11-25-2014

Moving from Education 1.0 Through Education 2.0 Towards Education 3.0

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MOVING FROM EDUCATION 1.0 THROUGH EDUCATION 2.0 TOWARDS EDUCATION 3.0

Jackie Gerstein

Summary

This article compares the developments of the Internet and the Web with those of education. The web influences people's way of thinking, doing and being, and people influence the development and content of the web. The evolution of the web from Web 1.0 to Web 2.0 and now to Web 3.0 can be used as a metaphor of how education should also be evolving, as a movement from Education 1.0 towards that of Education 3.0. The Web, Internet, Social Media, and the evolving, emerging technologies have created a perfect storm or convergence of resources, tools, open and free information access. The result is not only a change in what individuals learn but how, why, and where they learn.

Taking this one step further, or from another angle, moving from Education 1.0 to Education 3.0 can be likened to moving from Pedagogy/Essentialism/Instructivism through Andragogy/Constructivism towards Heutagogy/Connectivism.

Lessons Learned: Moving Education 1.0 through Education 2.0 Towards Education 3.0

The evolution of the web from Web 1.0 to Web 2.0 and now to Web 3.0 can be used a metaphor of how education should also be moving, developing, and evolving from Education 1.0 towards that of an Education 3.0. The Internet has become an integral thread of the tapestries of most societies throughout the globe. The web influences people's way of thinking, doing, and being; and people influence the development and content of the web. The Internet of today has become a huge picture window and portal into human perceptions, thinking, and behavior. Logically, then, we would expect that schools would follow suit in matching what is happening via the Internet to assist children and youth to function, learn, work, and play in a healthy, interactive, and pro-social manner in their societies-at-large. More often than not, sadly, this is not the case. Many...
educators are doing Education 1.0 and talking about doing Education 2.0, when they should be planning and implementing Education 3.0.

**Education 1.0: A Pedagogical, Essentialist Education**

Education 1.0 is a type of essentialist, behaviorist education based on the three Rs - receiving by listening to the teacher; responding by taking notes, studying text, and doing worksheets; and regurgitating by taking the same assessments as all other students in the cohort (Figure 7.1). Learners are seen as receptacles of that knowledge, and as receptacles they have no unique characteristics. All learners are viewed as being the same. It is a standardized/one-size-fits-all education.

Figure 7.1. Education 1.0: Learners as receptacles of knowledge

Teachers prior to the Internet, as we know it today, were one of the primary gatekeepers of information. Education 1.0 was often the best choice given the resources and technologies of that time in history. Other than libraries and news outlets, students were dependent on the educator to provide them with information. As such, a major role of the educator, similar to the beginning stages of the web, was to provide students with content knowledge in a one-way, often didactic format.

Education 1.0 can be characterized by the dissemination of knowledge. J. Philipp Schmidt (2017) states that Education 1.0 is similar to the late 19th Century to the mid-20th Century world wide web. Students go to the educator to be delivered content knowledge in the use of class notes, handouts, the use of the library, and the use of the World Wide Web. Students were given information that was delivered to them, often for them to carry around those resources, to read, regurgitate, or contribute back to the classroom or the teacher carrying them out (Keats, 2004).

**Education 1.0: An Essentialist Education**

Education 1.0 can be classified as an essentialist learning philosophical orientation. Educational philosophies fit the characteristic of the pedagogical teaching framework of Education 1.0.

Essentialism tries to instill academic knowledge and academic achievement in an essentialist system, studied academic knowledge and basic text. Students are promoted to the next higher level of education based on their success and what they know. This provides the most important for the teacher to determine the next level of education. The teachers also evaluate student progress (Essentialism).

In instructivist learning philosophical orientation, the learner, and is transferred to a student-centered model, the instructor is the teacher, delivering information to the student to passively absorb the information. The student is teacher-centered, and the instructor (Pogue, 2004).

