Curating to Creating: An open pedagogy for Quality Learning

John T. Okewole
Yaba College of Technology, Nigeria
john_okewole@yahoo.com

Irene Knokh
University of Michigan Health System, USA
iknokh@umich.edu

Abstract
Pedagogy is a key determinant of quality of learning; the connecting factor, the lifeline between a teacher and the body of learners. Pedagogy is the principles and methods of instruction. Most transmission/facilitation of knowledge succeeds and fails on the pedagogical capacity of the teachers. Through learning theories, several pedagogies have been developed. This paper presents an open pedagogy which is based on the constructivist theory and social learning characteristics of learners. The pedagogy comprises curating, contributing, collaborating and creating/constructing as a systematic way of imparting knowledge for effective learning outcomes. Each of the components of the pedagogy has been used in different context before to administer learning effectively. The paper gives an overview of how this pedagogy relates with the attributes of open pedagogy. Details of how the pedagogy aligns with the Bloom's taxonomy of learning were also presented. A tracer study of an art class use of the pedagogy is presented where 82% of the learners sampled affirmed that the system helped them learn better.

Introduction

Quality Learning has been the subject of several debates across the globe. UNICEF (2000) itemized five quality education parameters. The first three talked about the people and the products. Just one talked about the process. Quality education involves "processes through which trained teachers use child-centered teaching approaches in well-managed classrooms and schools and skillful assessment to facilitate learning and reduce disparities" (UNICEF, 2000). In case trained teachers don't "use" the training approaches (pedagogy) and skillful assessment, the whole drive towards quality education is brought to a halt.

OECD (2012) found out that the highest performing education systems are those that combine equity with quality. Investment in people and products without leveraging the process will not achieve quality. Quality learning ought to train and motivate towards lifelong learning.

Consider this equation (eq 1).

$$\underbrace{\overset{Instructor}{People} + \overset{Infrastructure}{\Pr oduct}}_{Input} \quad \overset{\Pr ocess\,(Pedagogy)}{\longrightarrow} \quad \underbrace{\overset{Learner}{People} + \overset{Learning}{\Pr oduct}}_{Output} \qquad \textbf{eq.1}$$

Note the following about the equation:
- This can be a measure of access and quality in education.
- Improvement at the input side increases access but not quality.
- No matter the input, a wrong process will make qualitative learning unattainable.
- Input does not necessarily turn to quality output without a qualitative process
- While output is dependent on input, quality of output is dependent on the process
- To increase the quality of the output, the process must be improved consistently

The simple term for the process involved is pedagogy. Pedagogy is generally known as the principles and methods of instruction. It is the process viewpoint that amalgamates the people and products. The people and products on the input side are teachers, administrators and facilities (curriculum, classroom, textbook etc.). The people and products at the output side are learners and the learning they received. Quality then means putting people and products to effective use in a process to yield the people and products desired.

Various learning theories have postulated several effective ways to combine the people, products and processes effectively but have been hindered and limited by time and space before the 21st Century learning affordances. Digital technology however makes achieving quality in learning through new pedagogies possible. Most of the theories can now be adapted into learning processes and quality can be engendered. Also, the social nature of people can now be leveraged for learning. Victor (2015) blogged that new technologies have led us not only to adjust our expectations about personal life, but more recently and equally dramatically to change the ways we work. Social interaction is now totally different and more flexible which education systems can learn from. People learn best together, through collaboration with peers, discussion with mentors, via knowledge sharing etc (Victor, 2015). This has been a subject of several learning theories like social learning, peer learning etc.

This proposal is therefore presenting a pedagogy based on the use of technology and social adaptation of technology to harness quality learning. The pedagogy involves the use of the following activities curating, contributing, collaborating and creating/constructing in learning (*note it will be referred to as the 4C's in the remaining part of the text*).

There are open technologies for each aspect of the pedagogy making it suitable as an open pedagogy. Besides, Wiley (2013) prescribed that the operation of an open pedagogy involves the attributes of openness - reuse, revise, remix and redistribute.

If properly applied, this pedagogy will aid quality learning for learners.

Definitions of the 4C's

The concept will be buttressed here and a method of use will be presented in 3.0.
Consider Table 1.

