group of decisions about tool functionality in order to choose what combination works for use cases. It may be most useful to use a concept map (a tech tool) to think about the needs and combinations that you would bring together to achieve each Use Case or Learning Module.

Technology Features/Functions

We have not made this easy! There are lots of moving elements and options here, none of them right for everything, and some of them fabulous for specific functions and needs. Some have the low thresholds but may not be broad in scope. Some are broad for many uses; others are specific task-oriented tools. That is some of the charm and frustration.

Weaving all of the above together, we have brought together a shared taxonomy for us to discuss and think about co-learning technology features and functions, which we present as an appendix below. This connects various technology features within an expanded version of Ben Shneiderman's creativity support tools framework. We've created this linked toolset with multiple tags, hopefully making it easier for you to evaluate which tool suits best the necessities of the group. Please consider this a starting point for your own connected exploration.

Appendix: Features and Functions

Weaving all of these frameworks together, we have brought together a shared taxonomy for us to discuss and think about co-learning technology features and functions. We have connected various technology features with an expanded version of Ben Shneiderman's creativity support tools framework for the linked resource guide.

Note: please add tools as posts that follow the following TEMPLATE format.

Click the links below to take you to samples of each of these features and functions in groups of tools. Please consider this a starting point for your own connected exploration.

Activities
Tasks
Features/Functions

Planning/Designing (a cycle of Learning before the Co-Learning)

- Communicating
- Deciding and Creating Alternatives
- Convening a group
- Planning a course/structure
  - Assembling a syllabus
  - Designing a learning activity
- Designing self-assessment (group and individual)
- Setting individual and group goals
- Brainstorming
- Visualizing

Collect/Share Inbound

- Searching
- Visualizing
- Search
- Social Bookmarking
- Creating/Finding Taxonomies (shared keywords, domain-based keywords)
- Programming Toolsets
- Collaborative reading
- Collaborative note-taking
- Curation Tools
- Gathering information (e.g., capturing audio, video, text)
- Surveys and Questionnaires

Relate

- Consulting Others from the Outside
- Qualitative research
- Quantitative research

Communication

- Connecting with Others in the Group
- Project Planning - Scheduling
- Voice/Video Conferencing Services
- Group Email / Forum Messaging Services

- File Sharing Service (Cloud Based)
- Screen Capturing and Screen Casting
- Presentation and Document Sharing

Co-Create

- Thinking (Free Association)
- Exploring
- Composing
- Reviewing
- Learning Management Systems
- Document Collaboration and Editing
- Visualizing Information(for analysis and synthesis)
  - Concept Maps
  - Data visualization (of "Big Data" or larger sets for decision-making

Distribute/Action

- Disseminating
- Publishing Platforms
  - Traditional publishing
  - Social media/sharing distribution
- Visualization (for presentation)

Feedback

- Social Monitoring/Listening

A Key Resource

- Our "Technology Matrix" on Google Docs

References

- Anderson, L. W., & Krathwohl, D. R. (Eds.). (2001). *A taxonomy for learning, teaching and assessing: A revision of Bloom's Taxonomy of educational objectives: Complete edition.* New York, NY: Longman.

- Baecker, R., Grudin, J., Buxton, W., & Greenberg, & (eds.) (1995): *Readings in Human-Computer Interaction: Toward the Year 2000.* New York, NY: Morgan Kaufmann Publishers

- Compeau, D.R., & Higgins, C.A. (1995, June). Computer Self-Efficacy: Development of a Measure and Initial Test. *MIS Quarterly, 19*, (2), 189-211.

- Dourish, P. & Bellotti, V. (1992). Awareness and coordination in shared workspaces. In *Proceedings of the 1992 ACM conference on Computer-supported cooperative work* (CSCW '92). ACM, New York, NY, USA, 107-114. DOI=10.1145/143457.143468 http://doi.acm.org/10.1145/143457.143468

- Resnick, M, Myers, B, Nakakoji, K, Shneiderman, B, Pausch, R, Selker, T. & Eisenberg, M (2005). Design principles for tools to support creative thinking. *Institute for Software Research.* Paper 816. http://repository.cmu.edu/isr/816

- Schein, E. H. (1997). *Organizational learning as cognitive re-definition: Coercive persuasion revisited.* Cambridge, MA: Society for Organizational Learning.

- Schein, E. H. (2004). *Organizational culture and leadership.* San Francisco, CA: Jossey-Bass.

- Shneiderman, B. (2002). Creativity support tools. *Commun. ACM* 45, 10 (October 2002), 116-120. DOI=10.1145/570907.570945 http://doi.acm.org/10.1145/570907.570945

- Te'eni, D. (2006). Designs that fit: An overview of fit conceptualizations in HCI. In *Human-Computer Interaction and Management Information Systems: Foundations*, edited by P. Zhang and D. Galletta, pp. 205-221, Armonk, NY: M.E. Sharpe.

Additional Research for Interested Co-Learners

- Irene Greif and Sunil Sarin (1987): Data Sharing in Group Work, ACM Transactions on Office Information Systems, vol. 5, no. 2, April 1987, pp. 187-211.

- Irene Greif (ed.) (1988): Computer-Supported Cooperative Work: A Book of Readings, San Mateo, CA: Morgan Kaufman.

- Irene Greif (1988): Remarks in panel discussion on "CSCW: What does it mean?", CSCW '88. Proceedings of the Conference on Computer-Supported Cooperative Work, September 26-28, 1988, Portland, Oregon, ACM, New York, NY.

- Kamnersgaard, 1988

- Vessey & Galletta, 1991

- Norman, 2001, 2003

- DeSanctis & Pool, 2004

	Same Time (Synchronous)
Same Place (Co-located)	**Face-to Face**: Display-focused (e.g., Smartboa
Different Place (Remote)	**Remote Interaction**: Videoconference, IM, Cl

CHAPTER 24

WIKI

In the context of P2P-learning, a wiki platform can be a useful and powerful collaboration tool. This section will help you understand what a wiki is and what it is not, why you should use it, how to choose a wiki engine and finally how you could use it in a P2P context. Some examples of P2P-learning projects run on wikis will help you see the potential of the tool.

What is a wiki?

For WARD CUNNINGHAM father of the wiki, "a wiki is a freely expandable collection of interlinked Web 'pages', a hypertext system for storing and modifying information - a database, where each page is easily editable by any user with a forms-capable Web browser client" [1]

According to Wikipedia : "a wiki is a website whose users can add, modify, or delete its content via a web browser using a simplified markup language or a rich-text editor" [2]

You can watch this CommonCraft video WIKI IN PLAIN ENGLISH to better understand what a wiki is.