The final piece of understanding what Education 1.0 is that of p
Towards Education 3.0

Experiences in Self-Determined Learning

Education 1.0 can be likened to Web 1.0 where there is a one-way dissemination of knowledge from teacher to student. Derek W. Keats and J. Philipp Schmidt (2007) provide an excellent comparison of how Education 1.0 is similar to Web 1.0.

Education 1.0 is, like the first generation of the Web, a largely one-way process. Students go to school to get education from teachers, who supply them with information in the form of a stand-up routine that may include the use of class notes, handouts, textbooks, videos, and in recent times the World Wide Web. Students are largely consumers of information resources that are delivered to them, and although they may engage in activities based around those resources, those activities are for the most part undertaken in isolation or in isolated local groups. Rarely do the results of those activities contribute back to the information resources that students consume in carrying them out (Keats & Schmidt, 2007, para. 6).

Education 1.0: An Essentialist Philosophy

Education 1.0 can be classified as an essentialism or instructivism teaching and learning philosophical orientation. These educational frameworks or philosophies fit the characteristics of an Education 1.0 or a traditional pedagogical teaching framework.

Essentialism tries to instill all students with the most essential or basic academic knowledge and skills and character development. In the essentialist system, students are required to master a set body of information and basic techniques for their grade level before they are promoted to the next higher grade. Essentialists argue that classrooms should be teacher-oriented. The teachers or administrators decide what is most important for the students to learn with little regard to the student interests. The teachers also focus on achievement test scores as a means of evaluating progress (Essentialism, n.d., para. 1).

In instructivist learning theory, knowledge exists independently of the learner, and is transferred to the student by the teacher. As a teacher-centered model, the instructivist view is exhibited by the dispensing of information to the student through the lecture format. This theory requires the student to passively accept information and knowledge as presented by the instructor (Pogue, 2009, para. 2).

The final piece of understanding the philosophical underpinnings of an Education 1.0 is that of pedagogy.
There is little doubt that the most dominant form of instruction in Europe and America is pedagogy, or what some people refer to as didactic, traditional, or teacher-directed approaches. The pedagogical model of instruction was originally developed in the monastic schools of Europe in the Middle Ages. Young boys were received into the monasteries and taught by monks according to a system of instruction that required these children to be obedient, faithful, and efficient servants of the church (Knowles, 1984). In the pedagogical model, the teacher has full responsibility for making decisions about what will be learned, how it will be learned, when it will be learned, and if the material has been learned. Pedagogy, or teacher-directed instruction as it is commonly known, places the student in a submissive role requiring obedience to the teacher's instructions. It is based on the assumption that learners need to know only what the teacher teaches them (Hemstra & Sisco, 1990, para. 2-3).

This essentialist, instructivist, pedagogical teaching model is still the most predominant model in current kindergarten through college public education, even in these modern times of ubiquitous information and technology (Figure 7.2). The learner in an essentialist, instructivist, pedagogical learning environment, given 21st century technologies, and through instruction of the teacher may:

- Access information via ebooks and websites, but these often lack any type of interactivity or capabilities for the learner to comment, share, or interact with the content.
- Watch, learn, and take notes from live and/or video lectures that focus on didactic dissemination of content and information.
- Use technologies and mobile apps based on drill and grill where learners are given direction instruction via these technologies and asked to provide the correct answers via quiz questions. I classify these technologies as worksheets on steroids.

**Education 2.0: An Andragogical, Constructivist Approach to Teaching and Learning**

Education 2.0, like Web 2.0, permits interactivity between the content and users, and between users themselves. With Web 2.0, users moved from just accessing information and content to being able to directly interact with the content through commenting, remixing, and sharing it via social networks. Web 2.0 also saw the development of social media which permits users to communicate directly with one another both synchronously and asynchronously.
2.0 Towards Education 3.0

A formal of instruction in Europe people refer to as didactic, The pedagogical model of monastic schools of Europe in introduced into the monasteries and instruction that required these servants of the church model, the teacher has full that will be learned, how it will the material has been learned. It is commonly known, places obedience to the teacher's learners need to know only.

