**Netizen Peer Learning in the Age of the Smartphone**

***Or***

**Learning Theories for the 21st Century and Their Applications**

**T. Damian Boyle**

**Northlands College**

**Author Note**

**T. Damian Boyle**

**Mine Training & Research Institute, Northlands College**

**Correspondence concerning this article should be addressed to T. Damian Boyle, Mine Training & Research Institute, Northlands College, Box 509, La Ronge, SK S0J 1L0, Canada. E-mail: [boyle.damian@northlandscollege.sk.ca](mailto:boyle.damian@northlandscollege.sk.ca)**

**It is my contention that there are already enough educators and institutions developing and delivering programs and materials for Formal Learners, and that not enough is being done to support Informal Learners with the efficient delivery of high-quality learning resources. If we are to promote the ideals of [Lifelong Learning](http://www.uil.unesco.org/home/) and [Education for All](http://www.unesco.org/new/en/education/themes/leading-the-international-agenda/education-for-all/), we would do well to bear in mind that there are far more Informal Learners than Formal Learners engaging in learning each and every day. If we are to facilitate the achievement of these ideals in the age of the smartphone, there are some adaptations to the design of instruction that would be helpful.**

**That Informal Learners are interested in utilizing well-crafted [Open Educational Resources (OER)](https://en.unesco.org/tags/open-educational-resources), and interacting with others collegially with these, may be seen by both present day practices and their historical antecedents. There are implications for the emancipation of individuals, and classes of individuals, inherent with the practice of Informal Learning today, just as there were–and manifestly so–hundreds of years ago. The speed of the process may be dramatically increased by advancements in both technology and instructional design, however, if Learners choose to seize the opportunities to learn.**

**As defined by UNESCO: “Open Educational Resources are teaching, learning or research materials that are in the public domain or released with an intellectual property license that allows for free use, adaptation, and distribution ([“Open educational resources”, n.d.](http://www.unesco.org/new/en/communication-and-information/access-to-knowledge/open-educational-resources/browse/1/)).”**

**…just 10 short years after the term OER was first coined at the UNESCO 2002 Forum on Open Courseware, UNESCO member states ratified the OER Paris Declaration. The OER Declaration seeks not only to foster awareness and use of OER, but to facilitate an enabling environment for the effective use of increasingly available information and communication technologies ([Ngugi, 2014](http://news.oerafrica.org/key-note-at-the-oer14-conference-oer-a-collaborative-catalyst-for-open-practice/)).**

**The term smartphone has quickly become ambiguous, and I use it here as synonymous with touchphone or phablet, which technophiles everywhere will no doubt be conversant with. Some versions now include a digital stylus interface that greatly expands the functionality of the device.**

**The newest smartphones are, in effect, miniaturized portable computers with internet access, local area connectivity, built in audio and video recording and playback, the ability to utilize multitudes of software applications, storage for massive amounts of data, and much, much, more. Aspects of technology that would fifty years ago have been restricted to large rooms within well-funded research institutions can now be affordably purchased by functionally illiterate labourers and carried in their pockets for use at their convenience in accessing a database greater than the combined contents of all the libraries ever built. (I am personally acquainted with a number of these individuals.) Over one billion smartphones are expected to ship in 2014, and in each of the following several years, with purchase prices dropping to as low as $25 each ([The Economist, 2014](http://www.economist.com/news/business/21600134-smartphones-reach-masses-host-vendors-are-eager-serve-them-rise-cheap)).**

**In the first study of its kind to investigate the use of mobile phones for reading**

**95 per cent of respondents said they believed mobile reading would help them learn, and 92 per cent believed mobile reading would help them improve their lives ([UNESCO, 2014](http://unesdoc.unesco.org/images/0022/002274/227436e.pdf)).**

**In Japan, where 99 per cent of people can read and write, there is 1**

**library for every 47,000 people; in Nigeria, by contrast, the ratio is 1 library to 1,350,000 people (Ajeluorou, 2013). Emenanjo estimates that Nigeria currently meets less than 1 per cent of its book needs, contributing to an illiteracy rate of over 40 per cent ([UNESCO, 2014](http://unesdoc.unesco.org/images/0022/002274/227436e.pdf)).**