What differentiates the wiki from other co-editing tools?

The previous definitions show that a wiki is a "website," in other words it is composed of pages that are connected together by hyperlinks.In additiont every authorized person (not all wikis are totally open like Wikipedia) can edit the pages from a web browser, reducing time and space constrains. In case one saves a mistake or for any other reason would like to go back to a previous version, a feature called "history" allows users to see previous versions and to roll back any of them. This version

history allows also to compare versions avoiding the cluttered of the "commentaries rainbow" we are used too in popular Word processors. For example if you work on a wiki page, and come back later on, you will be able to catch up by comparing your last version with the lastest version of someone else.

Tools like Google Docs or Etherpad are design to enable co-editing on a single document. This can be seen as a "wiki way" of working on a document as it is web based and includes versioning. But it is not a wiki because a single document is not a website. Those tools offer realtime collaboration which wikis do not and are so far easier to use for beginners as they work in WYSIWYG mode, which many wikis do not support. However, the advanced features wiki markup language make it a more powerful tool. In summary, tools like Googles Docs or Etherpad are a great way to quickly collaborate (synchronously, asynchronously, or a mixture of both) on a single document for free, with a low barrier to entry and no technical support. (Note that Etherpad does have a "wiki-links" plugin that can allow it to be used in a more wiki-like way; Hackpad is another real-time editing tool that prominently features linking – and it claims to be "the best wiki ever".)

Using a real wiki engine is more interesting for bigger projects and allows a huge number of users to collaborate on the same platform. A wiki reduces the coordination complication as e-mails exchanges are no more needed to coordinate a project. On the other hand it can help us deal with complexity [3][4] especially if you put basic simple rules in place like the Wikipedia's neutral point of view to allow every participant to share her or his ideas.

Going back to the continuum we talked about before, some tools like Moodle, SharePoint, WordPress, Drupal or others have build in wiki features. Those features can be good but will typically not be as good for wiki-building purposes as a well-developed special-purpose wiki engine. In other words, those tools main focus is not the wiki, which is only a secondary feature. When you choose a real wiki engine like Mediawiki, Tiki, Foswiki, etc., the wiki will be your platform, not a feature of it. For example if you start a wiki activity in a Moodle

course, this wiki will be only visible to a specific group of students and searchable only to those students. On the other hand if your learning platform is a wiki, the whole platform will be searchable to all members regarding their permissions. We are not saying here that a wiki is better than other tools but if you need a wiki engine to address your needs you may consider going with a strong wiki engine rather than a "micro-wiki" engine embedded in an other tool.

Why use a wiki?

Those are the main reasons you should consider a wiki for your peer learning projects :

- to reduce coordination complication by having a central and always up to date place to store your content. You will reduce e-mail usage drasticly, and have access to your content from everywhere using any operating system
- to keep track of the evolution of your project and be able to view or roll back any previous version of a wiki page using the history feature
- to make links between wiki pages to connect ideas and people but also make links to external URL's. This last possibility is very handy to cite your sources
- to deal with complexity. As a wiki allows anyone to contribute, if you set some easy rules like Wikipedia's NPOV (Neutral Point of View), you will be able to catch more complexity as you will allow everyone to express his or her opinion. Wikis also integrate a forum or comment feature that will help you solve editing conflicts
- to deal with work in progress. A wiki is a great tool to capture an on going work
- to support transparency by letting every members of the community see what others are doing

- to support a network structure as a wiki is by essence an horizontal tool. Using a hyperlinks you will be able to : "jump by a single clic from a network node to the other, from a computer to an other, from one information to the other, from one univers to the other, from one brain to the other." Translated from [5]

How to choose a wiki engine?

You will find more than a hundred different wiki engines. The first main distinction is between open source ones that are free to download and commercial ones you will have to pay for. You will find powerful engines on both sides open source and commercial. Sometimes the open source ones look less polished at first sight but are backed by a strong community and offer a lot of customization possibilities. The commercial are sold like a package, they are nicely presented but often they offer less customization on the user side and additional feature or custom made tools will cost you an extra fee. The second distinction that we can make is between wiki farms and self-hosted wikis. The WIKI FARM is a hosting service you can find for both open source or commercial wikis. The goal of those farms is to simplify the hosting of individual wikis. If you don't want to choose a wiki farm hosting, you will have to host the wiki on your own server. This will give you more latitude and data privacy but will require more technical skills and cost you maintenance fees.

The WIKIMATRIX web site will help you choose the best wiki for your needs. It allows you to compare the features of more than a hundred wiki engines. HERE is the top ten list of the best wiki engines by Ward Cunningham.

How can a wiki be useful in a peeragogy project?

A wiki is a good tool collaborative projects and a specially suited for work in progress as you can easily track changes using the history, compare those version and if necessary roll back a previous versions. In other words, nothing gets lost.

Here are some ideas about how to use a wiki in a peeragogy project :

- **Use a wiki as your learning platform**. It can also support Massive Open Online Courses (MOOCs). A wiki will help you organize your learning context. You can choose to give access to your wiki only to the project participants or open it to the public like Wikipedia. Using hyperlinking, you will operationalize the theory of connectivism by connecting nodes together. As a learning platform wikis are powerful because you can easily see what others are doing, share with them, get inspired, merge ideas or link to ideas. In other words, it creates emulation between learners. For additional ressources about wiki in education follow this Diigo link.

- **Manage your peeragogy project**. A wiki is an excellent tool for project collaboration. Above all, the wiki can be a central place for peer learners to write or link to content. Even if you use several technologies to run your project as we did to write this handbook, at the end of the day, all the content can be centralized on a wiki using direct writing on wiki pages or hyperlinks. This way members can access the content from anywhere and from any device connected to the internet using any platform or application and they will always see the most recent version while being able to browse through the versions history to understand what has changed since their last visit.

- **Publish your project**. As a wiki is a website you can easily use it to show your work to the world. Regarding web design, don't forget that a wiki can look way better than a Wikipedia page if you customize it

Examples of peeragogy projects run on wikis

Appropedia is a wiki site for collaborative solutions in sustainability, poverty reduction and international development through the use of sound principles and appropriate

technology and the sharing of wisdom and project information. The site is open to stakeholders to find, create and improve scalable and adaptable solutions.

Teahouse is a peeragogy project run on a wiki that gives newcomers a place to learn about Wikipedia culture and get feedback from experienced Wikipedians.

What are the best practices when using a wiki?

