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Articles and Paper Contributions

Andragogy 2.0? Teaching and Learning in the Global Classroom: Heutagogy and Paragogy

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Whether implicit or explicit, everyone has a theory of teaching and learning. This gets expressed and enacted by how we engage with others, whether as instructor or student. Traditional theoretical frameworks can be broadly grouped into four domains: instructivism, critical theory, constructivist approaches and andragogy (or adult learning). However Web 2.0, characterized by many-to-many, decentred and non-linear networking and communication, has given rise to corresponding advances in conceptualizing teaching and learning in the global classroom. This article briefly outlines mainstream theories and then presents emerging frameworks – heutagogy (learning as self-determined and non-linear) and paragogy (peer-to-peer and decentred learning) – with implications for practice in the 21st Century classroom.

Instructivist Approaches

Instructivism as a standard approach to teaching emerged from positivist and post-positivist paradigms. Characterized by the traditional “chalk and talk” style, instructivist pedagogy is premised on a transmission model of learning. In this view, knowledge is installed as opposed to evoked. Learning outcomes and curricula are pre-determined and delivered in a primarily didactic fashion. Further, the

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same information is provided to all learners regardless of their pre-existing knowledge and skills.

Despite numerous critiques of instructivism, this approach has been remarkably enduring in higher education (Herie, 2005). “Modern” classrooms have not much altered over the last century with the exception of technological innovations. Consider the seating arrangements in a restaurant or other social space: the context is designed to maximize social engagement and communication. Now contrast this with the design of the majority of secondary and post-secondary classrooms: we enter and are immediately oriented towards the “front of the room”. This is recognizable by a podium or lectern, whiteboard or blackboard, and a projection screen. Seating is typically in parallel rows with the collective gaze focused on the teacher. Although newer classrooms have tables and chairs that can easily be reconfigured, the “default” arrangement is generally lecture style.

In addition, the introduction of slideware has done much to reinforce instructivist

pedagogy. The almost ubiquitous use of PowerPoint has, in some ways, served to rigidify knowledge communication. Edward Tufte, a Yale University Professor Emeritus and visionary in information design and data visualization, wrote an influential essay, posted online, pointing to the use of PowerPoint slide decks in NASA engineering briefings as a contributing factor in the 2003 Columbia space shuttle disaster (Tufte, 2003). In their report, the Columbia Accident Investigation Board concluded that “the distinct cognitive style of PowerPoint reinforced the hierarchical filtering and biases of the NASA bureaucracy during the crucial period when the Columbia was injured but still alive” (Tufte, 2003, p.10). Templates that structure information into bullet points can obscure nuance and interrelationships within and between knowledge domains.

Finally, regardless of what content is taught and how essential it may be, learning is 100% volitional. It is only the learner who determines for him or herself what gets integrated into individual epistemologies (ways of knowing). The title of a book published over 40 years ago,

Nobody can teach anyone anything (Wees, 1971) captures the foundational critique of an instructivist ideology: we can control what is taught, but not what is learned. Therefore, alternative teaching and learning frameworks marking a departure from instructivism have begun to reshape teaching practices.

Constructivist Paradigm

Constructivism describes a range of teaching/learning approaches which have at their centre two main principles:

1. Learning is a process rather than an event, in which learners construct (versus acquire) new knowledge and skills;
2. Teaching involves supporting that construction, as opposed to didactic, lecture-based imparting of information or knowledge (Herie, 2005).

Constructivism marks a shift from teacher-centred to student-centred learning, deemphasizing informing (memorizing facts) in favour of transforming: locating, critiquing and synthesizing knowledge in a culture of collaboration and sharing. Curriculum development is based on student query, which acknowledges that students learn more by formulating questions than by answering them. In this model, students are asked to critically engage with course material by posing questions that further group reflection and debate.