**The locales of the respondents may well have influenced their attitudes about to what degree mobile phone would help them with learning.**

**In Canada, by 2012, a survey found that 54% of the general population, and 63% of post-secondary students, owned smartphones ([Jubien, 2013](http://www.cjlt.ca/index.php/cjlt/article/view/696)). Students are clearly not the only ones engaged in learning, however.**

**PLAR scholars in Canada point out, for example, that 80% or more of working-age adults participate in informal learning of some kind (Wihak & Hall, 2011), and that in the workplace, 70% of relevant learning is acquired through informal means of various kinds (Carliner, 2012) ([Friesen & Wihak, 2013](http://openpraxis.org/index.php/OpenPraxis/article/view/22)).**

**The recent development of smartphones and other IT devices, and their vigorous use by learners, has prompted some reconsiderations about the design of instruction that is best matched for the new circumstance.**

**[Universal Instructional Design] UID principles have been developed to build flexibility of use into both the instructional design and operating systems of educational materials so that they will be appropriate to the widest range of students (Connell et al., 1997; Scott et al., 2002; Burgstahler, 2007). Elias (2010) extracted from these eight UID principles particularly useful in distance education (DE):**

**1. equitable use, [store in the cloud, deliver in simplest format]**

**2. flexible use, [small chunks of content]**

**3. simple and intuitive, [open source]**

**4. perceptible information, [support text with images, label images]**

**5. tolerance for error, [situated learning approach, scaffolding provided]**

**6. low physical and technical effort, [SMS readers and mobile specific technologies utilized]**

**7. community of learners and support, and [multiple communication methods, forums]**

**8. instructional climate. [push Questions, pull Answers & Input]**

**Although not specifically developed for m-learning environments, these are equally relevant to them ([Elias, 2011](http://www.irrodl.org/index.php/irrodl/article/view/965/1675)).**

**Drawing from heuristics, or discovery learning, the term heutagogy was put forward Stewart Hase and Chris Kenyon to specify self-determined learners engaged in learning how to learn, in 2000 ([Hase & Kenyon, 2001](http://www.psy.gla.ac.uk/~steve/pr/Heutagogy.html)). Heutagogic learners actively engage in learning about whatever they so choose, as they see fit, without being required to do so. In other words, these individuals are self-taught, or autodidacts. Humans are naturally heutagogic as children, but the individual exercise of the ability to learn can be quite variable among adults, for a variety of reasons. At root, heutagogic learners are self-motivated in their approach to learning, and may be said to be entrepreneurial learners in this respect: they work at learning how to optimize their rewards for the time spent in the endeavour of learning, and they thus deliberately learn how to learn.**

**Whether the notion of heutagogy is actually something new, or simply a case of re-naming an old phenomenon, is perhaps more a matter of subjective perspective than objective reality. I, for one, am not persuaded that the difference is material.**

**Knowles (1970, p7) defined self-directed learning as:**

**The process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing learning strategies, and evaluating learning outcomes.**

**Knowles’ definition provides a linear approach to learning and sounds a little like the chapters of a train the trainer guide. Heutagogy takes account of intuition and concepts such as ‘double loop learning’ that are not linear and not necessarily planned. It may well be that a person does not identify a learning need at all but identifies the potential to learn from a novel experience as a matter of course and recognises that opportunity to reflect on what has happened and see how it challenges, disconfirms or supports existing values and assumptions. Heutagogy includes aspects of capability, action learning processes such as reflection, environmental scanning as understood in Systems Theory, and valuing experience and interaction with others. It goes beyond problem solving by enabling proactivity ([Hase & Kenyon, 2001](http://www.psy.gla.ac.uk/~steve/pr/Heutagogy.html)).**

**There appears to be some evolutionary basis for heutagogic learning, as has been recently discovered. Those who are described as ADHD may also exhibit strong interests in purposively exploring their environments. Genetic markers have been found that suggest a connection between these traits.**

**ABOUT one in 20 children (those under 18) have a group of symptoms that has come to be known as attention-deficit hyperactivity disorder (ADHD). About 60% of them carry those symptoms into adulthood.**

