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MOOC Phenomenon: Building An Effective And Sustainable Program

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BUILDING AN EFFECTIVE
AND SUSTAINABLE PROGRAM

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ABSTRACT

This qualitative case study examines critical processes of building an effective MOOC in the community college environment in support of workforce development education for those who are interested in exploring different careers or to improve upon existing skill sets and development/remedial education for incoming students. Five participants from community colleges were selected to participate in this study. They were identified as a purposive sample of community colleges that offer MOOCs and use different learning management systems that support MOOCs. Themes that emerged from interviews were: unanticipated global enrollment in MOOCs designed for local and regional audiences, challenges of designing and implementing MOOCs, and different decision making models these institutions used when deciding to offer a MOOC.

This research data further affirms Thomas Friedman's (2006) idea of a *flat world* where technology is supporting and allowing global education for students in the United States to be able to learn alongside students from various cultures and regions. However, this research also identifies a critical need for community college leaders to collaborate with faculty throughout the development process, to recognize decision-making approaches, and to provide the necessary funding and resources to support active outreach by instructors to students who are taking MOOCs so they can provide continuous learning and necessary mentorship.

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CHAPTER 1

INTRODUCTION

Higher education programs that prepare students for employment are increasingly required to be more accountable to students and employers. O'Connor (2014) reviewed the work of several researchers including Karseth (2006), Barnett and Coate (2005), Muller and Young (2014) and suggests that,

> Universities have become more publicly accountable, more centrally governed, more entrepreneurially-minded and subject to greater cross-institutional comparison and competition. They are increasingly driven to meet external demands and ensure learning is practically meaningful for students, and curriculum construction has become more student-centered and more oriented to outcomes and the skills and competences seen to best prepare students for employment. (p. 625)

Since the economic downturn in 2008, higher education, specifically community colleges, were faced with the challenge of offering educational opportunities to serve those individuals who seek career enhancements or additional skills to return to the workforce. In order to continue offering quality education while facing the challenge of having adequate physical on campus classroom space, educational leaders have been exploring ways to increase enrollments without increasing the institutions' financial burden. Massive open online courses (MOOCs), with the capability to offer online courses on a huge scale to accommodate vast demographic and geographic audiences have caught the attention of these higher education leaders. When MOOCs developed so quickly, many faculty and administrators believe it was too rapid for academic rigor and safeguards provided by university policy to keep pace. This rapid development of MOOCs has not given the academic community much time to execute a

strategic process for implementation.

The Instructional Technology Council (ITC) has been following and conducting a survey that researches MOOCs offerings in the community colleges for the last few years. Just recently, Fred Lokken (2014), former Dean of WebCollege Division at Truckee Meadows Community College (TMCC) and on the Board of Directors of ITC shared data regarding MOOCs trends in the past three years:

- 66% have no plan to incorporate MOOC content.
- 18% are beginning to explore MOOCs options.
- 3% are incorporating MOOC curriculum into existing online courses.
- 0% is offering course credit or certificates for completing MOOCs.
- Although there were several foundations provided funding for some useful initiatives created to incorporate MOOCs into developmental and remedial education programs, there is no documented data provided in this report (p. 18).

Five percent, which equates to about 7 out of 136 institutions responded to the survey in this report, indicated that they are currently offering MOOCs; four percent, which equates to about six institutions indicated that they are planning to offer MOOCs in the next year; and five percent, which equates to about seven institutions indicated their interests in offering MOOCs in two or more years (Lokken, 2014, pp. 18-21).

Purpose of the Study

The purpose of this study was to explore and to document the planning and implementation process employed by five representatives of community colleges offering a range of MOOCs. Two of these community colleges offer MOOCs for developmental or

remedial Mathematics and English courses to students who are preparing to return to college or planning to enroll in an accredited certificate or degree program that these institutions are offering; while the other three community colleges offer MOOCs as non credit, not accredited workforce development courses to introduce students to a specific learning or career opportunity.