The constructivist paradigm regards knowledge as socially constructed via authentic learner experiences designed to stimulate discovery and mastery. Consider the complex challenge of learning to ride a bicycle: a front-of-the-room discourse on the biodynamics of the human-vehicle system, no matter how eloquently delivered, has little impact on learning outcomes. It is only through application – getting on the bike, repeatedly falling, and finally riding – that mastery occurs.

Constructivist strategies include reciprocal teaching and case-based learning, where the instructor's role is one of coach or guide and learners actively co-construct knowledge. For example, in health care education, case-based simulations stimulate applied learning via peer-to-peer collaborative interaction. The focus is on authenticity, relevance and collaboration, leading to scaffolded mastery of context-relevant knowledge and skills. In recent years, medical education has

seen a radical re-conceptualization in line with constructivist theory, casting learning as a transformative process as opposed to a static outcome (Frenk et al., 2010).

It should be noted that constructivist teaching, though widely supported, is not always successfully implemented in practice. In their review of five representative, published articles describing constructivist teaching methodologies, Baviskar and colleagues (2009) examined alignment along four key indicators for constructivism:

1. Evoking prior knowledge/assumptions;
2. Facilitating cognitive dissonance in learners;
3. Supporting application of new knowledge with feedback; and
4. Eliciting reflection on learning.

The authors found that constructivist approaches were not uniformly applied, and this has been supported in other research as well (Gordon, 2009). This suggests that at least some of what is presented as constructivist teaching may be, at best, "constructivist-informed", hybridized with traditional instructivist approaches.

Critical Pedagogy

Critical pedagogy articulates how oppressive power structures operating in the wider society are replicated in educational institutions and classrooms. Based largely on the work of Paulo Freire ([1970] 2006), and drawing from Marxist theory, anarchism, feminism, and radical democracy, learning is contextualized within a broader interrogation of power dynamics in the classroom. Critical pedagogy can be framed as an explicitly post-modern approach, acknowledging the cultural embeddedness of learning (hooks, 1994). All learning is understood as context-dependent, and different ways of knowing are acknowledged and valued. These might include story-telling and teachings by indigenous Elders and from indigenous and non-indigenous learners (Connolly et al., 2011), leading to conscientization, or critical awareness and decolonization (Freire, 2006). This is not easy to put into practice when disciplinary and professional knowledge domains privilege certain ways of knowing over others (for example, deductive versus inferential reasoning based on the scientific method) (Regehr, 2009).

In addition, critical pedagogical approaches can be challenging to implement in institutions that are, by definition, hierarchical. Faculty have the authority and the obligation to assign student grades, and in many cases are mandated to deliver curricula aligned to pre-determined learning outcomes. Students too can face challenges when critical approaches are integrated into classrooms. Laura Béres (2008) reflects on the discomfort experienced by students in a social work class when they are asked to assume equal responsibility for curricular content and knowledge generation:

Although my interactions with students in the classroom were motivated by a wish to engage with them from a position of "not-knowing," which honored their knowledge, I believe that the text, content and structure of the classroom all suggested something more "traditional." It was unsettling for students when I did not fulfill these traditional expectations, and I apparently lost their respect, which then further contributed to unsettling me. In reflecting on interactions together afterwards we were all better able to understand and learn from these experiences.

Nonetheless, the impact and contributions of critical pedagogy are substantial as educational institutions and faculty continue to struggle with issues of access, social inclusion, equity and social justice.

Andragogy and Adult Learning

How are teaching and learning theories evolving to take into account the opportunities and advances in social media and "Web 2.0?"

Andragogy, as a theory of adult learning, was introduced in the 1970s, extending the notion of pedagogy to an adult learning context (Knowles, 1984). This framework shifts the focus from teaching to learning, and from teacher to learner. This means explicitly valuing the pre-existing knowledge and skills that adults bring to learning environments, and tailoring our approaches to diverse, unique and specific learning styles and needs.