**…**

**The main symptom of ADHD is impulsiveness. Sufferers have trouble concentrating on any task unless they receive constant feedback, stimulation and reward. They thus tend to flit from activity to activity.**

**…**

**One hypothesis is that the behaviour associated with ADHD helps people, such as hunter-gatherers and pastoral nomads, who lead a peripatetic life.**

**…**

**One suggestion is that long-distance migration selects for long alleles … because they reward exploratory behaviour. This might be an advantage in migratory societies because it encourages people to hunt down resources when they constantly move through unfamiliar surroundings. ([The Economist, 2008](http://www.economist.com/node/11529402))**

**To accommodate the roving curiosity of ADHD learners, designing learning objects with a relatively small unit of time required for absorption seems logical. To balance the short amount of time of attention, and to maximize the learning within that period of time, the quick delivery of structured key points would seem most appropriate. Apparently, many entrepreneurs would benefit from just such an approach.**

**Entrepreneurs also display a striking number of mental oddities. Julie Login of Cass Business School surveyed a group of entrepreneurs and found that 35% of them said that they suffered from dyslexia, compared with 10% of the population as a whole and 1% of professional managers. Prominent dyslexics include the founders of Ford, General Electric, IBM and IKEA, not to mention more recent successes such as Charles Schwab (the founder of a stockbroker), Richard Branson (the Virgin Group), John Chambers (Cisco) and Steve Jobs (Apple). There are many possible explanations for this. Dyslexics learn how to delegate tasks early (getting other people to do their homework, for example). They gravitate to activities that require few formal qualifications and demand little reading or writing.**

**Attention-deficit disorder (ADD) is another entrepreneur-friendly affliction: people who cannot focus on one thing for long can be disastrous employees but founts of new ideas. Some studies suggest that people with ADD are six times more likely than average to end up running their own businesses. David Neeleman, the founder of JetBlue, a budget airline, says: “My ADD brain naturally searches for better ways of doing things. With the disorganisation, procrastination, inability to focus and all the other bad things that come with ADD, there also come creativity and the ability to take risks.” Paul Orfalea, the founder of Kinko's and a hotch-potch of businesses since, has both ADD and dyslexia. “I get bored easily; that is a great motivator,” he once said. “I think everybody should have dyslexia and ADD ([The Economist, 2012](http://www.economist.com/node/21556230)).”**

**Many of the practices for Universal Instructional Design seem quite consistent with the learning needs of those with ADHD and dyslexia, and entrepreneurs pressed for time. The aspect of the size of the learning object, in terms of its complexity and thus the time requirements for absorption, is sometimes referred to as its granularity [(“Granularity”, n.d.](http://www.reusablelearning.org/about/Granularity.html)). Learning object granularity is analogous to how a very large rock can be broken down into successively smaller sized pieces that are easier to handle. A curriculum may be designed with very small or very large pieces (granules), or combinations of these, that will aggregate to the same total amount. To be most equitable, small granular sizes for learning objects would seem best for ensuring that most learners can participate fully in the learning experiences.**

**A significant number of learning objects of small granular size are being absorbed daily by informal learners via smartphones (and other IT devices), and many are willing to pay for these learning experiences.**

**Coursmos [offers videos](http://www.coursmos.com/) that are … generally less than a minute in length and no more than three, which can be combined into several modules to produce a course that can be completed quicker than an entire TED Talk. … courses are user-generated and free to access….**

**Mindsy’s [website](http://www.mindsy.com/) hosts more than 5,000 courses provided by vendors, many of whom are specialised in e-learning. Tens of thousands of users pay $29 a month to access as many courses as they would like in that time…([The Economist, 2013](http://www.economist.com/blogs/schumpeter/2013/10/short-e-courses)).**

**With a smartphone and internet access, the Learner who is otherwise alone may freely engage in a dialogue with one or more expert Guides in an e-forum, in the pursuit of developing whatever knowledge and skills they have determined are important at that moment. The Learner may also freely peruse online the digitally stored information database of civilization, which is presented in multiple formats and from multiple perspectives. The Learner may themselves act as a Guide to others, and contribute their own information to the internet database. The age, gender, credentials, wealth, social status, and geographical location of the Learner and Guide become irrelevant – they are Netizen Peers in a Republic of Learning.**

