Chapter 7
Informal and Self-Directed Learning in the Age of Massive Open Online Courses (MOOCs)

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ABSTRACT
One of the consequences of the new digital age is the development of opportunities for individuals to learn in a variety of new ways. Among these opportunities are Massive Open Online Courses (MOOCs) where short, free, non-credit courses are available to anyone who wants to learn. In this chapter, the authors examine the phenomenon of MOOCs in light of informal learning and self-directed leaning conceptual frameworks. They illustrate this phenomenon with the case of Jasta, who took a MOOC course in statistics along with 950 other learners. The authors then go on to discuss the issues, controversies, and problems of MOOCs for informal and self-directed learning. They propose a series of questions that need to be addressed as we come to understand the role of MOOCs in educational systems.

INTRODUCTION
One of the challenges of today’s informal learning is the information explosion and the limited time that one has to learn what one wants to learn. Ericsson, Krampe and Tesch-Romer (1993) tell us that it takes more than 10 years of deliberate practice in order to become an expert on a domain of knowledge or skill. With the exponentially accumulating and changing information, how can one be self-directed enough to learn something useful in an informal learning environment? How does one focus? How does one make the selection or judgment on what is useful information? For many, the current Massive Open Online Courses (MOOCs) are an important channel for self-directed and informal learning. The purpose of this chapter is to examine the benefits and challenges of MOOCs using informal and self-directed learning as theoretical frameworks.

MOOCs refer to online courses aimed at unlimited participation and open access over

DOI: 10.4018/978-1-4666-8265-8.ch007
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The roots of MOOCs can be traced to distance or online education as well as open education movement. Yet, several new ventures in 2012 turned massive open online courses into a new wave (Pappano, 2012). In 2012, new ventures such as Udacity, Coursera, and edX launched more than 200 online college courses and offered them for free on the Internet. These new courses are called Massive Open Online Courses, or MOOCs (Cormier, 2008, 2010; Siemens, 2012). Among them, edX was launched by Harvard University and MIT as a non-profit organization and was later joined by the University of Texas, the University of California, and others. Coursera was launched by 33 colleges jointly as a for-profit organization featuring content from Duke, Penn State, Princeton, Stanford, Yale and many others. Udacity, another for-profit MOOCs organization, was co-founded by Stanford’s Professor Sebastion Thrun (Siemens, 2012).

Most of the current MOOCs are designed and offered for free by university professors from Ivy League schools. MOOCs usually focus on popular academic topics including biology, business, chemistry, computer science, economics, finance, electronics, engineering, food and nutrition, history, humanities, law, literature, math, medicine, music, philosophy, physics, science, statistics and more. At the time of this writing, edX (https://www.edx.org/) claims to offer over 150 courses in over 20 areas, have over 400 faculty and staff teaching these courses, and have over 10,000 learners who have earned certificates through edX. Coursera (https://www.coursera.org/) is hosting over 600 courses, with courses taught in 14 different languages, and partners with over 100 higher education institutions globally. Udacity (https://www.udacity.com/) claims that their courses are built by tech leaders like Google and AT&T using a project-based approach. For a fee, a learner can receive support, mentoring, and encouragement from “coaches,” and can receive certificates for their completed learning. In fact, a learner can obtain a master’s degree in computer science from Georgia Tech University if he or she is determined enough to complete all the courses offered for the track through Udacity. Clearly, there has been a large effort invested in merging the informal and self-directed learning environments of MOOCs with the traditional and official higher education institutions.

For someone who is looking for knowledge in a specific area, MOOCs seem to be perfect places to go because one does not need to surf and select from a boundless sea of information on the Internet in order to obtain expert knowledge and skills. As a result, the popularity of MOOCs has been discussed as a panacea for self-directed learners and for quality learning in an informal environment (Yang, 2013). At the same time, MOOCs have also been touted as a possible doomsday machine of sorts, showing up on the doorstep of the traditional higher education systems (Olds, 2013; Ripley, 2012). For who would be willing to pay $60,000 a year for a college education, if one could get the same knowledge in a compressed amount of time, for free? However, just as in the case of many other new technological advancements and innovations, MOOCs are neither a panacea nor do they spell doom. Rather, they provide benefits and challenges for learners as well as learning institutions. In the following section, we discuss self-directed and informal learning as theoretical frameworks. We then use the frameworks to examine learners’ experiences in MOOCs.