Table 1 – The 4Cs, type of activity involved and some sample tech tools

4Cs	Activity Involved	Sample Tools
Curating	Searching; Organizing; Displaying; Bookmarking; Referencing	Google Scholar; Evernote; MERLOT; Diigo; Livebinders; Scoop-It; Learnist; EduClipper
Contributing	Commenting; Sharing; Social Networking; Note taking; Tagging; Uploading	Wiki; Blogging; Mindmaps; Mendeley; Snag-It; Twitter
Collaborating	Blog Journaling; Group Discussion; Moderating; Blogging; Networking; Validating; Sharing; Chatting; Group Working	GoogleDocs; Wiki; Ning; Flickr; Blogger; Skype; Google Hangout; WhatsApp; Facebook
Creating/Constructing	Publishing; Directing and producing; Presenting; Podcasting & Vodcasting	Open Office; Blog; Animoto; Gantt Charts; Scratch; Prezi; Star Office

Curating - means to take care. Curators are information managers. With instructors and learners inundated by information in the 21st Century, the first challenge in learning is to make sure they understand how to effectively manage the information per need. Zhang (2015) described content curation as the process of collecting, organizing and displaying information. Collection involves searching the right place for useful and usable information. Organization needs understanding of the pattern to put information in easily retrievable form. Display depends on the platform been used.

Contributing - This means adding to the information gathered. This is the second stage in this process. On social networks users like, comment, share etc. information. This need to be adapted in the learning processes. Contributions on what has been curated can be made in these forms (this is not an exhaustive list):

Ask a question; Rate the material; Keep a note; Share the resource

To contribute the learner has to do deeper reading and reflection.

Collaborating – This involves working on information with others. After contribution has been made, it becomes expanded when shared and worked together in a class, group, cohort etc. The rate of growth of knowledge increases when every learner brings his/her opinion to the table. Peer learning has been proven to be highly effective. Sample ways of collaborating are:

Think pair share; Peer teaching; Presentation; pair summarizing/checking

The above are just some of the patterns that can be adapted.

Creating/Constructing – The last involves creating or constructing new knowledge. After the three stages above a learner can take a shot at knowledge synthesizes. At this stage, it becomes easy to create new knowledge due to initial exchanges with facilitator and peers.

The 4C's in action:
- All the processes will be guided by the facilitator (expanded role for a teacher)
- The technology that facilitates this is already available
- Access to required digital tools and technologies are mostly simplified and free.
- The 4C's can be applied to face-to-face, blended and online classes.

Literature Review
Pedagogy
Pedagogy is the art and science of effective teaching. In eq.1, it was described as a process which conveys learning like a carriage or pathway for access and quality delivery. Pedagogies have emanated from learning theories. The 4C's are bound to the constructivist theory and other associated/related models and tools.
According to Concept to Classroom (2004) constructivism transforms the student from a passive recipient of information to an active participant in the learning process. Learners become engaged by applying their existing knowledge and real-world experience, learning to hypothesize, testing their theories, and ultimately drawing conclusions from their findings.
The constructivist teacher then adapts tools to aid the learner who becomes active in the process of learning. Some of the tools include problem-solving and inquiry-based learning, project-based learning, problem-based learning, peer learning etc.
An example of social media pedagogy is peeragogy developed by Rheingold (2015) as a flexible framework of techniques for peer learning and peer knowledge production. As pedagogy theoretically articulates the transmission of knowledge from teachers to students, peeragogy describes the way peers produce and utilize knowledge together. The 4C's works in the same way.

Open Pedagogy
Hagerty (2015) rightly noted that the Internet is a disruptive "global platform" that has significantly changed how learners and teachers access and share information and materials. He advocated that the status quo has changed and, as a result, teachers and learners are able to interact more easily, share their work, and collaborate in connected learning environments. According to Wiley (2013) open pedagogy is a set of teaching and learning practices only possible in the context of the free access and 4R permissions characteristic of open educational resources. The 4Rs are reuse, revise, remix and redistribute. Two things are therefore obvious practices and resources which forms the basis for open pedagogy. Hagerty (2015) described the two extensively under open education practices (OEP) and open education resources (OER).
Open Educational Resources (OER) thrives on "distributed collaboration" using mobile, Internet, and social media applications and the consumption and production of artifacts for learning (Conole, de Laat, Dillon, & Darby, 2008, p. 511).
For open education practices (OEP), Conole (2013) sets out five principles of openness to be considered which comprises open tools and processes that promote it. They are:
a. collaboration and sharing of information;
b. connected communication about learning and teaching;
c. collectivity to grow knowledge and resources;
d. critique for the promotion of scholarship; and
e. serendipitous innovation. (Conole, 2013)
By the analysis above, the 4C's fits in appropriately to the list of open pedagogies. The use of open practices and technology helps deliver on the goal of quality in a learning process.