**There has been a rich tradition of support for the notion of a heutagogic and egalitarian approach to learning:**

**… In 1926, Eduard C. Lindeman's book, *[The Meaning of Adult Education](http://www.infed.org/thinkers/et-lind.htm" \t "_blank)*, captures the essence of adult learning:**

**In this process the teacher finds a new function. He is no longer the oracle who speaks from the platform of authority, but rather the guide, the pointer-out who also participates in learning in proportion to the vitality and relevance of his facts and experiences. In short, my conception of adult education is this: a cooperative venture in nonauthoritarian, informal learning, the chief purpose of which is to discover the meaning of experience; a quest of the mind which digs down to the roots of the preconceptions which formulate our conduct; a technique of learning for adults that makes education coterminous with life and hence elevates living itself to the level of adventurous experiment (as cited in [Clark, 2011](http://bdld.blogspot.ca/2011/07/andragogy-vs-pedagogy.html)).**

**At the time Eduard Lindeman was writing, however, the availability of learning resources affordable by the labouring masses was much more limited than today, as were their opportunities to freely engage in dialogues with those having expertise in diverse fields. For many, acquiring books by mail was the order of the day, through a process that could take weeks for each acquisition. Nonetheless, a great deal of reading and discussing was being done.**

**Everyman’s Library was founded on February 15, 1906 with the publication by Joseph Dent (1849-1926) of fifty titles. Dent, a master London bookbinder turned publisher, was a classic Victorian autodidact. The tenth child of a Darlington housepainter, he had left school at thirteen, and arrived in London with half-a-crown in his pocket.**

**Dent promised to publish new and beautiful editions of the world’s classics at one shilling a volume, ‘to appeal to every kind of reader: the worker, the student, the cultured man, the child, the man and the woman’, so that ‘for a few shillings the reader may have a whole bookshelf of the immortals; for five pounds (which will procure him with a hundred volumes) a man may be intellectually rich for life.’**

**…**

**…Boswell’s Life of Samuel Johnson and every Everyman title ever since has carried the motto, “Everyman, I will go with thee and be thy guide, in thy most need to go by thy side” from the medieval morality play, where the character Everyman is comforted by another character, Knowledge, as he sets out on a journey, long hard and dangerous ([Alfred A. Knopf, 2006](http://www.randomhouse.com/knopf/classics/about.html))**

**For most, especially for those living in the figurative or literal hinterlands of a society, membership in a social or political organization of some kind would perhaps have been the closest that they might have come to the experience of today’s Netizen Peers. The American Negro literary societies that first evolved nearly 300 years ago were spurred by that reality.**

**Some of the expressed reasons for the organization of these institutions were the stimulation of reading and the spreading of useful knowledge by providing libraries and reading rooms, the encouragement of expressed literary efforts by providing audiences as critics and channels of publication for their literary productions and the training of future orators and leaders by means of debates. Thus, their activities as a whole were educational. Apart from this, there were certain existing conditions inherent in the race relations of the times which led to the establishment of these societies. The Reverend Theodore S. Wright, a prominent Negro of the day, was thrown out of a white literary meeting of the Alumni of Nassau Hall in New York City.9 The presence of Negroes in white literary organizations was not wanted. Even in Massachusetts, often referred to as the "birthplace of freedom," this condition was true. In New Bedford, Massachusetts, Charles Sumner and Ralph Waldo Emerson recalled their engagements to speak at a Lyceum when they learned that colored patrons were not to share the same privileges as the white members.10 At Lynn, Massachusetts, there was opposition to Charles Lenox Remond, a Negro lecturer, who was to address a white group.11 New institutions were formed in these places as a result of this discrimination. Thus, Negroes began to form societies of their own, in which they could have fuller and freer discussions and freedom of activity and control.**

**…**

**Meetings were held weekly, at-which time members returned and received books. At the meetings they read and expressed among themselves whatever sentiments they may have received from their readings.**

**…**

**The members of this organization met every Tuesday night for the purpose of "mental improvement in moral and literary pursuits." The majority of the ladies wrote original literary pieces which were placed anonymously in a box and later criticized.**