Self-Directed Learning

Self-directed learning was popularized by Malcom Knowles in the 1970s and 1980s. In his short book called, simply, Self-Directed Learning (Knowles, 1975), he proposed a model in which adults make decisions about what they wanted to learn, how they wanted to learn, the methods and resources they would use to learn, and how they would assess their own learning. He continued to expand this
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model in The Modern Practice of Adult Learning (Knowles, 1980). Knowles distinguished between andragogy (the art and science of adult learning) from pedagogy (children’s learning), but in the face of critiques from his colleagues, he revised his model to be a continuum from pedagogy to andragogy, rather than two distinct types of learning.

If we go back a little in time, even prior to Knowles’ book on self-directed learning, we find Alan Tough, a Canadian researcher who built on the work of Houle (1972, 1988), in order to study if, when, and how adults engaged in independent learning projects (he called this self-planning learning). In his research, Tough (1978) found that the majority of adults (over 90%) engaged in independent learning projects. The early work on self-directed learning emphasized that adults do deliberately learn on their own and that they can figure out how to do this.

The concept of self-directed learning received a great deal of attention in the adult education literature in the following decades. Candy (1991) provided a comprehensive review of this literature up until that date. He described four facets of self-directed learning: self-management, in which learners make decisions about which courses or programs to take; learner control, in which learners have control over some or all decisions in a course in a formal setting (such as objectives, resources, and/or assessment techniques); personal autonomy, which is a characteristic that describes how willing an individual is to engage in independent and self-directed learning; and autodidaxy, which refers to independent non-formal learning projects that adults engage in outside of any formal context.

In their comprehensive review of self-directed learning, Merriam, Caffarella, and Baumgartner (2007) describe self-directed learning as a process and as a “method” of instruction, a personal attribute of learners, and as autonomy. In the first category, as a process, they see the early models of self-directed learning (Tough and Knowles) as a linear model. Although Merriam et al. (2007) do not describe it as an instructional design model it follows a traditional instructional design approach: climate setting, diagnosing learner needs, formulating learner goals, identifying resources, choosing learning strategies, and evaluating learning outcomes. The emphasis here is on what the educator does rather than what the learner does.

Second, Merriam et al. (2007) go on to describe several models of self-directed learning that are based on an interactive model rather than a linear model. Perhaps the most influential of these models is Garrison’s (1997) model which is grounded in a collaborative constructivist perspective. The model is relatively simple—learners enter a learning situation with some motivation related to the learning; they then take control of their learning so as to reach their goals; and this leads them to manage or control their learning. However, it is not entirely clear how this model is different from a linear model or how it is collaborative.

The third aspect of self-directed learning discussed by Merriam et al. (2007) is the instructional models; that is, how can we foster or encourage self-directed learning?. Self-directed learning is seen to be an instructional method or an approach taken in educational programs. To this day, we still hear educators describing a “self-directed learning method” when referring to how a program is designed or how educators teach their classes. The most well-known of these models is Grow’s (1991) Staged Self-Directed Learning model in which he describes four learner stages: dependent learner, interested learner, involved learner, and self-directed learner. Grow describes how an educator can help learners move from one stage to another in order to encourage self-directed learning.