Andragogical and adult learning approaches emphasize critical reflection in the context of a community of learners, introducing and generating knowledge



and skills that are relevant to real-world problems and applications. Similar in many ways to constructivist approaches in posing real-life, authentic problems, learners are asked to discover and develop knowledge and skills through the group process of conceptualizing salient issues, identifying relevant knowledge domains, and applying new knowledge to resolve the problem. This supports the development of critical thinking, reflection, collaboration and knowledge acquisition.

Andragogy 2.0?

The theoretical models outlined above represent a trajectory from teacher-centred (instructivism) to learner-centred approaches (constructivism and andragogy), incorporating broader contextual issues and dynamics of power, privilege and community (critical pedagogy). However, these theories were all developed prior to the rise and ubiquity of Web 2.0 and social media. Integrating emerging models can extend constructivist, critical and andragogical frameworks towards a kind of "andragogy 2.0".

The incursions of user-generated digital content and networks into both live and online learning contexts make it

important to explore the limitations of our existing theories of teaching and learning. Theoretical advances are needed at this time for a number of compelling reasons:

- The explosion of evidence-based information means that "just in time" learning may be more helpful and important than "just in case" learning;
- Access to – and use of – internet-based information means that professionals need to understand how to access, assess, critique, translate and apply credible sources of information;
- The new generation of learners are "hyper-learners" (i.e. non-linear in their approach to accessing and processing information), and are accustomed to generating as well as consuming content;
- Power dynamics in the classroom are already shifting towards learner-as-consumer, with all of the attendant opportunities and pitfalls.

Two recent models, heutagogy (Blaschke, 2012, Hase and Kenyon, 2000) and paragogy (Corneli and Danoff, 2011) represent potentially useful extensions of constructivist, critical and adult learning theories - that is, andragogy 2.0. Both

heutagogy and paragogy offer models of learning that are (1) self-determined, (2) peer-led, (3) decentred and (4) non-linear. These characteristics map onto social media applications and the democratization of knowledge and information. Heutagogical and paragogical approaches also extend traditional andragogical and adult learning frameworks through their emphasis on meta-learning, or learning how to learn.

Heutagogy

Heutagogy (based on the Greek for "self") was originally proposed by Hase and Kenyon (2000) as an extension to andragogical approaches, with a particular emphasis on self-determined learning:

While andragogy...has been accepted almost universally, it still has connotations of a teacher-learner relationship. It may be argued that the rapid rate of change in society, and the so-called information explosion, suggest that we should now be looking at an educational approach where it is the learner himself [herself] who determines what and how learning should take place. Heutagogy...may well provide the optimal approach to learning in the twenty-first century (Hase and Kenyon, 2000).

Heutagogy is influenced by humanistic, phenomenological systems, and self-determination theories in its orientation toward an affirmation of learners as never not learning (Blaschke, 2012). Individuals are continuously engaged in meaning-making as individual “theories in use” are challenged by new knowledge and implications (double-loop learning) (Hase and Kenyon, 2000). This is in contrast to single-loop learning, in which learners master new or alternate modes of practice and application while failing to interrogate and link back to underlying beliefs and assumptions (theories in use).

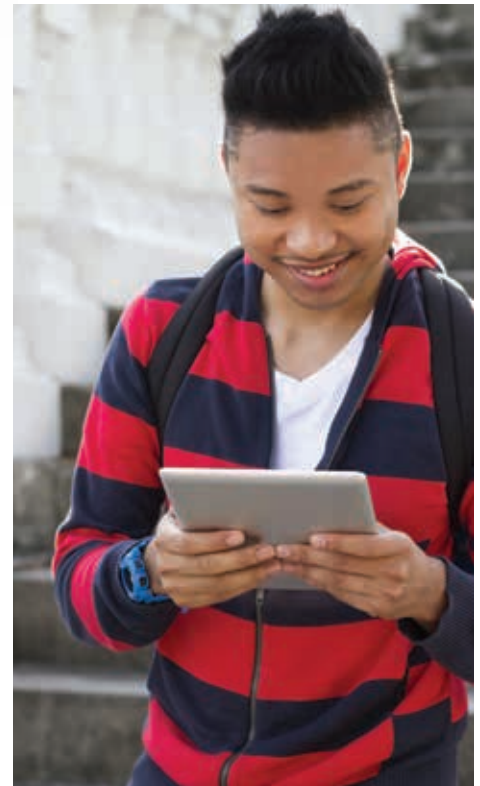
Heutagogy, as it relates to a “2.0” conceptualization, advances the learner-centred orientation of andragogy, illustrated in Table 1, below.