**…**

**There had existed since 1731, a Library Company in Philadelphia, which had its beginning in the "Junto Club" founded by Benjamin Franklin "for literary and scientific discussion, the reading of original essays, poems, etc." It was called the "club of mutual improvement" and was the forerunner of subscription libraries in the United States.**

**…**

**A report made in 1836 on the condition of the Negroes who lived in the Districts of Southwark and Northern Liberties, shows that out of 2,560 adults 1,030 could read and 92 could write; and that there were 970 children out of 1,945 who could read (as cited in [Dumain, 2001](http://www.autodidactproject.org/other/negrolit.html)).**

**A modern comparable to the earlier Literary Societies and Libraries is the Galilean Library website, which is set up as a community blog with the intention of developing organically through member participation. The pursuit of knowledge is deliberately engaged in by many for this purpose. For example, five individuals exchanged seventeen posts in the Learn forum, on the topic of Limitations of the Autodidact ([The Heretic, 2012](http://www.galilean-library.org/site/index.php/topic/3911-limitations-of-the-autodidact/)). These individuals had variously posted between 64 times and 3866 times elsewhere within the Galilean Library site. This thread was viewed 2810 times since October 22, 2012, at the time of this writing.**

**The Galilean Library is an example of a practice of process that is sometimes referred to as peeragogy (or paragogy). In essence, peeragogy describes participation in a kind of learning support group, similar in many ways to earlier Literary and Library Societies.**

**More and more people are getting savvy to the fact that you don’t have to go to a university to have access to all of the materials, plus media that the universities haven’t even had until recently. What’s missing for learners outside formal institutions who know how to use social media is useful lore about how people learn together without a teacher.**

**…**

**The primary motivators reported by participants in the Peeragogy**

**project include:**

**1. Acquisition of training or support in a topic or field;**

**2. Building relationships with interesting people;**

**3. Finding professional opportunities through other participants;**

**4. Creating or bolstering a personal network;**

**5. More organized and rational thinking through dialog and**

**debate;**

**6. Feedback about their own performance and understanding**

**of the topic ([Rheingold, 2014](http://metameso.org/peeragogy-2.01-ebook.pdf)).**

**Modern heutagogic individuals engaging in peeragogic learning activities appear to be strategically entrepreneurial in their approach. With this, they champion in their practices the tenets of Jan Amos Comenius, of nearly 400 years ago.**

**Comenius is best known for his contributions to teaching techniques. Persuaded that education is not limited to the action of school and family but is part of general social life, he believed that teachers should understand how a child’s mind develops and learns. He was convinced that all children, without regard to gender or social class, should attend school and receive the same education so as to understand and accept the civilization in which they live. Comenius was among the first to teach classical languages by use of parallel passages of ancient and modern texts; and his Visible world in pictures (1658) is believed to be the first illustrated textbook for children.**

**To use the words of Jean Piaget, "Comenius was the first to conceive the full-scale science of education". His educational objective can be summed up in the phrase on the title page of *The Great Didactic*, "teaching thoroughly all things to all men". He is also considered to be the first educator to have put forward the concept of international education. His ideas on education for everyone and for all peoples, and on the international organization of public education make him a forerunner of many modern institutions and trends of thought. Comenius’s efforts on behalf of universal education earned him the title of "Teacher of Nations" ([International Bureau of Education, 2014](http://www.ibe.unesco.org/en/areas-of-action/international-conference-on-education-ice/comenius-medal/jan-amos-comenius.html)).**

**In addressing specifically the practice of autonomous or self-directed learning, Comenius held out three principles that remain relevant for today’s Netizen Peers:**

1. **Proceed by (small) stages.**
2. **Examine everything yourself without submitting to authority (which Comenius, rather unfortunately, called ‘autopsy’).**
3. **Act on your own impulsion: (Comenius’ term was ‘autopraxy’). This requires, with reference to all that is presented to the intellect, the memory, the tongue and the hand, that pupils shall themselves seek, discover, discuss, do and repeat, without slacking, by their own efforts ([Solomon, 2005](http://books.google.ca/books?id=2-iBAgAAQBAJ&printsec=frontcover&dq=The+Passion+to+Learn:+An+Inquiry+into+Autodidactism&hl=en&sa=X&ei=5SusU_T1FciTqAb-xYEQ&ved=0CB0Q6AEwAA" \l "v=onepage&q&f=false)).**