Perhaps most relevant to our discussion here is Merriam et al. (2007)’s category of self-direction as a personal attribute of learners. This goes along with Candy (1991)’s description of personal autonomy. The idea here is that individuals are more or less self-directed by nature or perhaps as a result of their learning experiences. Self-directedness is
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something that belongs to the individual rather than to the program or the method of teaching. This thinking spawned, naturally enough, different ways of assessing how self-directed learners are, or how ready they are, to engage in self-directed learning. Most well-known among these efforts is Gugliemino’s (1977) Self-Directed Learning Readiness Scale. She developed this inventory as her doctoral dissertation, and it remains popular and frequently-used four decades later. Gugliemino describes self-directed learning readiness as including several psychological characteristics: initiative, persistence, acceptance of responsibility, self-discipline, curiosity, independence, enjoyment of learning, and being goal-oriented. However, there has been no research evidence that the instrument measures these things. Instead, it seems to correlate with success in school and to only have two factors rather than the many that Gugliemino lists (Cranton & Kreber, 1999).

Self-directed learning remains a cornerstone of adult education. Clearly, participation in MOOCs requires learners to be self-directed; that is, a learner needs to know what he or she wants, figure out where to go to find a relevant MOOC, and be self-regulated enough to complete the course on their own without a teacher forcing timelines or deadlines upon them.

Informal Learning

Informal learning can be viewed as a subset of self-directed learning, particularly in relation to Candy’s (1991) description of autodidaxy, the engagement in independent learning projects outside of formal education settings. However, some writers also see informal learning as occurring in formal settings as an aside to the formal instruction. For example, students may engage in discussions outside of the classroom or even in small groups within the classroom that constitute informal learning. It has also been proposed that the mentoring that may take place in formal settings is actually informal learning.

Early on, Coombs (1985) distinguished between formal, nonformal, and informal learning. He defined informal learning as “the spontaneous, unstructured learning that goes on daily in the home and neighborhood, behind the school and on the playing field, in the workplace, marketplace, library and museum, and through the various mass media” (p. 92). More recently, informal learning has been described as taking place in different forms—self-directed learning, as we have discussed in the previous section, incidental learning which is a by-product of learning in different contexts, and tacit learning, which may be the unconscious absorption of knowledge in a variety of settings (Schuguernsky, 2000).

Unfortunately until recently, there have not been good ways to identify who participates in informal learning and how they do so, simply because informal learning tends to be invisible to the outside observer. Tough’s (1978) survey from many decades ago has been the best source we have for the number of adults who engage in informal learning. However, this is changing with the rapid development of new technologies. The individuals who participate in MOOCs are engaging in informal learning; they are not enrolled in an institution and they do not receive formal matriculation credits for their learning. Yet, their informal learning activities may be captured through big data learning analytics enabled by
new technologies. In the next sections, we explore how self-directed learning and informal learning are important factors in students’ participation in MOOCs.

**Informal and Self-Directed Learning in MOOCs**

The four aspects of self-directed learning described by Candy (1991) included self-management, learner control, personal autonomy, and autodidaxy. The three aspects of self-directed learning described by Merriam et. al (2007) included self-directed learning as a process, a method of instruction, and a personal attribute of learners. In addition, informal learning has been discussed as a subset of self-directed learning, incidental learning, and tacit learning (Schuguernsky, 2000). How do these elements of self-directed and informal learning manifest themselves in MOOCs? In order to address this question, we provide an illustration of one learner’s journey in a MOOC. We then discuss the benefits and challenges of MOOCs for informal and self-directed learning.

**A Learner’s Informal and Self-Directed Learning in a MOOC**

Jasta recently took a massive open online course in statistics. He found the course through a listserv, where the course was highly recommended. The instructor for the course was a professor at a university in the U.S., and he was appraised as making statistics interesting and easy for people to follow and understand. He offered the course on the Canvas platform, during his own time, without any support from his institution. The course lasted for a month, with a beginning and end date, although one could still access most of the course materials afterwards. Jasta had wanted to sharpen his statistics skills and to see how he might be able to use more statistical analyses for his work, so he registered for the class along with another 950 participating learners.