Andragogy, as self-directed learning focused on competency development, is re-conceptualized in heutagogy as self-determined learning focused on developing capabilities. As our rapidly-changing occupational terrains continuously advance and expand workforce competency needs, today’s workforce requires lifelong learners who are both competent and capable. No post-secondary program of study can ever really prepare students with all of the knowledge and skills needed (competencies); rather, it is one’s capability in determining what knowledge and skills need continuous development, and how to access/master them (capabilities). The skills associated with locating and interrogating information to inform decision-making, what we might call “knowledge curators”,

are paramount in a knowledge economy (Frenk et al., 2010).

This in turn implies access to knowledge and skills in a non-linear fashion by today’s “hyperlearners” (derived from the hypertextuality of the web, where information is hyperlinked with no beginning-, middle- or end-point). The process of knowledge construction is itself non-linear, and non-linear curricula would mirror real-world knowledge retrieval and construction. Similarly, shifting from instructors and learners collaboratively co-creating curricula, towards a learner-directed approach, may better prepare learners with the skills needed for lifelong learning via personal learning networks (mapping onto autonomous digital communities).

Finally, heutagogy addresses process over content – the “how” as opposed to the “what” – or meta-learning (learning how to learn). Through networked community and crowd-sourcing, “the whole may be greater than the sum of its parts”. This is illustrated by the elegant solutions to complex problems yielded via crowd-sourced distributed networks. For example, in 2011 crowd-sourcing was used to successfully solve a protein structure (retroviral protease of the Mason-Pfizer monkey virus, the cause of an AIDS-like disease in monkeys) that had puzzled scientists for over a decade (Akst, 2011). The crowd-sourced solution was published in the peer-reviewed, academic journal Nature Structural and Molecular Biology (Khatib et al. 2011).



Heutagogy’s emphasis on developing capabilities in a learner-directed, non-linear and process-oriented way makes it particularly well suited to today’s digital generation, where connectivity, creativity and reflexivity are foundational to global citizenship and collaboration. Heutagogy also highlights digital literacy and digital inclusion as essential to a just and equitable society. The empowerment focus of a heutagogical framework is well-complemented by paragogy, described below, in combining self-determined with peer-led learning approaches.

Table 1: Andragogy, Heutagogy and Web 2.0

Andragogy (Self-directed)	Heutagogy (Self-determined)	Parallels with Web 2.0
Competency development	Capability development	Knowledge curators
Linear design of curricula	Non-linearity in curricula	Hyper-learners
Instructor/learner directed	Learner directed	Autonomous digital communities
Content focus (what is learned)	Process focus (meta learning, learning how to learn)	Cloud-based collaboration, crowd-sourcing

(adapted from Blaschke, 2012)



spit out the rest” (Hybrid Pedagogy, www.moocmooc.com). This example illustrates the application of paragogy in an online, academic context where knowledge is generated via peer-to-peer collaboration and crowdsourcing.

Discussion and Reflections

In many ways, heutagogy and paragogy as “new” models of teaching and learning are not new at all. The themes of non-linearity, interconnectedness (peer-to-peer), self-determination and inclusivity can also be seen in indigenous ways of being/becoming (ontologies) and knowing (epistemologies). Explored through the lens of critical theory, subjugated/indigenous ontologies involve reconnecting people to “a living social and physical web of reality...a living cosmos” (Kincheloe, 2006). The parallels to Web 2.0 are striking and would feel familiar to this generation of students who have grown up in a world where the Internet has always existed. For them, digital communication, networking and collaboration are like talking (or breathing). Just as critical ontology and indigenous ways of being can help forge a post-colonial curriculum (Kincheloe, 2006), heutagogy and paragogy may contribute to the decolonization of higher education.