**In 2014, educational institutions can easily be by-passed as knowledge repositories by Learners, in favour of going online to find freely accessible information databases and guidance through e-forums. An increasing shift toward the adoption of mobile learning technology and Open Educational Resources is anticipated as a broad social response. Similar to the effects of the internet on newspapers, including the closure of many that failed to adapt quickly enough, educational institutions dealing in knowledge development are expected to suffer a steep decline of revenues in the face of weakened economic activity. Institutions dealing in hands-on skill development are expected to be affected to a much lesser degree, in large part because of the necessary physicality of the learning experience, but also because of the inherent social aspect of working together as part of a group in problem solving rather than on one’s own.**

**The recent emergence of Massive Open Online Courses (MOOCs) is seen here essentially as a repackaging of an existing institutional model of formal university education. Studies have found that of the three or four percent of those who do manage to complete such courses, up to 74% have previously completed at least one degree ([Pretz, 2014](http://theinstitute.ieee.org/ieee-roundup/opinions/ieee-roundup/low-completion-rates-for-moocs)). The size of the learning objects apparently have not been reduced, and in fact appear to have become even larger due to complexities in negotiating the virtual learning environment. In contrast, informal learning appears to be increasingly supported with much smaller learning objects that are being consumed on a mass basis online, and cheerfully so. (While not know for a fact, it is suspected that a 35 second video demonstration of how to unlock a car door with a shoelace has been watched from start to finish by a very high percentage of the over four million individuals who have viewed it, as but one example.)**

**A shift also appears to be underway to a movement of Learning to Learn, notably by those engaged informally as Peer Learners. Ironically, it appears that this particular area of learning has not been well addressed by educational institutions, which raises questions about just how much those institutions and their propagators actually know about the subject.**

**Learning to learn is a transversal competence that is not usually explicitly assessed. Consequently, there are no computer-based assessment tools being developed or used to measure this competence.**

**…**

**As with "Learning to Learn" evidence on how to foster and assess a sense of initiative and entrepreneurship is scarce. Being a transversal skill, there is a lack of evidence and insight on how this key competence is, can and should be integrated in curricula and taught in schools. The situation is not much better in cases where "enterprise education" has been introduced in schools as a dedicated subject as there is a concern that the "delivery" of enterprise education takes place in ways which are not "enterprising" forms of learning, and that changes to definitions, frameworks and pedagogy are needed to clarify its future educational role (Draycott & Rae, 2011) ([European Commission, 2013](http://ftp.jrc.es/EURdoc/JRC76971.pdf)).**

**Closing Thoughts**

**Internet technology, and smartphones in particular, greatly facilitate the gathering of information and discussions in the process of learning. However, the practices and processes of Learners actually appear little changed from three or four hundred years ago. To the extent that “the customer is always right,” enterprising instructional designers would do well to respond accordingly when creating learning objects of any size.**

**In response to evident shifts in the self-propelled activities of Learners, it now seems reasonable as a matter of public policy to devote more funding to universal internet access on a 24/7 basis, and less funding to educational institutions with limited days and hours of service operation and limited geographical service areas. In short, a policy of “Open Learning Tools Before Closed Schools” is here recommended as the 21st Century unfolds.**

**References**

**Alfred A. Knopf. (2006). Everyman’s Library. Retrieved from**

**<http://www.randomhouse.com/knopf/classics/about.html>**

**Clark, D. (2011). *Andragogy vs. Pedagogy* Retrieved from**

**<http://bdld.blogspot.ca/2011/07/andragogy-vs-pedagogy.html>**

**Dumain, R. (2001). *The Organized Educational Activities of Negro Literary Societies, 1828-1846.* Retrieved from <http://www.autodidactproject.org/other/negrolit.html>**