As soon as Jasta logged into the course, he saw a well-organized online class with navigation buttons on the left of the screen including a welcome, announcements, syllabus, modules, quizzes, discussions, and chat. The instructor had already sent a welcome announcement through email, which was also posted at the “announcement” page. In addition, there were video introductions of the course content and expectations, learning module videos, practice exercises and quizzes. What immediately attracted Jasta was the instructor’s casual manner, folksy sense of humor, and confident teaching style shown in his videos. It was clear that each module addressed concepts one at a time, that all the concepts were designed to complement one another, and that one could only complete the later modules, if and only if, one had mastered the earlier concepts, and that no exercise was introduced unless it was key to the overall learning objectives of the course. In addition, it appeared that the instructor took great care to alleviate concerns that students might have by explaining that only the material introduced in the course would be tested and that all examples introduced were expected to be self-constructed by the student in an Excel spreadsheet as the course progressed. The final exam would only cover course material introduced in the practice exercises and the instructional videos. The instructor also encouraged the class participants to get to know each other, and to help each other using the discussion board and chat during the month. Jasta could already see introductions and photos of some participants, who also marked where they lived in the world. There were people from North America, Europe, Australia, Africa, and Asia.

Jasta felt that he could work with the structure of the course! However, he quickly found himself falling behind due to his tight work schedule. He received the course’s weekly announcements through a series of “push” emails from the friendly instructor but one month seemed to go by extremely fast. Before he knew it, there were only three days left before the course would end.
Jasta was not sure if he could really complete the course in this time. In addition, there would not be any adverse consequences for not completing the course – he did not pay for the course; he did not make a promise to anyone; and he would not get any credit for completing the course anyway. Still, Jasta did not like the idea of starting something without completing it! Perhaps he could still complete the course in two days? He wanted to give it a try. While Jasta had some knowledge of statistics from two earlier statistics courses he took in college, it had been more than 15 years since he tackled such a course. He had some recent experience with other online courses, but he found this course different in several ways.

First of all, Jasta was pleased to see that the course was designed to be digested in small bites, one at a time. The instructor seemed to know exactly what and how much of the content he needed to include or omit at each stage. To illustrate, use the concept of “standard deviation” as an example. Standard deviation had been a confusing concept for Jasta. To start, Jasta reviewed a series of PowerPoint slides that gave the mathematical formula for standard deviation. He then watched a video that showed how one could, with a given set of data, create an Excel spreadsheet to drop in the data, construct the formula for standard deviation in the spreadsheet, and calculate the result. Through the video, Jasta was able to see the step-by-step construction of the spreadsheet, complete with the mathematical formula discussed earlier in the slide show. The hands-on constructive process worked for Jasta. In addition, Jasta felt that the instructor was virtually present with him during each step of learning to create the spreadsheet, because he was able to see the instructor’s face, hear his voice, and see the demo of the spreadsheet in one video all at the same time, and he could re-play the video as many times as he needed to understand the concept and work on his own spreadsheet. He could also see the other participants asking questions and giving answers to questions in the discussion forum. He was not alone.

Second, Jasta also liked the expectation that the instructor had set for the students in terms of how long it might take to complete each assigned task and quiz with each newly introduced module. Jasta knew exactly how much time he would need to set aside for each module. The instructor was careful to point out that while the length of the YouTube video may be only 20 minutes, he expected that due to the nature of creating a spreadsheet, the learner would be required to pause the instructional video, go to the (student) spreadsheet, create and complete the next few steps, then revert to the video to check each subtask against the model spreadsheet. He told the student that “while the video lasts only 20 minutes, I recommend that you allow 1 hour and 15 minutes as you will want to play, pause, and re-play the YouTube video as needed as you are creating your own spreadsheet.” Jasta quickly discovered that the instructor’s estimates of actual work time were highly accurate. Jasta felt motivated making small step incremental accomplishments when he was able to pause and replay the video anytime at his own pace so as to hear the instructor’s instruction, see his smile, and watch him demonstrate the process. After a few successes, Jasta knew that the daunting task of capturing all of the learning objectives was quite doable.