These models represent a departure from mainstream structures of higher learning. Just as social media and Web 2.0 turned a “one-to-many”, broadcast model of Web 1.0 on its head, the notion of peer-to-peer, self-determined, decentred learning within the context of a learning community characterized by principles of social justice, equity and inclusion may sound utopian: “It is [...] no easy task to adopt a decentralised model, since it will require massive procedural, economic and professional change in higher education” (Weller, 2009, in Corneli and Danoff, 2011). Yet in many ways, heutagogy and paragogy simply extend constructivist and critical frameworks, re-imagined for a digital generation and a global community.

Of course, it is difficult to envision institutions of higher learning wholly embracing heutagogy and paragogy, especially considering that critical, constructivist and andragogical approaches are not themselves uniformly enacted across post-secondary environments, despite decades of empirical support. Moving theory and research into practice

Paragogy

The concept of paragogy is derived from “para-” alongside, “-gogy” leading, and offers a critical focus on peer learning as an extension of critical and constructivist approaches. Five grounding principles inform this still-developing framework:

1. Changing context as a decentred centre: The learning context is a dynamic space co-created by peer networks (including digital networks);
2. Meta-learning as a font of knowledge: Learning how to learn is the essential skill;
3. Peers provide feedback that wouldn’t be there otherwise: Diverse standpoints enrich critical reflection and foster development of an “understanding of social relations without domination in which persons live together in relations of mediation among strangers” (Young, 1986 in Corneli and Danoff, 2011);
4. Learning is distributed and non-linear: Peer-to-peer and distributed learning modalities are iterative and challenge traditional learning trajectories (i.e. beginning-middle-end) in higher education;
5. Realize the dream if you can, then wake up: Learners critically reflect on learning goals and outcomes that are relevant to them, and develop expertise via deliberate practice (Corneli and Danoff, 2011).

Paragogy offers a call to action in higher education as an extension of critical and constructivist teaching practices. The website (paragogy.net) includes a Wiki, with the proviso that “all contents are licensed under CCZero [Creative Commons, <http://creativecommons.org/choose/zero/>], which means you can do whatever you want with what you find here”. This challenges traditional perspectives on knowledge translation, academic scholarship and authorship.

Best practices in classroom-based and online learning emphasize learner autonomy and interactivity, both with peers and with faculty. Conversely, the one-to-many model, whether delivered in a massive open lecture hall or in a massive open online course (MOOC), focuses more on information delivery than knowledge construction. This is true in smaller class sizes as well, and a key problem with the one-to-many approach is its fundamental incompatibility with 2.0 anything.

Interestingly, these ideas are currently being explored and interrogated through a series of “MOOC MOOCs” (MOOCs about MOOCs), with open registration and participation. The website MOOCMOOC.com asserts that: “MOOCification is really a kind of pillaging. You take what works about MOOCs, the best pedagogy they open up, apply it to more traditional classes, and then politely (or not so politely)

takes time, at the individual, organizational and system levels. Claude Lenfant's (2003) article in the *New England Journal of Medicine* nicely captures the dilemma of knowledge translation (relevant across disciplines and professions):

Today, everyone recognizes that a great deal of the "knowledge" element ... is there for the taking; libraries cannot be built fast enough to keep up with modern scientific output. But moving this knowledge off the shelves and into practice, making it relevant and accessible ... achieving a true marriage of knowledge with intuition and judgment — all this requires translation. And that is, indeed, a delicate and elusive art. (Lenfant, 2003).