**Elias, T. (2011). Universal instructional design principles for mobile learning. *The International Review Of Research In Open And Distance Learning, 12*(2), 143-156. Retrieved from [http://www.irrodl.org/index.php/irrodl/article/view/965/1675](http://www.irrodl.org/index.php/irrodl/article/view/965/1675" \t "_new)**

**European Commission, Joint Research Centre, Institute for Prospective Technological Studies. (2013). *The Use of ICT for the Assessment of Key Competences.* Retrieved from <http://ftp.jrc.es/EURdoc/JRC76971.pdf>**

**Friesen, N., & Wihak, C. (2013). From OER to PLAR: Credentialing for Open Education. *Open Praxis, 5*(1), 49-58. doi:10.5944/openpraxis.5.1.22**

**Granularity. (n.d.) Retrieved from <http://www.reusablelearning.org/about/Granularity.html>**

**Hase, S. & Kenyon, C. (2001). *From Andragogy to Heutagogy*. Retrieved from <http://www.psy.gla.ac.uk/~steve/pr/Heutagogy.html>**

**In praise of misfits. (2012, June 2). *The Economist*. Retrieved from <http://www.economist.com>**

**International Bureau of Education. (2014). Jan Amos Comenius. Retrieved from <http://www.ibe.unesco.org/en/areas-of-action/international-conference-on-education-ice/comenius-medal/jan-amos-comenius.html>**

**Jubien, P. (2013). Shape Shifting Smart Phones: Riding the Waves in Education / Téléphones intelligents à géométrie variable : leur mise à profit en éducation supérieure. *Canadian Journal Of Learning And Technology / La Revue Canadienne De L’Apprentissage Et De La Technologie*, 39(2). Retrieved from [http://www.cjlt.ca/index.php/cjlt/article/view/696](http://www.cjlt.ca/index.php/cjlt/article/view/696" \t "_new)**

**[Ngugi, C. (2014, April)](http://news.oerafrica.org/key-note-at-the-oer14-conference-oer-a-collaborative-catalyst-for-open-practice/). Open Educational Resources as a Collaborative Catalyst for Building Communities of Open Practice. Key Note Speech at the OER14 Conference at Newcastle University, UK.**

**Open educational resources (n.d.). Retrieved from**

**<http://www.unesco.org/new/en/communication-and-information/access-to-knowledge/open-educational-resources/browse/1/>**

**Rheingold, H. (2014). *The Peeragogy Handbook*. Retrieved from <http://metameso.org/peeragogy-2.01-ebook.pdf>**

**Pretz, K. (2014). Low Completion Rates for MOOCs. Retrieved from <http://theinstitute.ieee.org/ieee-roundup/opinions/ieee-roundup/low-completion-rates-for-moocs>**

**Short e-courses. (2013, October 31). *The Economist*. Retrieved from**

**<http://www.economist.com>**

**Solomon, J. (2005). Theories of learning and the range of autodidactism. In J. Solomon (Ed.), *[The Passion to Learn: An Inquiry into Autodidactism](http://books.google.ca/books?id=SEiBAgAAQBAJ&printsec=frontcover&dq=Autodidactism&hl=en&sa=X&ei=SiasU7DeJMi1yATAm4HQBQ&ved=0CCUQ6AEwAQ" \l "v=onepage&q=Autodidactism&f=false)*. (pp. 12 – 13). London: RoutledgeFalmer.**

**The Heretic (2012, October 22). Limitations of the Autodidact [Online forum comment]. Retrieved from <http://www.galilean-library.org/site/index.php/topic/3911-limitations-of-the-autodidact/>**

**The misfits. (2008, June 12). *The Economist.* Retrieved from <http://www.economist.com/>**

**[The rise of the cheap smartphone](http://www.economist.com/news/business/21600134-smartphones-reach-masses-host-vendors-are-eager-serve-them-rise-cheap). (2014, April 5). *The Economist*.**

**Retrieved from <http://www.economist.com/>**

**United Nations Educational, Scientific and Cultural Organization (UNESCO). (2014) *Reading in the mobile era: A study of mobile reading in developing countries.* Retrieved from**

**<http://unesdoc.unesco.org/images/0022/002274/227436e.pdf>**

**\*\*\***