Moreover, Jasta appreciated the abundant examples of practical applications of the statistical concepts because they helped him develop a deeper understanding of the concepts. The instructor always explained how the concept was successfully employed in the real world and how its employment and use were non-trivial in the given situation. In addition, he constructed the Excel spreadsheets using only two or three sets of data. This allowed Jasta and the other learners to alternatively cut and paste larger data sets and not spend an inordinate amount of time in
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capturing and entering data, which, in this case, was not the primary intent of the course. After having carefully crafted the spreadsheets, Jasta also constructed the calculating engine to do other similar types of calculations. He had created (and now understood) the engine to do the desired calculations. In a very recursive way, the instructor had not only effectively shown how to implement the mathematical formula in the tool, but had also given the learner a new capability, useful for future calculations, crafted by the learner. As a take-away, Jasta and his peers obtained an “artifact” that could be referred to later, to see how they did it previously. In this sense Jasta had built his own learning re-creation simulation.

At the end, Jasta felt a sense of achievement after he completed the course. Although he did not communicate with the instructor or the other participants in the course, he did not feel that he was alone or lost. Although he was not able to work on the course an hour or two a day or a module a day as recommended, he was able to complete all the learning modules, the practice exercises, the quizzes, and the final exam following the structure set in the course. He felt that the course helped him learn the statistics he had intended to learn and given him a take-away module that he built himself and that he could refer to in the future. He even received a certificate to prove that he completed the journey!

Obviously, not all MOOCs are as well designed as the one Jasta took, and not all learners have positive learning experiences. In fact, the average completion rate of the MOOCs is 7% (Jordan, 2013). Well-designed as the MOOC that Jasta took was, the completion rate was only 12%, that is, only 112 out of 950 participants completed the course. Different factors contribute to the low completion rates, but poor quality of some of the MOOCs is one of the main reasons that inhibit self-directed learners from pursuing what they had set out to accomplish.

Issues, Controversies, Problems of MOOCs for Informal and Self-Directed Learning

In recent years, MOOCs have stimulated discussions and reflection about the benefits, challenges, purposes, and pedagogy of formal and informal learning environments (Basu, 2012). We discuss some of the issues related to informal and self-directed learning in this section.

There are many benefits of MOOCs for informal and self-directed learning. One of the obvious benefits is that MOOCs provide an opportunity for learners from all over the world to study with professors and experts they have heard of but have not had the opportunity to study with in a face-to-face setting. This likely draws many learners to MOOCs—the opportunity to learn from leading scholars, scientists, and theorists in the field of interest to the learner. In Jasta’s course, there were 950 students from all over the world. However, with hundreds of other participants in a MOOC, the challenge is that it is usually difficult for the learners to receive direct contact or personal attention from the instructor, so in this way, it may not be very different from reading a text by a leading scholar and the learner may feel disappointed if his or her goal were to receive personal attention or have a close relationship with the course instructor.