Instructivist Approach to

Education 1.0

Education 2.0 happens when the technologies of Web 2.0 are used to enhance traditional approaches to education. Education 2.0 involves the use of blogs, podcasts, social bookmarking and related participation Technologies but the circumstances under which the technologies are used are still largely embedded within the framework of Education 1.0. The process of education itself is not transformed significantly although the groundwork for broader transformation is being laid down (Keats & Schmidt, 2007, para. 7).

Some school administrators and educators have taken progressive steps and moved into a more connected, creative Education 2.0 through using project-based and inquiry learning, cooperative learning, global learning...
Moving from Education 1.0 Through Education 2.0 Towards Education 3.0

projects, Skype in the classroom, and shared wikis, blogs and other social networking in the classroom. With Education 2.0 though, the teacher is still the orchestrator of the learning. S/he still develops the learning activities and is the facilitator of learning.

Education 2.0: Learners as communicating, connecting, collaborating

Education 2.0: An Andragogical, Constructivist Approach to Teaching and Learning.

Education 2.0 takes on the characteristics of an andragogical, more constructivist teaching orientation where the principles of active, experiential, authentic, relevant, and socially-networked learning experiences are built into the class or course structure. Andragogy has been described for teaching adult learning, but basic principles can be extracted from andragogy and applied to the teaching of most age groups.

The andragogical model is a process concerned with providing procedures and resources for helping learners acquire information and skills. In this model, the teacher (facilitator, change-agent, consultant) prepares a set of procedures for involving the learners in a process that includes (a) establishing a climate conducive for learning, (b) mutual planning, (c) developing program objectives (content, process, and outcomes and re-diagnosing the pattern of learning experiences with suitable teaching and learning strategies), (d) project-based learning, (e) networked learning, and (f) an andragogical orientation.

A growing number of technology-enhanced PBL projects are promoting learning, with the days of steering students into the classrooms to present reports in PowerPoint presentations from an ever-expanding world of collaboration, analysis, and discovery.

An andragogical, constructivist approach contains the following characteristics:
2. These representations are meaningful for the learner.
3. Knowledge constructed from prior knowledge.
4. Learners participate in their own learning.
5. Real world settings are involved.
6. Thoughtful reflection is required.
7. Collaboration and so on.
8. There’s an integration of different learning methodologies.
9. Discovery learning, often integrated in realworld contexts.

Education 3.0: A Heuristic Approach to Teaching and Learning

Web 3.0 is affording us the opportunity to create a learning environment that is freely and readily accessible, providing educational resources tailored to individual interests.
2.0 Towards Education 3.0

Web 3.0: Wikis, blogs and other social tools are affording us with relevant, interactive and networked content that is freely and readily available and personalized, based on individual interests.

2.0 Though, the teacher is still developing the learning environment, establishing a climate conducive to learning, (b) creating a mechanism for mutual planning, (c) diagnosing the needs of learning, (d) formulating program objectives (content) that will satisfy these needs, (e) designing a pattern of learning experiences, (f) conducting these learning experiences with suitable techniques and materials, and (g) evaluating the learning outcomes and re-diagnosing learning needs (Holmes & Abington-Cooper, 2000, para. 17).

Project-based learning with a focus on authentic, real world problems, networked learning, and use of collaborative digital tools would fit into an andragogical orientation (Figure 7.4).

A growing number of educators are heralding the arrival of an era of technology-enhanced PBL. Using educational software and online tools to promote learning is nothing new in most schools. Many teachers remember the days of steering students to educational internet sites and having them present reports in PowerPoint. Now, teachers and students can choose from an ever-expanding cornucopia of digital tools that enable a new level of collaboration, analysis, and presentations (Schachter, 2013, para. 6).

An andragogical, constructivist learning environment typically has the following characteristics:
1. Constructivist learning environments provide multiple representations of reality.
2. These representations represent that complexity of the real world.
3. Knowledge construction is emphasized over knowledge reproduction.
4. Learners participate in authentic tasks in meaningful contexts.
5. Real world settings are provided.
6. Thoughtful reflection on experience is encouraged.
7. Collaboration and social negotiation is encouraged among learners.
8. There's an integration and activation of prior knowledge.