- **Cofacilitation** – help each other learn, help each other administer
- **Self-election** – enable people to choose what they want to work on, at their own pace, in their own way
- **Communication** – use comment threads and talk pages to discuss wiki changes
- **Documenting changes** – most wikis enable editors to write very brief descriptions of their edits
- **Rules** – keep rules at a minimum level to avoid chaos without constraining creativity
- **Fun** – make it fun for people to contribute

Sources

1. Leuf, Bo, et Ward, Cunningham. 2001. The Wiki way : quick collaboration on the Web. Boston: Addison-Wesley, xxiii, 435 p. p.14
2. Wiki on Wikipedia
3. Andrus, Calvin D. 2005. Toward a complex adaptative intelligence community - The wiki and the blog. Studies in Intelligence. vol. 49, no 3. Online :
4. Barondeau, Régis. 2010. La gestion de projet croise le wiki. École des Sciences de la Gestion, Université du Québec à Montréal, 180 pp.

5. Ayache, Gérard. 2008. Homo sapiens 2.0 : introduction à une histoire naturelle de l'hyperinformation. Paris: Milo, 284 p. p.179

CHAPTER 25

REAL-TIME MEETINGS

Author: Howard Rheingold

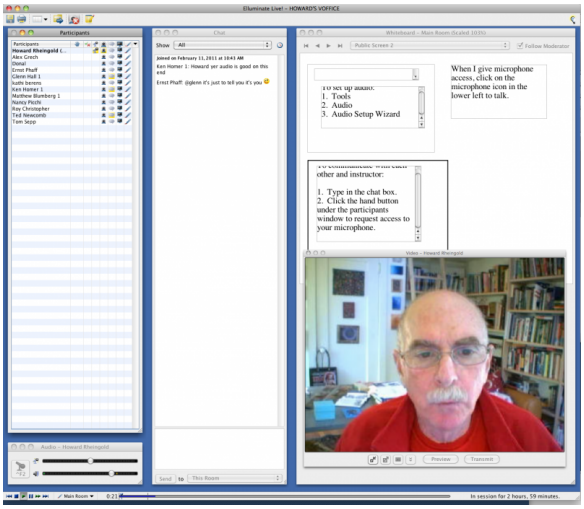
Summary

Web services that enable broadband-connected learners to communicate in real time via audio, video, slides, whiteboards, chat, and screen-sharing enable learning groups to add some of the audio-visual dimensions familiar from synchronous face-to-face communication to otherwise asynchronous platforms such as forums, blogs, and wikis. This article includes resources for finding and evaluating appropriate for-free or for-fee platforms, tips on participative activities for real-time meetings, and suggestions for blending real-time and asynchronous media.

Real-time meeting media

This Peeragogy Handbook was conceived and constructed by a group of people on four continents who had not met and had not known about each other before we began meeting online. The process involves asynchronous media, including forums, wikis, social bookmarking groups, and Wordpress, but it probably would never have cohered into a group capable of collective action if it had not been for the real-time meetings where we were able to see each other's faces, hear each other's voices, use a whiteboard as an anonymous agenda-generator, exchange links in chat, show each other examples through screen-sharing. Together, the asynchronous and real-time media enabled us to begin to see ourselves as an effective group. We used both real-time and asynchronous tools to work out processes for creating, refining, and publishing the Handbook, to divide labor, decide on platforms and processes, to collaboratively compose and edit articles, and to design and add graphical and video ele-

ments. In particular, we used the Blackboard Collaborate platform, a web-service that enables up to 50 people at a time to meet in a multimedia, recordable, meeting room for around $500/year. We've experimented with other paid platforms, such as Adobe Connect (about the same price as Collaborate), and when we meet in groups of ten or less, we often use the free and recordable Google+ Hangout service. Smaller groups also use Skype. We're watching the development of Big Blue Button, a free and open-source real-time meeting platform, as it develops the full suite of tools that are currently only available for a fee. Dozens of other free, ad-supported and/or freemium webconferencing systems such as Big Marker and Dim-Dim can be found in lists like Howard Rheingold's and Robin Good's. Free phone conferencing services provide another technological "lowest common denominator": some provide a few extras like downloadable recordings.



Features of real-time meeting platforms

There are many free services for chat, screen-sharing, whiteboards, and video conferencing, but combining all these components in separate panes of the same screen (preferably) or as separate tabs of a browser can have a powerful synchronizing

and harmonizing effect on the group. The features to look for in meeting platforms include:

Audio and video: Choose platforms that enable voice-over-internet-protocol (VOIP) and easy ways for participants to configure their microphones and speakers. Today's webcams, together with adequate lighting and a broadband connection, enable a number of people to be visible at the same time. In Blackboard Collaborate, the person who is speaking at a given moment is visible in the largest video pane, while other participants are available in smaller video windows. Audio and video convey much more of a human dimension than text communications alone. A group of people who have seen and heard each other online are able to work together via asynchronous media such as forums and wikis more effectively. Online face-to-face meetings are often the best way for a group to argue constructively and decide on critical issues. Forums and email are comparatively bad choices for distributed decison-making.

Slide pushing: The best platforms will convert .ppt or .pdf files for sequential display. With the addition of text chat, annotations to slides, and the ability to "raise your hand" or interrupt with your voice, an online lecture can be a more multidimensional experience than even a highly discursive in-person lecture.

Text chat: As a backchannel, a means of quickly exchanging links to relevant resources, a channel for collaborative note-taking, a way of communicating with the lecturer and with other participants, text chat adds a particularly useful dimension to real-time peeragogical meetings – especially when the division of labor is explicitly agreed upon in advance. We've found that even in meetings that use the real-time collaborative editor Etherpad for collaborative note taking, participants may gravitate toward the built-in chat box for discussion.

Screen sharing: The ability of participants to show each other what is on their screens becomes especially important in peer learning, where we all have some things to show each other.

Web tours: An alternative to screen-sharing is the ability to display the same web page(s) to all participants by entering URLs.

Interactive whiteboards: A shared space that enables participants to enter text, drawings, shapes, colors, to move and resize media, and to import graphic content – especially if it allows anonymous actions – can foster the feeling of participating in a collective intelligence. Collaborative anonymous mind-mapping of the discussion is one technique to try with whiteboards. The whiteboard can also be used to generate an emergent agenda for an "un-meeting".

Configuring Google+ Hangout - a free alternative for up to 10 people

For up to 10 people, each equipped with a webcam, microphone, and broadband connection, Google+ Hangout can provide high-quality audio-video conferencing. By enabling the text-chat feature and adding Google Docs, screensharing, and SketchUp (whiteboard), it is possible to emulate most of what the commercial services offer. Adobe Connect and Blackboard Collaborate currently have the user-interface advantage of displaying chat, video, whiteboard/slides as resizable panes on one screen; at present, the free Google services can provide a powerful extension of the basic audio-video platform, but participants have to shift between different tabs or windows in the browser. Note that it is possible to stream a Hangout and record it to YouTube, again at no cost to the user.