Because MOOCs usually attract a large group of learners from around the world, they provide learning environments where the learners can communicate with each other and form new networks and relationships that otherwise would not be possible (Dowes, 2008; Siemens, 2004, 2005, 2012). From the beginning, pioneers of MOOCs have emphasized the concepts of connectivism and openness. Siemens (2008) defined connectivism as a learning theory for the networked age. He argues that an individual needs a looped network in order to maintain current knowledge.
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In any field, to update his or her knowledge base continually. Downes (2005) and Siemens (2004), who have been credited as pioneers advocating for connectivism through MOOCs, believed that learning begins when a person is motivated to connect with and contribute to a “learning community,” or a networked group of people interested in expanding their knowledge about a certain field (Kop & Hill, 2008). MOOCs depend on the use of social media to create connectivity, allow communication, and to encourage interaction. Such an opportunity, however, may not be needed by all the learners. For instance, in the case of Jasta, he was interested in the content offered by the statistics MOOC and was able to learn what he wanted; he was satisfied with his experience although he was not able to take advantage of the opportunity to communicate with the instructor or the other participants. Another distinctive benefit of MOOCs is that the MOOC learners can enter the learning process on their own without having to pass through a gate or threshold of the admission process as is usually required in a formal education setting. The learners can choose (rather than be required to take) courses that contain the content they are interested in and take courses they see as beneficial and worthy of their time. In Jasta’s case, he found out about the course through a listserv. As a self-directed learner, Jasta enrolled in the statistics course to learn more about the subject matter, rather than to pursue credits or a degree. In addition, MOOCs are usually courses that are highly practical and are immediately applicable to people’s daily lives and work situations. Most courses target instrumental and communicative knowledge, which are likely to help people resolve current issues and challenges in their personal and professional lives. The statistics course that Jasta took gave him a quick tool kit to use for his work. Further, as is the case with online courses in general, learners can take specific courses anytime and anywhere has made online learning an integral part of formal and informal learning in the past decades (Allen & Seaman, 2013). In Jasta’s statistics course, he had to follow a step-by-step process to advance his understanding of the course content, but he did not have to keep up with the work of the other participants, or communicate with anyone if he could not, or did not want to. Jasta was only responsible for his own learning, not anyone else’s learning. Jasta might have gained opportunities to learn more with the others if he had interacted with the other participants as advocated by MOOC scholars. However, with time constraints, doing that might have prevented Jasta from completing the course the way he had wanted for himself. In the end, different individuals have different needs, demands, and interests for their learning.

Lastly, most MOOCs are currently offered for free, especially when there are no certificates offered or expected. They are for informal learning purposes and target self-directed learners. Gaining knowledge for free is especially beneficial and attractive for adult learners because the rapid increase in higher education costs is a concern for the public. For some, the increased delay in finding a job after an expensive college education has caused people to re-evaluate their comparable returns on investment, especially from lesser known private institutions with a handsome price tag. Many learners taking MOOCs do well in the courses. Several studies have reported that MOOC learners do just as well, if not better than those students who are currently enrolled in Ivy League schools with the same professors (Martin, 2012). Although there are benefits of MOOCs, there are also downsides of MOOCs in relation to informal and self-directed learning. One of the most important downsides is that many learners would like to have instructors’ attention on their learning efforts, but they do not get that attention and immediate feedback because there are often hundreds of participants in a MOOC, and it is difficult for learners to establish an individual relationship with the instructor. Most MOOCs are
offered in the traditional lecture format, which is not conducive to higher-order thinking or collaborative learning advocated by educational theorists and researchers. There have been discussions on how to make MOOCs scalable or manageable for the institutions and instructors in the formal educational environments (Veletsianos & Kimmons, 2012). Another challenge of MOOCs is that most of the learning that takes place is not recognized by higher education institutions or the general work force. Given their limited personal time for a life-work balance, and the stringent training and hiring systems in place, it is difficult for many self-directed learners to set aside time to learn something that is not recognized by their workplace. There have been many efforts to create new credentials. For example, there has been discussion of “badges,” certificates, and even modified degrees for self-directed learners who have successfully completed MOOCs, (Yang, 2013), but the change process is slow. It requires shifts in traditional values in various parts of our society, including economies of scale, specialization, and the work share and division of labor of the teaching and learning systems. This perspective also challenges the role of higher education in our society where the assumption is that learners pay for their learning experiences.

RECOMMENDATIONS AND FUTURE RESEARCH DIRECTIONS

Nowadays, people rarely have one job throughout their life time. According to the U.S. Bureau of Labor Statistics (2012), the average baby boomer (born in 1957-1964) held 11.3 jobs from age 18 to age 46 (Number of Jobs Held, 2012) In addition, “the median number of years that wage and salary workers had been with their current employer was 4.6 in January 2012… this measure, referred to as employee tenure, was higher than the median tenure (4.4 years) in January 2010 (Employee Tenure in 2014, 2014). Due to such rapid turnovers and changes, people are constantly looking for opportunities to update their knowledge and skills so as to continue their employment or to find the next job. It is challenging in terms of finances, time, and family obligations to return to school to obtain a formal degree. This is not to mention the commitment for such an undertaking—the admission process itself of a college or graduate school, with the required entrance exams, transcripts, recommendations letters and so forth, scare people away from returning to school to obtain another degree. Therefore, MOOCs, when offered for free and without pre-requisites, make it possible for people to gain new knowledge and skills while continue to work or look for jobs.