Problem Statement

Gasevic, Kovanovic, Joksimovic, and Siemans (2014) describe some of the research being done on MOOCs in K-12 and higher education. Categories of research include educational technology improvements, processes, higher education institutions and MOOCs, motivational and behavioral patterns, mobile and adaptive learning, learner performance, MOOC platforms, communities, and social networks. Some of the discussions are about the process of developing MOOCs, such as the teaching-learning process, issues with intellectual properties, collaborative learning to include forum discussions and social learning approaches, learners' engagement, and self-regulated learning. Other specific dialogs regarding the effectiveness of MOOC methodology also include higher education students' perceptions, achievements, and motivation, collaborative learning environment and online social behavior (Gasevic, et. al., 2014). The research about MOOCs offerings by community colleges is limited. The literature review reveals only thirty-eight journal articles and one official survey report from ITC that was related to MOOCs in higher education.

Only the Lokken and Mullins (2015) provide actual documented research data with *2014 Distance Education Survey Results*, 10th Anniversary Edition. Based on this survey results, currently only seven are offering MOOCs and there are only additional nine community colleges that are interested in offering MOOCs in the next two or more years. None of these institutions are offering MOOCs for credit or certifications (Lokken & Mullins, 2015).

There was no research about the basic foundation of offering MOOCs, such as a governance model and due process for conflict resolutions (Straumshein, 2014). Another area where MOOC development is lacking research is the absence of necessary assessments to determine the effectiveness of teaching performance or quality. Research has focused too much on teaching quantity and the amount of course load offerings (Altbach & Finkelstein, 2014).

Community colleges administrators and curriculum developers interested in entering and competing in the MOOCs arena are urged to examine all critical factors behind MOOCs to determine how and why developing MOOCs to target remedial education and workforce development might be appropriate for their student population (Schaffhauser, 2012). Are community college leaders ready to create an infrastructure and support services to ensure that MOOCs are well developed and are relevant to the community college environment? There is little evidence in current research about strategies and plans for the MOOC development process that describe their programmatic sustainability and success; or that community colleges provide adequate support resources to better guide faculty and students to successful enrollment and course completion. An editorial piece in the *Distance Education Journal* by Marshall (2014) raised a few interesting questions regarding MOOCs research needs including, "What research findings can serve as guidance for individual faculty members or higher education administrators when considering whether or not, and how to implement MOOCs in their organizations? And more importantly, what ethical considerations must guide their decision making?" (pp. 142-143).

Further research is needed to uncover if a MOOC should be use as online course offering strategy in community colleges. What are the strategic planning processes for implementing MOOCs in community colleges? Who in the community colleges has a role in the strategic planning process? Who decides if MOOCs should be offered in community college

environment? What is the successful and sustainable strategy, if a MOOC is determined to be another suitable form of online course delivery methodology in community colleges?

Research Questions

Given what the current literature suggest about the trends of MOOCs, it is evident that they are used primarily for two purposes:

1. Developmental Mathematics and English courses at Broward College, where they are using a MOOC for remedial education (Roubides, 2015).
2. Workforce development as an online learning strategy targeting the workforce gap for entry-level home healthcare at Broome County Community College (Hazlitt, 2015).

Community college leaders need critical data to find out the best practices and implementation methodology for creating useful and successful MOOCs in the community college environment. To help generate that data the following research questions will guide this study.

1. At the community colleges in this study, who determines the usefulness of MOOCs as another online learning avenue to fulfill its mission of providing remedial education opportunities and workforce development training targeting the workforce gap?
2. What were the reasons and the decision making model used for developing MOOCs for remedial education and workforce development?
3. What were the implementation processes for offering MOOCs at the community colleges?

Assumptions, Limitations, Scope

This research study assumes that there is adequate information about MOOCs at the community college level from data provided by the ITC and other researchers (Hazlitt, 2015; Roubides, 2015), where a small percentage of community colleges are using MOOCs for

remedial education to help students get into college level Mathematics and English courses. Another group of community colleges use MOOCs for workforce learning and career enhancement opportunities. According to the data from ITC, only a small number of community colleges implemented MOOCs and there are even fewer that are interested in further MOOCs development and offerings. The purpose of this research study is to add to the existing knowledge of reasons some community colleges continue to believe in the MOOC as a useful online learning methodology. Therefore, it is important to learn more about MOOC planning and development processes.

Working Definitions

Administrators: Individuals who are in an academic institution who can provide a vision to set institutional goals and who have the authority to make decisions on the future directions of the institution.

Collaboration: Several individuals or organizations working together as a community.

Communities: A group of individuals who comes together to serve a purpose or are in the same profession.

Curriculum Development: The act of working together to put together a meaningful educational curriculum out of existing or newly developed courses.