Suggestions for real-time meetings

In the nine online courses I have facilitated, the emphasis on co-learning encouraged participants to suggest and shape active roles during real-time meetings. By creating and taking on roles, and shifting from role to role, participants engage in a kind of collective learning about collective learning which can be as pleasurable as well as useful. Typically we first brainstorm, then analyze, then organize and present the knowledge that we discover, construct, and ultimately convey together.

Roles for participants in real-time meetings

- **Searchers:** search the web for references mentioned during the session and other resources relevant to the discussion, and publish the URLs in the text chat
- **Contextualizers:** add two or three sentences of contextual description for each URL
- **Summarizers:** note main points made through text chat.
- **Lexicographers:** identify and collaboratively define words and phrases on a wiki page.
- **Mappers:** keep track of top level and secondary level categories and help the group mindmapping exercise at the end of the session.
- **Curators:** compile the summaries, links to the lexicon and mindmaps, contextualized resources, on a single wiki page.
- **Emergent Agendas:** using the whiteboard for anonymous nomination and preference polling for agenda items, with voice, video, and text-chat channels for discussing nominations, a group can quickly set its own agenda for the real-time session.

The Paragogical Action Review

Charlie Danoff and Joe Corneli remixed the US Army's "After Action Review" to make a technique for evaluating peer learning as it happens. The five steps in the PAR are:

1. Review what was supposed to happen
2. Establish what is happening/happened
3. Determine what's right and wrong with what we are doing/have done
4. What did we learn or change?

5. What else should we change going forward?

Participants can run through these steps during live meetings to reassess the medium, the readings, the group dynamics, or any other choices that have learning relevance. The focus in the PAR is on change: as such, it provides a simple way to implement the "double loop learning" of Chris Argris (see references).

References

1. Argyris, Chris. "Teaching smart people how to learn." Harvard Business Review, 69.3, 1991.

2. Charles Jeffrey Danoff, Joseph Corneli, and Dr. Muhammed Bello Umar, The Paragogical Action Review, submitted to *The African Journal of Information Systems*.

Resources

- Howard Rheingold's webconferencing bookmarks
- Big Blue Button
- Blackboard Collaborate
- Google Hangouts
- Big Marker

Part IX

Resources

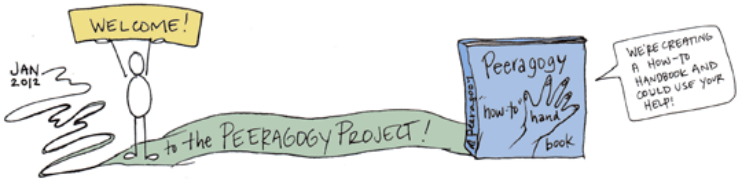
CHAPTER 26

HOW TO GET INVOLVED IN THE PEERAGOGY PROJECT

This page is for people who want to help develop/improve this handbook.

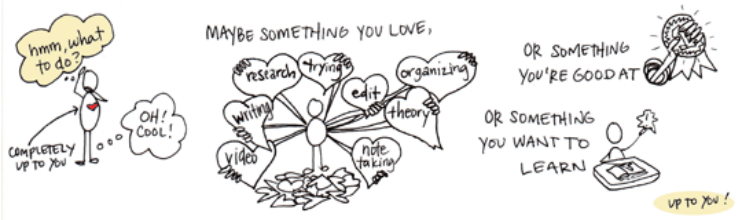
If you want to get involved, write to HOWARD RHEINGOLD *at* HOWARD@RHEINGOLD.COM.

Illustrations by AMANDA LYONS.



Hello and welcome!

The peeragogy project was kicked off around the time of HOWARD RHEINGOLD'S January 23, 2012 REGENTS LECTURE at UC Berkeley. We now have a complete first draft of a handbook e-book for peer learning (the website you're reading!). There's still more work to be done — and this page assumes you're interested in getting involved. In that case: we're happy to have you aboard, and what you do here is largely up to you. Go through the orientation material on our WIKI. Poke around. Ask questions — we're eager to answer them. Find an area where you feel knowledgeable (or are willing to learn) and have a passion to contribute.



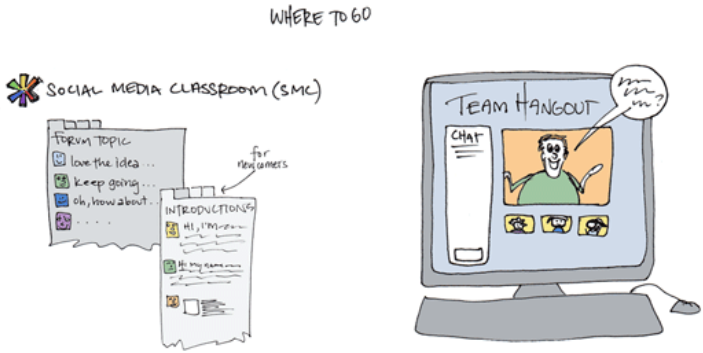
The goal of this e-book is to be a USEFUL guide to peer learning (have a look at THE OUTLINE)! To achieve that goal we have multiple opportunities for peers to contribute:

- add relevant links to pages.
- write the text for a sub-section (like this one you're currently reading),
- organize a team to tackle a larger section,
- make a video (like these on our YOUTUBE CHANNEL),
- take notes of live meetings or GROW CONCEPT MAPS,
- organize a newsletter for your group or the whole team,
- add general purpose bookmarks to THIS DIIGO GROUP, or post comments and editorial notes about peeragogy.org in THIS ONE; and
- discuss peer learning matters and this handbook informally via our forums.

It's up to you. We do have norms and standards that've emerged from back-and-forth discussion and resist ready codification. Instead of reading a list of rules, join our conversations, take advantage of the digital memory of a forum to rewind the conversation back closer to the beginning, figure out what the community is like, and jump in. We won't know you've jumped in, though, until you communicate with us about what you'd like to do, who and how you'd like to help, how you think we ought to do it. You can have a look at the outstanding tasks and teams that are listed on THIS GOOGLE DOC.

Where to go, what to do when you get there, to learn about how we work

We use the forums to communicate asynchronously and continuously. We also meet irregularly for synchronous audio-video sessions. Information and answers about both methods of communication can be found in the forums.