A lot needs to be done before MOOCs can fulfill the dreams of most self-directed learners in formal or informal settings. There are some important reasons why there is only an average 7% completion rate of current MOOCs, and this is an essential area that needs to be explored. Being massive and open, MOOCs present unique challenges for both educators and learners as opposed to other online courses. How can an online instructor meet the needs of the potentially hundreds and thousands of participant population with diversity of age, experience, culture, language, preparedness, and motivation. Obviously, if instructors continue to design MOOCs as they would design their regular face-to-face courses, or even non-massive/non-open online courses, they will fail to maximize potential learning for the greatest number of students. Both the massive and open aspects pose obvious challenges to designing and delivering online courses, but they also offer unprecedented opportunities for enriching the learner’s and also the teacher experience. What educators need to explore is how they can engage learners to engage in self-directed learning as well as inactive interactions with the others (Lin, 2008).

In an open online learning environment, the control of learning no longer rests with only an educational institution but with the learners themselves. It is argued that there are a number
of factors influencing the success of learning in such an environment (Bouchard, 2009). Bouchard grouped these factors into four dimensions: psychological, algorithmic or pedagogical, semiotic, and contextual or economical. The psychological dimension includes issues such as drive, motivation, initiative and confidence. The algorithmic dimension relates to pedagogical issues such as the sequencing, pacing and goal setting in learning, and the evaluation of progress and final evaluation. These tasks are often carried out by the course instructor in a formal course, but in an open learning environment they are issues that learners need to resolve themselves. The semiotics of learning, according to Bouchard, is an environmental factor related to the delivery model of resources. This dimension of learning has drastically changed in recent years and moved from the use of resources such as books and paper to digital texts and multimedia, which might be stored in searchable databases and linked through hyperlinks, networks, and clouds. The resources could also be distributed through synchronous and asynchronous communications in blogs, wikis, and various social networks. Learners will need to be able to evaluate and navigate this new informational landscape. The fourth dimension of learning refers to the importance of economy. This dimension includes the perceived and actual value of the learning, the choice to learn for personal growth, including, for instance, for future employment and expanded income, and the possible cost of other study options. All these factors affect self-directed learning (Bouchard, 2009). Previous research showed that these factors might influence each other (Kop & Fournier, 2011). When examining the concept of motivation, for instance, the non-psychological factors influenced the psychological ones such as the level of stimulus to participate in the learning. Research by Hartnett, St. George, and Dron (2011) confirmed that student motivation is “not a one-dimensional trait, but is complex, multifaceted, and influenced by both person and context” (p. 31).

According to Koutropoulos et al. (2012), MOOCs need to evolve in areas such as data capture, as well as learner and learning analytics. They argued that it would be important to determine who is merely “window shopping” in the initial periods of a MOOC, who is a lurker, who is an active participant, and when and why participants drop out completely. They also stated that rich and informative data needs to be available for analysis, and that systems need to be built to facilitate such data collection in order to better understand the learners and MOOC participation.