Experiences in Self-Determined Learning

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Education 3.0: A Heutagogy, Connectivist Approach to Teaching and Learning

Web 3.0 is affording us with relevant, interactive and networked content that is freely and readily available and personalized, based on individual interests.
Web 3.0 will provide users with richer and more relevant experiences. Many also believe that with Web 3.0, every user will have a unique Internet profile based on that user's browsing history. Web 3.0 will use this profile to tailor the browsing experience to each individual (Strickland, 2008, para. 15). Web 3.0 will be able to search tags and labels and return the most relevant results back to the user (Strickland, 2008, para. 30).

Education 3.0 is based on this understanding — a personalized, self-determined education (Figure 7.5). Education 3.0 is self-determined, interest-based learning where problem-solving, innovation, and creativity drive education.

Education 3.0 is characterized by educational opportunities where the learners themselves play a key role as creators of knowledge artifacts that are shared, and where social networking and social benefits play a strong role in learning. The distinction between artifacts, people and process becomes blurred, as do distinctions of space and time. Institutional arrangements, including policies and strategies, change to meet the challenges of opportunities presented. There is an emphasis on learning and teaching processes with the breakdown of boundaries (between teachers and students, institutions...).
Education 3.0 is also about the three Cs but a different set — connectors, creators, and constructivists. These are qualitatively different than the three Cs of Education 2.0. Now they are nouns which translate into the art of being a self-determined learner rather than “doing” learning as facilitated by the educator. The learners become the authors, drivers, and assessors of their learning experiences with the educator truly being the guide on the side.

In the absence of a more relevant learning process in schools, our nation’s students increasingly are taking their educational destiny into their own hands and adapting the various tools they use in their personal lives to meet their learning needs and prepare themselves for the future, according to the 2009 Speak Up survey of 300,000 students nationwide. This “free-agent learner” student profile accurately depicts the way many of today’s students are approaching learning. For these students, the school house, the teacher
Moving from Education 1.0 Through Education 2.0 Towards Education 3.0

and the textbook no longer have an exclusive monopoly on knowledge, content or even the education process. These students are leveraging a wide range of learning resources, tools, applications, outside experts and each other to create a personalized learning experience that may or may not include what is happening in the classroom (Project Tomorrow, 2010, p. 1).

Learners already possess many skills related to self-determined learning due to their informal learning experiences interacting with the web. Educators can and should assist learners in transferring these abilities and skills into more formal learning settings. With Education 3.0, the educator's role truly becomes that of guide-as-the-side, coach, resource-suggester, and cheerleader as learners create their own learning journey. The educator has more life experience, knows (hopefully) about the process of learning, and has more procedural knowledge about how to find, identify, and use informational resources and social networking for learning purposes.

Not only, then, does the educator help steer students in some more productive directions, s/he models the process of self-determined learning, thus increasing the students' aptitude for this type of learning. Learners themselves also become mentors, teachers, and model learners for one another, sharing best practices and strategies for effective learning.

Education 3.0: A Heutagogical, Connectivist Approach to Teaching and Learning.

Education 3.0 is more of a heutagogical, connectivist approach to teaching and learning. The teachers, learners, networks, connections, media, resources, and tools create a unique entity that has the potential to meet individual learners', educators', and even societal needs. Education 3.0 recognizes that each educator's and student's journey is unique, personalized, and self-determined.

The heutagogical, connectivist orientation is closely aligned with Education 3.0.

In a heutagogical approach to teaching and learning, learners are highly autonomous and self-determined and emphasis is placed on development of learner capacity and capability. The renewed interest in heutagogy is partially due to the ubiquity of Web 2.0, and the affordances provided by the technology. With its learner-centered design, Web 2.0 offers an environment that supports a heutagogical approach, most importantly by supporting development of learner-generated content and learner self-directedness in information abundance (Blaschke, 2012, p. 56).