Click on THE FORUMS TAB. Each forum is a container for conversation threads that can continue for months. The How-to tab can show you how to navigate the forums. Please INTRODUCE YOURSELF! After that, the first place you'll want to go is the NEWCOMER FORUM TOPIC, where you can get useful information and ask questions about how things work around here, how to get started. In THIS THREAD you'll find a weekly recap of activity in the forums, wiki, live meetings.

Workflow: How to Create Content for the Handbook

1. Sign up for a project team in the forum or create one by proposing it in a new comment thread in the Project Teams forum.

2. Communicate with other team members through whatever media works best for you – forum, wiki comments, G+Hangouts, Skype, face to face. Do share what you discuss/decide in the forum.

3. Create content on the Handbook wiki, or in any place you'd like that is linked from the wiki outline.

4. Tell the editorial team that you are ready for an editorial once-over. Make sure you've signed the CC0 Copyright Waiver ("License") so that we have permission to redistribute your work without restrictions.

5. Editorial team looks at material, communicates with original content creators if necessary, edits content.

6. Editorial team and content creation team sign off on the content. When the content is ready to be moved over it will be labled "RFWP" next to the content on the wiki outline.

7. The WordPress Team is creating the Table of Contents, and Menu for the site. When your content is ready, we will create empty posts for you to copy over your content into on the Wordpress site, and add them to the table of contents.

8. One member of your Project Team (or more if needed) should volunteer themselves to move over your content. The WordPress Team will create a username and login for that WP Project Team Editor. If you are a WP Editor for your Team, please post to let us know in the

WordPress Site Forum and we will add you as an editor. We will need your email address in order to email you your password.

9. Once the content has been moved over, mark it in the wiki outline as "moved to WP" and content should then be edited there. Make sure to mark your article in the wiki as "moved to wordpress - view/edit here <insert your link>".

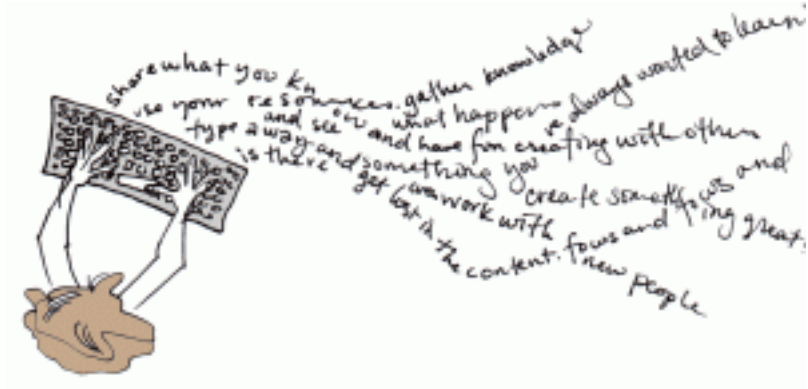
10. Formatting your post: We will (this is not done yet) use these sample posts for formatting consistency: How to Get Involved page and the How to Organize a MOOC page. You will be able to use these as examples of how to format your post.

How to join or start your own project team

- The forum thread about volunteering to help create the handbook. It's not a contract, but it's a public commitment to say "I'll do that" or "I can help with that."

- This is where we talk about what ought to go in the handbook, how to organize the outline.

- The Project Teams forum – Take a look at the Project Teams and jump in wherever you find a task that interests you.



Details About the Wiki

- WIKI BASICS - Get a look at what people have created using this Recent Changespage.

  - CREATING A PAGE - To create a new wiki page, linked from an existing page: Edit the existing wiki page, type or choosen anchor text to link to your new page, enclose the anchor text in in double brackets, submit the page, click on the new link, create a wiki page, edit its contents, submit. This process is described under the How-to tab as "Creating a New Wiki Page".
  - TEMPLATE FOR ENTRIES - Make sure that this is a how-to-do-it-oriented resources. Scaffold with just enough theory, explained without special jargon, to make the how-to-do-it clear. Link to the literature review (and add to the lit review if necessary) for more detailed discussion of empirical, scholarly, theoretical underpinnings of the how-to-do-it. Each page should have:
    * **Set of tags**: Specify a set of tags you would like used to refer to material related to this entry.
    * **A "Status" line at the very top**, indicating whether it is a stub, an outline for a completed article, a draft in progress, a draft ready for editing, or a draft edited and ready to move to Wordpress.
    * **A list of content creators and editors** after the Status line.
    * **Short summary under the creators/editors list** : Start and maintain a summary (under approximately 300 words) above the body of your entry, either a category or sub-category.
    * **Source citations and Resources:** Make sure direct quotations of material that are not the content creators' own words are clearly iden-

tified with quotation marks, immediately followed with enough information for readers to find bibliographic information and/or URLs for all cites in the Resources section; cited sources should be listed with all bibliographic information and URL in the overall list of resources. When you have drafted or substantially changed an entry, the owner should notify the owner of the Resources entry.

* **Links to related pages.** If another part of the Handbook is particularly relevant, link to it.
* **Link back to main page of the outline**: Each page should include at the bottom a large link back to the main page of the outline.
* A good example of a page that has all these elements, well composed, is Connectivism in Action: How to Organize a MOOC.
* COMMENT THREADS ATTACHED TO WIKI PAGES - Adding a comment to a wiki page will start a comment thread or append the new comment to the existing thread in chronological order. Comment threads on wiki pages can focus on discussions of the specific additions and changes proposed to this wiki team by the project team members for this entry. You can toggle between a wiki page and a page of comments by means of the "Talk" tab, next to the View, Edit, Outline, Revisions, and Access control tabs.

How we Communicate

FORUMS - The asynchronous (participate whenever you'd like) conversations in the forums are how the community of peeragogy handbook creators formed. It's where we engage in exended discussions of issues and decisions raised in live sessions. It's where we keep track of which different teams are working on which material. It's where the small teams can engage with the community as a whole. It's a place to ask questions, propose changes, volunteer to help, hand off work to the next team.

LIVE SESSIONS - We meet synchronously at agreed-upon times, using audio, video, text chat, slides, screen-sharing. For groups of ten or more, we use Blackboard Collaborate, for which Howard has a 50-seat-at-a-time license. These sessions are recorded. For information about scheduling, and recordings, see THE FORUM TOPIC. Participation requires a fairly fast (broadband) Internet connection, a microphone or headset, and (if you wish), a webcam. For groups of ten or smaller (usually for project teams), we use Google+ Hangouts. Individual teams do their own scheduling.

TWITTER LIST - Follow @PEERAGOGY & to get added to the Peeragogy Twitter list please post your Twitter name HERE. Stephanie Schipper will then add you.

TWITTER HASHTAG: #PEERAGOGY FACEBOOK PAGE

Questions?