Pedagogically, with the large amount of data that is out there about the learners, it is possible to analyze the data and find out what works for the self-directed learners. As was noted in our example with Jasta and the online course, most MOOCs have a large number of participating learners. They provide massive amounts of data that can be captured very rapidly during the course improvement process. If a course is constructed properly, the designer or the instructor can quickly tell which learning points are failing as taught, and on what percent of the target population. If the right platform is used which will allow the data capture on things like tabulated wrong or incomplete answers, the courseware can be checked in many different ways to discover its shortcomings. Feedback from the students during the course will allow for needed course improvements while the course is still in process. Incorporating pre and post course surveys would also allow the instructors to determine reasons for dropouts, incompletions, and successes. In this era of “Big Data” many platforms can make rapid use of data gathering that is fit for a particular purpose. As we become better at combining the informational feeds coming to us from social networks, educational institutions, primary and secondary schools, adult learners, search engines, games, and other digital knowledge warehouses, we will need to make critical decisions about what educational processes will need to prevail in the next 5 to 10 years. Important decisions will become clear as
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to how we will need to structure our courseware in the future and the importance of key transformational events will become clearer. One way or another, the current inequalities in our traditional educational systems will become very evident. What we choose to do about them is the critical issue for us to resolve.

In addition, higher education institutions, workforces, and policy makers need to evolve and help self-directed learners to fulfill their dreams. MOOCs provide self-directed learners with the opportunity to prove themselves by successfully completing courses without being pre-judged and disqualified before they have a chance to give it a try. It is time for the policy makers, educators, and work place leaders to recognize the efforts of self-directed learners, and offer them the credit and credentials that they deserve. These are learners who can and have successfully completed the courses of their interest through their self-directed, step-by-step, course-by-course efforts. Providing such a support system will motivate people to be self-directed, to manage their own learning, to achieve their goals, and to reach their dreams.

These successes will help create life-long learners who attain a proper life-work balance. The following can be further questions to examine for MOOCs for self-directed and informal learning:

- What motivates learners to complete a MOOC?
- What effect does the informality of MOOCs have on the emotional and intellectual commitment of both of educators and learners?
- What are learners’ experiences in MOOCs? What kinds of learning take place in MOOCs?
- How do learners’ social networks differ in MOOCs as compared to those established in traditional courses?
- What potentials do MOOCs have for responding to diverse learner needs?
- What characteristics of MOOCs are important in terms of providing optimal learning conditions?
- How effectively do MOOCs address the need for lifelong learning?

CONCLUSION

Realizing the potential of MOOCs and other forms of large scale, technology-enabled learning environments will depend not only on understanding how to provide appropriate experiences for different individual learners (Lin, Cranton, & Bridgall, 2005), but also on our ability to design platforms that provide the affordances necessary to support development of diverse populations of focused learning environments. Informal and self-directed learning is becoming more important than ever because people are required to change and update their knowledge and skills constantly at work and in their daily activities. Life-long learning through informal and self-directed learning is no longer a luxury but a requirement for people to continue their job productivity and employment. Meanwhile, the formal educational institutions are also trying to provide learning opportunities that fit for individual learners’ changing work environments and life styles. As a result, the boundary between informal learning and formal learning is blurring and evolving. MOOCs also continue to evolve. We do not know what they will look like in two years or so, but some form of MOOC will provide the flexibility of pathways and options for lifelong learning to occur, in formal and in informal settings. Therefore, it is important to provide flexible learning opportunities and environments, formal or informal, so that every person can have an opportunity to learn regardless of their life constraints or situations.
REFERENCES


Informal and Self-Directed Learning in the Age of Massive Open Online Courses (MOOCs)


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KEY TERMS AND DEFINITIONS

**Informal Learning:** Informal learning is predominantly unstructured, experiential, and non-institutional. It occurs in our daily lives; it can refer to the acquisition of values, skills, knowledge, and processes, and can occur through interactions with others in the community.

**MOOCs:** Massive Online Open Courses. They usually refer to large, open enrollment, free, non-credit bearing short online courses.

**Personal Learning Network:** colleagues or leaders in a field that you can call upon for information or support.

**Reusable Learning Objects:** Digital objects of varying granularity, which are shared, to be used and re-used in different teaching situations.

**Self-Directed Learning:** Learning in which the student makes decisions about the content of the learning, the resources that will be used for the learning, and the assessment of the learning.

ADDITIONAL READING