Thoughts and Use cases of the 4C's
Morrison (2014) affirmed that "educator as curator, is about social learning, and has great potential with the explosion of social learning tools – yet, I predict, will face acute resistance in higher education circles. Adoption of 'social learning' will face barriers, as the concept collides with traditional teaching methods."

Medvinski (2015) keeps applying the concepts of curating and creating as the fundamental pedagogy for his learners. The concept used for high school learners effectually yielded a great deal of students' engagement and helped developed capabilities of solving problems from different perspectives.

With an extensive research on curation, Robin Good (2012) made this profound statement "If we learn not by memorizing facts, but by collaborating with others in the creation of a meaningful collection-explanation of specific topics/issues/events then, for the first time in history, we can enrich planetary knowledge each time we take on a new learning task." The 4C's harmonized the attributes of the statement into a pedagogy.

A different dimension of the 4Cs but worth commenting about is the Gold Standard for Project Based Learning (PBL) (Soule, 2014). This 4Cs comprise of critical thinking, creativity, collaboration and communication. They form a pattern of application of the P21's 21st Century Learning.

The 4C's leans towards constructivism and embraces techniques that strengthen its application. One of such is the Bloom's Taxonomy of Learning defined by Benjamin Bloom which has received several revisions. Armstrong (2015) showed a simplified analysis of the Bloom's Taxonomy reflective of the kind of the design in this writing noting that the revised version of the Bloom's Taxonomy moved away from static notion of "educational objectives" to a more dynamic conception of classification. Gonzalez-Major and Albright (2008) adopted the summary of the 2001 revised Bloom's Taxonomy and Churches' 2008 Digital Taxonomy to present a set of tools and techniques that can be incorporated in both online environments and classroom. Apple and Krumsieg (2001) have also condensed the Bloom's Taxonomy into five levels of learners.

An enterprising use of the Bloom's Taxonomy is the Padagogy Wheel designed by Allan Carrington (2016). It is an organic wheel/system in which technology can be added to various levels of the Bloom's Taxonomy and is based on the pedagogy. Table 1 is a similar presentation of the capacities and usage of the 4C's.

Method
How the 4Cs Pedagogy work
The following activities show how the 4C's can be applied in a class:
    a. Find or develop sites/materials that are important for the topic/subject
    b. Open a portfolio and add materials already available
    c. Develop your class outline with those materials
    d. Develop assessments
    e. Determine the best technologies (through survey of learners or institution)
    f. Introduce the topic and learning outcomes then assign learners into groups for collaboration.
    g. Curating starts from the introduction and listing of recommended sites
    h. Create portfolios for student and guide them on usage
    i. Contributions should be documented and posted for each material accessed on the discussion forum/platform
    j. Collaboration involves grouping the class where they access and talk about peer contributions
    k. Class collaborations develop from the groups
    l. Facilitator monitors the contributions and collaborations and guides and weaves opinions where/when needed.
    m. Creating/Constructing of individual ideas based on a question and the class
    n. Learning continues after the class

All the given processes are flexible and the facilitator has a responsibility to make it better depending on the class.

Potentials and Perspectives on the 4C's
The 4C's has been found to be useful and innovative; however, there is a challenge with adoption of such in most climes. Opening learning up with the learners immersed in the learning process runs counterculture to several education systems and educators across the world. The case study is presented of an art teacher who adopted some of the intricacies of the 4C's. A highlight of her story and result of a tracer study of her students was done. Summarizing her story will highlight a need assessment of the 4Cs.
- Class Size: The classes she took were over multiple times the recommended standard of 20.
- Learner's Sensitivity: while the particular subject was taught by two teachers there was a sudden increase in her class because of the pedagogy she adopted
- Her class got students turning up because of the interactive and inclusive nature
- Use of Technology: She leveraged on the tech available to her and it helped the pedagogy she used.

- Active Learning: The pedagogy was centered on learners creating and learning by doing in groups and individually.

Contingent upon attending the class, a student feedback survey was administered online for students that have been imparted with the style of teaching of the Art teacher. A multiple choice question that was rated from strongly disagree to strongly agree was posted online. One of the questions was: "We would like to ask about your views on the lecturer's course delivery and impact on you." Responses were gathered for the following breakouts in Table 2.