If you have questions, use the forums, post a comment on the Talk page for this wiki entry, email the team energy center, or email HOWARD@RHEINGOLD.COM

CHAPTER 27

PEERAGOGY IN ACTION

We have been writing the missing manual for peer-produced peer learning: the "Peeragogy Handbook" (PEERAGOGY.ORG). Throughout this work we have asked and aimed to address questions like these:

What would a motivated group of self-learners need to know to agree on a subject or skill to learn, find and qualify the best learning resources about that topic, then select and use appropriate communication media to learn it together? What would these people need to know about learning to put together a successful learning programme?

It is clear to us that the techniques of 'peer production' that have built and continue to improve Wikipedia and GNU/Linux have yet to fully demonstrate their power in education. We believe that the Peeragogy Handbook can help change that by building a distributed community of peer learners/educators, and a strongly vetted collection of best practices. Our project complements others' work on sites like Wikiversity and P2PU, and builds upon understandings that have developed informally in distributed communities of hobbyists and professionals, as well as in (and beyond) the classrooms of generations of passionate educators.

Here, we present Peeragogy in Action, a project guide in 4 parts. Each part relates to one or more sections of our handbook, and suggests activities to try while you explore peer learning. These activities are designed for flexible use by distributed groups, collaborating via a light-weight infrastructure. Participants may be educators, community organisers, designers, hackers, students, seasoned peeragogues, or first timers. The guide should be useful for groups who want to build a strong collaboration, as well as to facilitators or theorists who want to hone their approach. Together, we will use our various talents to build effective methods and models for peer produced peer

learning. Let's get started!

Setting the initial challenge and building a framework for accountability among participants is an important starting point.

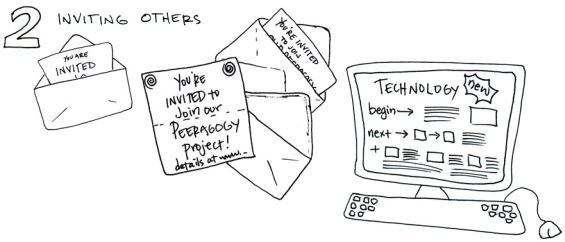
Activity – Come up with a plan for your work and a 'contract' for your group. You can use the suggestions in this guide as a starting point, but your first task is to revise the plan to suit your needs. Helpful questions can be: what are you interested in learning? What will your main outcome be? What problem do you hope to solve? What steps do you need to take to accomplish this? How collaborative does your project need to be? What sort of support do you anticipate needing personally? What problems won't you solve?

Technology – Familiarise yourself with the collaboration tools you intend to use (e.g. Wordpress, Git and LaTeX, YouTube, GIMP, a public wiki, a private forum, or something else) and create a first post, edit, or video introducing yourself and your project(s) to others in the worldwide peeragogy community.

Suggested resources – The Peeragogy Handbook, parts I ('Introduction') and II ('Peer Learning'). You may also want to work through a short lesson called 'Implementing Paragogy', from the early days before the Peeragogy project was convened. For a succinct theoretical treatment, please refer to our literature review, which we have adapted into a Wikipedia page.

Further reading – Boud, D. and Lee, A. (2005). 'Peer learning' as pedagogic discourse for research education. Studies in Higher Education, 30(5):501–516.

Observations from the Peeragogy project – We had a fairly weak structure at the outset, which yielded mixed results. One participant said: "I definitely think I do better when presented with a framework or scaffold to use for participation or content development." Yet the same person wrote with enthusiasm about models of entrepreneurship: "freed of the requirement or need for an entrepreneurial visionary." In short, there are tradeoffs to be made – hopefully in an informed fashion.



Other people can support you in achieving your goal and make the work more fun too.

Activity – Write an invitation to someone who can help with your project. Clarify what you hope to learn from them and what your project has to offer. Helpful questions to consider: What resources are available or missing? What do you already have that you can build on? How will you find the necessary resources? Who else is interested in these kinds of challenges?

Technology – Pick a tool that's new to you and could potentially be useful during the project. Start learning how to use it. Locate some people around the world who share similar interests.

Suggested resources – The Peeragogy Handbook, parts III ('Convening a Group') and IV ('Organizing a Learning Context').

Recommended reading – Schmidt, J. Philipp. (2009). Commons-Based Peer Production and education. Free Culture Research Workshop Harvard University, 23 October 2009.

Observations from the Peeragogy project – We used a strategy of 'open enrolment': new people were welcome to join the project at any time. We also encouraged people to either stay involved or leave – several times over the past year, we required people to explicitly reaffirm interest in order to stay registered in the forum and mailing list. This choice cut down on 'dead weight'. Nevertheless, the project continued to accumulate content, which gave newcomers the discouraging feeling that there was a lot to catch up on. We've aimed to sum up the high points in the handbook!

Solidifying your work plan and learning strategy together with concrete measures for 'success' can move the project forward significantly. Working in teams and sharing information with others will help you to develop your project.

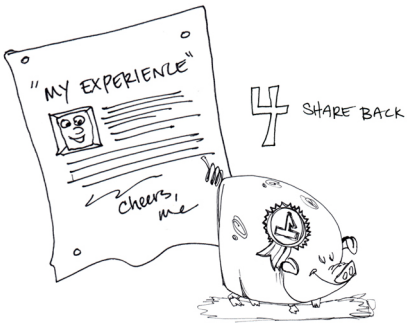
Activity – Concretise your ideas by, for example, writing an essay, making visual sketches, or creating a short video to communicate the unique plans for organisation and evaluation that your group will use. Then, edit the pages of the Peeragogy Handbook boldly: by this time you should have identified at least one section that needs to be improved. Make the necessary revisions.

Technology – Take time to mentor others or be mentored by someone, meeting up in person or online. Pair up with someone else and share knowledge together about one or more tools. You can discuss some of the difficulties that you've encountered, or teach a beginner some tricks.

Suggested resources – The Peeragogy Handbook, parts V ('Co-Facilitation and Co-Working'), VI ('Assessment'), and part VII ('Patterns, Use cases, and Examples').

Recommended reading – Argyris, Chris. "Teaching smart people how to learn." Harvard Business Review 69.3 (1991); and, Gersick, Connie J.G. "Time and transition in work teams: Toward a new model of group development." Academy of Management Journal 31.1 (1988): 9-41.

Observations from the Peeragogy project – Perhaps one of the most important roles in the Peeragogy project was the role of the 'Wrapper', who prepared and circulated weekly summaries of forum activity. This helped people stay informed about what was happening in the project even if they didn't have time to read the forums. We've also found that small groups of people who arrange their own meetings are often the most productive.