In other words, despite research supporting the effectiveness of alternative approaches to teaching and learning, the research-practice gap is difficult to bridge. This may be at least partially attributed to a deep place in our collective psyche as educators. We want to believe that our physical presence at the front of the class is a key contributor to meaning-making and learning for our students, and from an instructivist theoretical frame, this makes sense. However, the preponderance of research on learning supports constructivist models, at odds with the "sage on the stage" approach. And this becomes even more significant if we consider learning as radically self-determined and fostered through collaborative peer networks.

On one hand, learning is volitional so it makes intuitive sense that learners should be autonomous and self-determining. Shifting the classroom dynamics in favour of the learner can facilitate many-to-many communication and crowdsourcing. On the other hand, educational structures and

institutions are not set up to accommodate radically student-centred approaches.

What might the future hold?

A provocative 2003 article by Carol Twigg references higher education as largely a "handicraft industry", with most courses developed by individual faculty for unique cohorts of students:

Currently in higher education, both on campus and online, we individualize faculty practice (that is, we allow individual faculty members great latitude in course development and delivery) and standardize the student learning experience (that is, we treat all students in a course as if their learning needs, interests, and abilities were the same). Instead, we need to do just the opposite (Twigg, 2003, p.38).

Globalization has led to global classrooms, where difference among learners is the rule rather than the exception, spanning culture, language, gender, sexual orientation, faith, ability, social location, migration history and standpoint. It is unsurprising that educational institutions struggle with students' accommodation needs and demands: it is hard to reconcile standardized curricula with learner heterogeneity along multiple intersecting dimensions.

An analogous example can be seen in advances in chronic disease management. Like education, medicine has traditionally delivered care via an expert model, where treatment is provided based on clinical diagnoses and evidence-informed interventions. In acute settings this works well, however the highest costs and challenges to health care today relate to chronic disease prevention and management. Unlike acute medical

problems, chronic diseases like diabetes and hypertension are, by definition, ongoing and rely on patients' own decisions and motivation regarding health behaviour change. New models of medicine are now focusing on patient self-management and enhancing motivation for change, whereby the system of care (both formal and informal) surrounds – and is largely directed by – each patient for him or herself (Frenk et al., 2010; Bodenheimer et al., 2002).

Similarly, while instructor-led curricula may be effective for brief episodic and "acute" educational needs, programs of study to prepare students for "chronic lifelong learning" demand student self-management and motivational enhancement. Just as chronic disease prevention supports patients in becoming their own health care leaders, our increasingly complex and digitally connected world places a demand on higher education to shift focus towards more effectively helping learners to become their own teachers within formal and informal networks of guidance and support. This does not negate our role as subject matter expert, but it does place the onus – quite rightly – on supporting students' capacity for nuanced critical reflection, judgment and decision-making.

This shift is radical in challenging the implicit notion that we (educators) know best what students need to learn. As Morris (2013) puts it, the issue of how to modify or reinvent teaching in higher education "can create anxiety, uncertainty, and even resentment toward a shift in the culture of learning that we've had little control over, that's come at us from outside our own domain; for others, this new landscape appears inviting, exciting, and full of possibility". But the author goes on to point out that we are already part of this connected culture, and our teaching both feeds and is fed by it (Morris, 2013). The Internet itself is less a library than a community of human beings, learners and mentors "facing outwards", in a decentred centre.

Radically self-determined and networked learning approaches (like heutagogy and paragogy) affirm individuals as experts in their lives and learning trajectories. As Joe Kincheloe (2006) puts it, "Once the subjugated/indigenous door is open the possibilities are infinite". This may be equally true in an "andragogy 2.0" scenario.



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View the June 3, 2013 presentation for the College and Degree Operating Group (CDOG) conference on the topic of "Andragogy 2.0? Introducing emerging frameworks for teaching and learning: Paragogy and Heutagogy" on Slideshare: <http://www.slideshare.net/MarilynHerie/herie-cdog-2013-andragogy-2-0-pub>

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