Table 2 – Results and Discussion of student feedback survey

S/N	Question	Remarks
1	The lecturer's approach encouraged me to learn better	82% of respondents either agreed or strongly agreed to this
2	She was opened to new ideas about the course she took.	82% of respondents either agreed or strongly agreed to this
3	I developed new skills of learning while taking her course	75% of respondents either agreed or strongly agreed to this
4	I am still using some of the techniques I learned in her course.	75% of respondents either agreed or strongly agreed to this
5	The lecturer uses technology effectively in her course	71% of respondents either agreed or strongly agreed to this
6	The lecturer's handling of the course made me to go into practice	67% of respondents either agreed or strongly agreed to this

Considering the time and some other limitations, just about 28 responses were fetched and only about 78% of them were useful for the purpose. Howbeit, the ratings indicated a good standing for the pedagogy used. The feedback is still online and will be updated consistently for her students to give valuable feedback about the quality and impact of learning they receive in her class.

One of the challenging areas of using this pedagogical style was fellow faculty members who kicked against it. The teacher was grossly misunderstood and the sad story according to her still continues in most education system where the classes are still teacher-centered. An advantage that the 4Cs has according to this case study is the ability to leverage on any type of technology to advance learning. In fact, when the pedagogy was adopted by the teacher, the best technology they had was a projector. She has been able to deliver quality learning to students over the years through the use of the 4C's.

Conclusion

Curating, contributing, collaborating and creating evolved from people's social nature, 21st century technologies and constructivist theories to form a sound pedagogy for quality learning. This open pedagogy leverages on the type and level of technology available to deliver quality learning. As technology gets proliferated and advanced, effective teaching and learning processes can be enabled. However, the type of pedagogy hold sway as a determinant factor if quality would be attained. The 4C's is flexible for adoption and suitable in different learning environments to deliver on quality learning.

References

UNICEF (2000). Defining Quality in Education. A paper presented by UNICEF at the meeting of The International Working Group on Education Florence, Italy June 2000

OECD (2012). Equity and Quality in Education: Supporting Disadvantaged Students and Schools, OECD Publishing. http://dx.doi.org/10.1787/9789264130852-en

Victor, S. (2015). Mobile Technologies and Social Learning. Available at: http://www.learningsolutionsmag.com/articles/1822/mobile-technologies-and-social-learning

Wiley, D. (2013). What is Open Pedagogy? Iterating toward openness blog; http://opencontent.org/blog/archives/2975

Zhang, S., (2015). "Teachers as Curators: Curating Authentic Online Content for Beginning and Intermediate CFL Learners". World Languages and Cultures Publications. Paper 95. http://lib.dr.iastate.edu/language_pubs/95

Concept to Classroom (2004). Workshop: Constructivism as a Paradigm for Teaching and Learning. WNET Education. Available at: http://www.thirteen.org/edonline/concept2class/constructivism/

Rheingold, H. (2015). The Peeragogy Handbook. PubDomEd/Pierce Press, Chicago, IL./Somerville, MA. Retrieved from http://peeragogy.org

Hegarty, B. (2015). Attributes of Open Pedagogy: A Model for Using Open Educational Resources. Available at https://upload.wikimedia.org/wikipedia/commons/c/ca/Ed_Tech_Hegarty_2015_article_attributes_of_open_pedagogy.pdf

Conole, G., de Laat, M., Dillon, T., & Darby, J. (2008). Disruptive technologies, pedagogical innovation: What's new? Findings from an in-depth study of students' use and perception of technology. Journal of Computers & Education, 50, 511–524; doi: 10.1016/j.compedu.2007.09.009

Conole, G. (2013). Designing for learning in an open world. Springer: New York

Morrison, D. (2012). What do Curators, e-Educators and Constructivists all have in common? Available at: https://onlinelearninginsights.wordpress.com/2012/03/19/what-do-curators-e-educators-and-constructivists-all-have-in-common/

Medvinski, M. (2014). Learners as Curators and Creators. A workshop presentation. Available at https://vimeo.com/106313193

Good, R. (2012) Why Curation Will Transform Education and Learning: 10 Key Reasons. Available at http://www.masternewmedia.org/curation-for-education-and-learning/

Soule, H. (2014). The Power of the 4Cs: The Foundation for Creating a Gold Standard for Project Based Learning (PBL)

Armstrong, P. (2015). Bloom's Taxonomy: Center for Teaching. Nashville: Vanderbilt University.

Gonzalez-Major, J. & Albright, A. (2008) Modifying Bloom's Taxonomy to Meet 21st Century Pedagogies. Available at http://www.dartmouth.edu/~jmajor/DesignProjects/Publications/digitalTaxonomy.pdf

Apple, D. K., & Krumsieg, K. (2001). Teaching institute handbook. Lisle, IL: Pacific Crest.

Carrington, A. (2015) The Padagody Wheel. Available at tinyurl.com/padwheelV4