Wrap up the project with a critical assessment of progress and directions for future work. Share any changes to this syllabus that you think would be useful for future peeragogues!

Activity – Identify the main obstacles you encountered. What are some goals you were not able to accomplish yet? Did

you foresee these challenges at the outset? How did this project resemble or differ from others you've worked on? How would you do things differently in future projects? What would you like to tackle next?

Writing – Communicate your reflection case. Prepare a short written (or video, or photo, ...) essay, dealing with your experiences in this course. Share the results by posting it where others in the broader Peeragogy project can find it.

'Extra credit' – Contribute back to one of the other organisations or projects that helped you on this peeragogical journey. Think about what you have to offer. Is it a bug fix, a constructive critique, pictures, translation help, PR, wiki-gnoming or making a cake? Make it something special, and people will remember you and thank you for it.

Suggested resources – The Peeragogy Handbook, parts VIII ('Technologies, Services, and Platforms') and IX ('Resources').

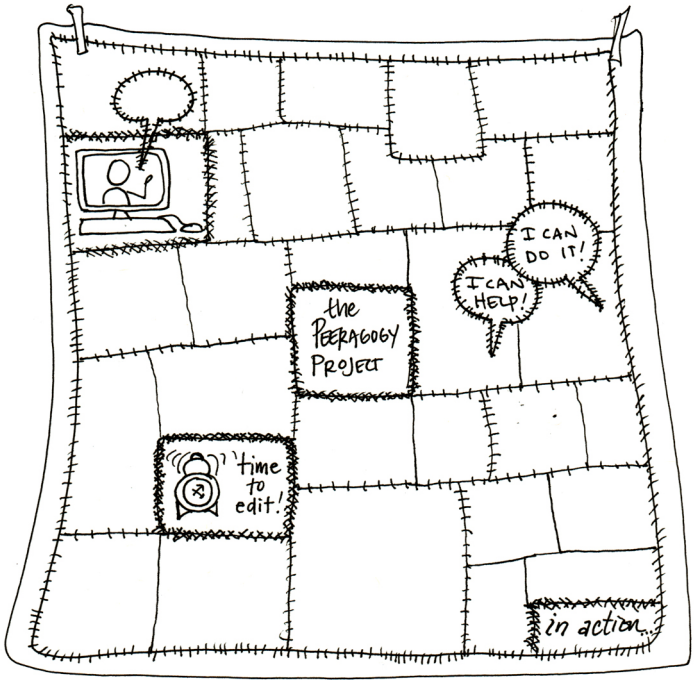
Recommended reading – Stallman, Richard. "Why software should be free" (1992).

Observations from the Peeragogy project – When we were deciding how to license our work, various Creative Commons licences were proposed (CC Zero, CC By-SA and CC By-SA-NC). After a brief discussion, no one was in favour of restricting downstream users, so we decided to use CC0. In connection with this discussion, we agreed that we would work on ways to explicitly build 'reusability' into the handbook content.

Micro-Case Study: The Peeragogy Project, Year 1

Since its conception in early 2012, the Peeragogy Project has collected over 3700 comments in our discussion forum, and over 200 pages of expository text in the handbook. It has given contributors a new way of thinking about things together. However, the project has not had the levels of engagement that should be possible, given the technology available and the global interest in improving education. We hope that the handbook

and this accompanying syllabus will provide a seed for a new phase of learning, with many new contributors and new ideas drawn from real-life applications.



CHAPTER 28

STYLE GUIDE

Format your HTML nicely

We need to be able to process the content from this Wordpress site and turn it into various formats like LaTeX and EPUB. Our automated tools work much better if pages are formatted with simple and uniform HTML markup. Some key points:

- Mark up your links: use The Peeragogy Handbook instead of http://peeragogy.org. It's best if the link text is somewhat descriptive.
- Use a numbered list to format your references (see Convening a Group for one example of an article that gets this right!)
- Wordpress does not automatically add paragraph tags to your paragraphs.If you want your text to appear justified and if you want the paragraphs to transfer to downstream formats, switch to HTML editing mode and wrap individual paragraphs with `<p style="text-align: justify;">...</p>`
- Use Heading 2 and Heading 3 tags to mark up sections, not **bold** text. If you use bold or italics in your paragraphs, you should **check** that the markup *is actually correct*. It should exactly surround the words that you're marking up – `<em>like this</em>` – and it should not include extra spaces around marked up words – `<em> NOT like this </em>`.

Keep it short

The easiest sections to read are those that are shorter and include some kind of visual (video or image) and have some per-

sonal connection (i.e. they tell a story). For anything longer, break it up into sub-pages, add visuals, make sure each sub-page is accessible to someone (who is it?). Think clearly of this reader, talk to them.

Use of bullet points

Maybe this is just a "pet peeve", but I find text very hard to read when there are more than a few bullet points included. For me, it works better when the bullet points are replaced with numbered lists (which should still be used sparingly). It also seems that when many disjointed bullet points appear, sometimes the author is really just indexing the main points that are presented better in someone else's narrative. Therefor, consider replacing an entire bulleted list with a reference to someone else's book/webpage/chapter. In today's hyperlinked world, it's easy enough for the reader to go elsewhere to get good content (and indeed, we should make it easy for them to find the best treatments around!). In particular, it is not entirely pleasant to *read* a taxonomy. Maybe that sort of thing can be moved into an appendix if we need to have it.

Including activities

In today's live meeting, we agreed that activities would not magically solve all possible usability/readability problems, but they are good to have anyway. And, according to our page layout, each chapter should have at least one activity (linked to from the sidebar). So, when reading the book, please make note of any activity that can be included. (Also make note of problems that *won't* be solved by adding activities!)

Simple, not conversational

In our efforts to escape from academia-speak and simplify the text in the handbook, it's important to make sure we are not heading towards the other extreme – being too conversational. When we're having a conversation with someone, we tend to

pepper our ideas with transitional or pivotal phrases ("In any event," "With that said," "As I mentioned elsewhere," etc.) that help to keep the talk flowing. We also go off on brief tangents before making our way back to the main topic, and sometimes express ourselves in run-on sentences. While this is perfectly natural in speech, it can be confusing and complex when being read (in our handbook or elsewhere). Let's stay conscious of our audience and try to meet that perfect balance of simple, yet professional in our writing.

Additional style bonus points

- Avoid double spaces after paragraphs; this is a leftover from the age of typewriters and can create "rivers" of white space.
- Capitalize first word of bulleted list, especially if items include a verb form (this list and the one above are examples!).
- Capitalize first word of headings and subheadings; lower case all others.