Even though heutagogy is not the appropriate orientation given these times where information abundance (http://usergeneratedcontent.org) is the norm at the elementary level, heutagogy is based on heutagogy. In Education 3.0 and self-driven learning, learners and educators shape their learning journey but they also reflect on the related content.

Added to this equation is the opportunity for deep, significant learning. Blaschke (2004) has defined the characteristics of deep, significant learning as:

- Learning and knowledge sources.
- Ability to see connections.
- Decision-making is important and the meaning of it shifting reality. While tomorrow due to all the changes.

Learning may reside
- Capacity to know more...
- Nurturing and maintaining.
- Ability to see connected.
- Currency (accurate, connection learning)
- Decision-making is important and the meaning of it shifting reality. While tomorrow due to all the changes.

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Towards Education 3.0

The traditional monopoly on knowledge, where students are leveraged a wide range of opinions, outside experts and each other to share experience that may or may not be true (Project Tomorrow, 2010, p. 16). Students are leveraging a wide range of experiences outside experts and each other to share knowledge that may or may not be true. (Project Tomorrow, 2010, p. 16).

Experiences in Self-Determined Learning

Experiences in Self-Determined Learning due to self-determined learning due to the web. Educators Although these abilities and skills into Education 3.0, the educator’s role truly changes, resource-suggester, and self-driven learning journey. The educator has shifted the process of learning, and therefore to find, identify, and use content for learning purposes.

Connectivist Approach to Teaching

A connectivist approach to teaching that has the potential to meet societal needs. Education 3.0 student’s journey is unique, closely aligned with Education

Heutagogy and learning, learners are highly focused. Heutagogy is placed on development and the affordances provided by Web 2.0 offers an approach, most importantly by heutagogy.

Experiences in Self-Determined Learning

Directedness in information discovery and in defining the learning path (Blaschke, 2012, p. 56). Even though heutagogy is often defined and described for adult learner, given these times where we are living with open education resources and information abundance (http://usergeneratededucation.wordpress.com/2012/12/09/information-abundance-implications-for-education/). Learners as young as the elementary level have the potential to engage in educational experiences based on heutagogy. In other words, they can engage in self-determined and self-driven learning where they are not only deciding the direction of their learning journey but they can also produce content that adds value and worth to the related content area or field of study.

Added to this equation is that this new landscape of learning has created opportunities for deep, broad, and global connections. George Siemens (2004) has defined the characteristics of connectivism as:

• Learning and knowledge rest in diversity of opinions.
• Learning is a process of connecting specialized nodes or information sources.
• Learning may reside in non-human appliances.
• Capacity to know more is more critical than what is currently known.
• Nurturing and maintaining connections is needed to facilitate continual learning.
• Ability to see connections between fields, ideas, and concepts is a core skill.
• Currency (accurate, up-to-date knowledge) is the intent of all connectivist learning activities.
• Decision-making is itself a learning process. Choosing what to learn and the meaning of incoming information is seen through the lens of a shifting reality. While there is a right answer now, it may be wrong tomorrow due to alterations in the information climate affecting the decision (para. 25).
Moving from Education 1.0 Through Education 2.0 Towards Education 3.0

All of these principles of learning naturally lead to Education 3.0. The learners in an Education 3.0, heutagogical, connectivist learning environment:

- Determine what they want to learn and develop their own learning objectives for their learning, based on a broad range of desired course outcomes.
- Use their learning preferences and technologies to decide how they will learn.
- Form their own learning communities, possibly using social networking tools suggested and/or set up by the educator. Possible networks, many with corresponding apps, include: Facebook®, Twitter, Edmodo, Instagram, blogging sites, YouTube®, and other social networks.
- Utilize the expertise of educators and other members of their learning communities to introduce content-related resources and suggest Web 2.0 and other online tools for that the students could use to demonstrate and produce learning artifacts.
- Demonstrate their learning through methods and means that work best for them. It could include using their mobile devices to blog, create photo essays, do screencasts, make videos or podcasts, draw, sing, dance, etc.
- Take the initiative to seek feedback from educators and their peers. It is their choice whether or not to utilize that feedback.