CHAPTER 29

MEET THE AUTHORS

Bryan Alexander — USA, VT (Author) I research the ways new technologies change education, teaching, learning, and scholarship. I'm passionate about storytelling, gaming, pedagogy, and understanding the future. My family homesteads on top of a little mountain, raising food. BRYAN ON TWITTER | BRYAN'S PERSONAL WEBSITE

Paul Allison — USA, NY (Author) Currently, I teach English at the BRONX ACADEMY SENIOR HIGH. Another community that I'm a part of is the NEW YORK CITY WRITING PROJECT. I'm the NYC Technology Liaison for the NATIONAL WRITING PROJECT. I help to manage YOUTH VOICES and I co-produce TEACHERS TEACHING TEACHERS. PAUL ON GOOGLE+ | PAUL'S PERSONAL WEBSITE

María F. Arenas — República Argentina (Author, Editor) Independent consultant researcher on TICS applied to Learning, Digital Communication, Institutional, Corporate. On line facilitator tutorship. Professor on Semiotics, Social Communication, Networking. María on Google+ | María's personal website

Régis Barondeau — Canada (Author) I build bridges between research, praxeology and technology and I become creative "by finding a likeness between things which were not thought alike before" (Bronowski, 1958). I'm interested in complexity, culture, social media especially wikis, education, open government and more. Reach Régis on Twitter | Regis' personal website

Doug Breitbart — USA, NJ (Author, Meeting Support) I a catalyst and provocateur who has worn the hats of attorney, consultant, facilitator, coach, entrepreneur, father, husband, student, teacher. Doug on LinkedIn | Doug's personal website

Suz Burroughs - USA, CA (Author, Designer) I enable the connections between the teacher and learner in all of us by designing robust, measurable learning environments where people share their knowledge and experience with each other. Learning Designer, Design Thinking facilitator, Visiting Professor of Innovation. Suz' personal website

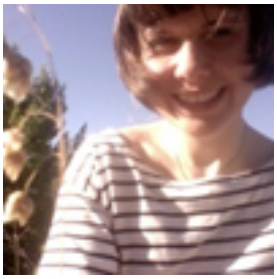
Joe Corneli — U.K. (Author, Editor) Joe Corneli does research on the anthropology of modern mathematics. He is a member of the board of directors of the US-based nonprofit, PlanetMath.org, and a research student at the Knowledge Media Institute of The Open University, UK. Reach Joe on Identi.ca | Joe's personal website

Jay Cross — USA, CA (Author) Jay is the Johnny Appleseed of informal learning. The Internet Time Alliance, which he chairs, helps corporations and governments use networks to accelerate performance. Jay by email | Jay's personal website

Charles Jeffrey Danoff — USA, IL (Author) Charles is the Owner of Mr. Danoff's Teaching Laboratory, an Educational Publishing and Services firm he established in 2009. He started co-publishing research on Paragogy, Peeragogy's inspiration, in late 2010. Charles on Identi.ca | Charles' personal website

James Folkestad - USA, CO (Author, Editor, Designer, Developer) My approach to education has shifted from an emphasis on my teaching, to a more central focus on student learning, and finally to an activity-systems approach as I have come to realize that the two (teacher and learner) are inseparable parts of the learning ecosystem. Reach James on Google+ | James' personal website

Gigi Johnson, EdD — USA, CA (Author, Developer) I mix formal learning programs with programs to help learners begin to work, live, and create everywhere. My own adventures include writing, singing, video, teaching, and parenting 3 teens. Gigi on Twitter | Gigi's personal page



Anna Keune — Germany/Finland (Co-author, Designer) I design technology for learning and I like it. I'm affiliated with the Media Lab Helsinki, Aalto University School of Arts, Design and Architecture. Anna on Twitter | Anna's personal website

Roland Legrand — Belgium (Author) I'm a financial journalist, heavily involved in experimenting with social media and new forms for reporting and community conversation. Roland on Twitter | Roland's personal website

Amanda Lyons — USA, NY DesignerI am a Visual Practitioner, Organization Development Consultant & Experiential Educator. I love helping people communicate via visual tools that generally include markers and paper. I think our education system could benefit from using visual communication tools as well as text based methods. Reach Amanda on Twitter | Amanda's personal website

Christopher Neal — USA, WA (Communications and Media) I am driven by technology and its ability to modify virtual communities and social media, and a passion for Social:Learn, Social:iA, Situated Cognition, Social Learning Theory, Connectivism, etc. Christopher on Google+ | Christopher's personal website

Ted Newcomb — USA, AZ (Author, Project Management) Happily retired grandpa, curating on digital culture, sociology of the web; interested in collaboration and cooperation in digital networks that result in positive change. Ted on About.me | Ted's personal website

Howard Rheingold — USA, CA (Author, Editor) Inspired by Charles Danoff and Joe Corneli's work on paragogy, I instigated the Peeragogy project in order to provide a resource for self-organizing self-learners. Learning is my passion. Reach Howard on Twitter | Howard's personal website

Paola Ricaurte — Mexico (Author) My believe: education and technology are essential tools for social change. My challenges: activist, teacher, mother, immigrant. My philosophy: I am what I am because of who we all are. Paola on Twitter | Paola's personal website

Fabrizio Terzi — Italy (Inventor, Designer, Translator) I am involved in social and educational projects related to public access to knowledge and cultural diversity. I am an active member of FSF and the FTG – working on Free Culture. Fabrizio on Identica | Fabrizio's personal website

Geoff Walker — U.K. (Author) A Further and Higher Education Lecturer and Tutor, social networker, e-learning advocate. Geoff on Twitter | Geoff's personal website

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– Bryan Alexander, Paul Allison, Régis Barondeau, Doug Breitbart, Suz Burroughs, Joseph Corneli, Jay Cross, Charles Jeffrey Danoff, Julian Elve, María Fernanda, James Folkestad, Kathy Gill, Gigi Johnson, Anna Keune, Roland Legrand, Amanda Lyons, Christopher Tillman Neal, Ted Newcomb, Stephanie Parker, Charlotte Pierce, David Preston, Howard Rheingold, Paola Ricaurte, Verena Roberts, Stephanie Schipper, Fabrizio Terzi, Geoff Walker

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Future contributors: Note also that we will require a similar copyright waiver agreement. That said, the waiver also means that you are free to do essentially whatever you like with the content in your own work! Have fun!

How we came to this decision

Three Creative Commons licensing options were proposed by various members of the community. After a brief discussion, no one was in favor of restricting downstream users, so we decided to go with CC0. We agreed that we would get enough "credit" by having our names on peeragogy.org. In connection with this discussion, we agreed that we would work on ways to explicitly build "reusability" into the handbook content.