Teacher Mindset: Barriers to Change

So, given that the time is ripe for Education 3.0, that we are in a perfect storm of free and available online resources, tools for creating and sharing information, and networking opportunities, what is stopping administrators and educators from implementing an Education 3.0 approach... at least some of the time? Some of the reasons educators profess include: “I don’t have enough time.”; “I don’t have enough resources.”; “I need more training.”; “I need to teach using the textbook.”; “I need to teach to the test.”; “I might lose control of the class.”; “I have always successfully taught this way.” (Figure 7.6).

These are the symptoms of a fixed mindset, of educators being strictly teachers in an Education 1.0 environment. Many educators feel forced into this paradigm of teaching. But, in reality, these are external obstacles whereby most of blame for resisting change is placed outside of educator responsibility. The result is a fixed mindset of learned helplessness, “I cannot change because...” educators are creating the walls that exist. “Talking them into...” more and stronger walls...
2.0 Towards Education 3.0

Towards Education 3.0. The logical, connectivist learning develop their own learning broad range of desired course technologies to decide how they will possibly using social networking an educator. Possible networks, Facebook®, Twitter, YouTube®, and other social other members of their learning resources and suggest Web the students could use to projects.
methods and means that work best mobile devices to blog, create blogs or podcasts, draw, sing, in educators and their peers. It is that feedback.

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Moving from Education 1.0 Through Education 2.0 Towards Education 3.0

should know and do. Teachers did not become teachers to teach to the
test, to develop practice tests or worksheets, to work with pre-scripted
curriculum to meet standards. Teachers became teachers to teach students,
first and foremost. The learner needs to be central to all teaching
endeavors.

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Further Resources

Academic Partnerships. (anytime. Faculty eCommunity
http://facultyecommunity.org/anytime/

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Experiences in Self-Determined Learning


Further Resources


Moving from Education 1.0 Through Education 2.0 Towards Education 3.0


SKILLS FOR E-LEARNING LEADERS

Summary

We live in a rapidly changing world, more quickly than in previous centuries. We are not immune from these changes and are faced with significant innovation in every aspect of our lives, from technology to education. Education (andragogy, heutagogy) and other areas of learning are experiencing rapid change, and learning leaders alike. In this chapter, we will discuss the role of teachers in Education 3.0.

At the heart of the process of change is the idea that learning is not an empty process. This idea is not new, and it has been explored by educators such as Rogers and, more recently, by Moravec. Learning is an activity that involves discovering, testing hypotheses, and synthesising. Heutagogy

A Change in Perspective

When humans explore and discover, learn about how to manage their environment, and arrive on this planet to work together, it becomes clear that learning is not just an activity, but a necessary one for survival. Education systems are essentially utilitarian in nature, designed to prepare competent workers for the industrial revolution. Our educational systems are essentially utilitarian in nature, designed to prepare competent workers for the industrial revolution. Our educational systems are designed to prepare competent workers for the industrial revolution. Our educational systems are designed to prepare competent workers for the industrial revolution. Our educational systems are designed to prepare competent workers for the industrial revolution. Our educational systems are designed to prepare competent workers for the industrial revolution. Our educational systems are designed to prepare competent workers for the industrial revolution. Our educational systems are designed to prepare competent workers for the industrial revolution. Our educational systems are designed to prepare competent workers for the industrial revolution. Our educational systems are designed to prepare competent workers for the industrial revolution. Our educational systems are designed to prepare competent workers for the industrial revolution. Our educational systems are designed to prepare competent workers for the industrial revolution. Our educational systems are designed to prepare competent workers for the industrial revolution.

Realising human potential is an essential dynamic activity. It means learning to discover, test hypotheses, and synthesise. Heutagogy