Developmental Education (formerly called remedial education): A course that helps students to re-learn the foundation of Mathematics and English so they can enroll into college level course work.

Faculty: Individuals who teach at the institution who also play the role in helping to shape the program and curriculum.

MOOCs: Massive Open Online Courses.

Professional Communities: Communities in a professional workforce who are specialists in a specific field or occupation.

Program Development: A process where various academic professionals come together to develop a program to achieve specific learning objectives.

Resources: Financial and human capital needed to allow for successful program implementation.

Stakeholders: Individuals who have interest in and will benefit from the data from this research.

Strategic Planning: A process where professionals from various backgrounds come together to envision and plan for the future of a course, a program, a curriculum, or a direction for an organization.

Students: A group of individuals who are paying tuition and fees to participate in the community colleges curriculum and programming.

Workforce Development: Courses or curriculum where students are introduced to a specific career and learning opportunity; which may lead to further education in an accredited certificate or degree program.

Significance

This research examines two major uses of MOOCs in community colleges. The purpose of this study is to explore and to document the planning and implementation process employed by five representatives of community colleges offering a range of MOOCs. Two community colleges offer MOOCs as remedial Mathematics and English courses for students who are preparing to return to college or planning to enroll in an accredited certificate or degree program that these institutions are offering; while the other three of these community colleges offer

MOOCs as non-credit, not accredited workforce development courses to introduce students to a specific learning or career opportunity. The analysis of the data from this case study can be useful to other community colleges considering the planning and implementation of MOOCs for their remedial education programming to help students achieve enrollment into appropriate college level Mathematics and English courses and for their institutions online workforce development and career enhancement learning opportunities for returning adult students. The research findings help to shed light on how community colleges might reflect on the intersection of their mission and the expansion of academic planning to include MOOCs as an online learning methodology. VanWagoner (2001) stresses the importance of programs that are "mission driven; learner centered; curriculum focused; partnership rich; and inclusive culture," (p. 3) as part of the framework to guide department planning meetings.

Summary

This findings and recommendations of this research study contribute to the alignment of community colleges' missions and visions by including MOOCs as a methodology for providing remedial education for students who would like to continue to pursue higher education and as workforce development and career enhancement learning opportunity for returning adult students. The study also attempts to uncover best practices from community colleges that are currently offering MOOCs for remedial Mathematics and English education for students who are interested in enrollment into a certificate or degree programs offer by community colleges, where there is a requirement of specific level Mathematics and English placements; in addition to workforce development and career enhancement learning opportunities to an existing accredited degree program. Challenges facing community college administrators include the rapid changes of direction for higher education institutions implementing technology based learning; the

inadequacy of knowledge about planning and implementing MOOCs; and the lack of needed resources for sustaining efforts other than grant money for piloting purposes (Waters, 2013). The research findings inform leaders in community colleges about the current role of MOOCs in the community college environment to aid them in thinking about the issues relative to MOOCs offerings.

CHAPTER 2

REVIEW OF LITERATURE

This literature review focuses on the role of higher education in remedial education and workforce development to include community colleges, online education, and MOOCs. These are the two primary purposes of MOOCs in community colleges (Hazlitt, 2015; Roubides, 2015). It next examines the funding models of higher education and online education. Literature about the MOOCs phenomenon along with the current role of MOOCs in the community college settings is presented. Lastly, the literature also addresses one dimension of community college planning processes and faculty's role in the strategic planning for program implementation.

Higher Education and Workforce development

Higher education serves a broad spectrum of purposes where learners are able to obtain the necessary education credentials and skill sets that are essential to keep up with employment opportunities and career enhancements, especially in a rapidly changing workforce environment. Over the last decade, there was a recent boost of higher education enrollments, specifically in community colleges since the downturn of the economy in 2008. Higher education institutions, such as community colleges are harvesting this opportunity to find ways to increase enrollments. Khan and Law (2015) agree with Barnett and Coate (2005) that the well being and effectiveness of higher education depends on its curriculum, whether it is short term or long term. Furthermore, Khan and Law (2015) concurred with Alberta Education policy (2012) and De Coninck (2008) and they believe that,

> Curriculum is the foundation of teaching-learning process. It involves developing program of study (study plans), teaching strategies, resources allocations, specific lesson plans and assessment of students, and faculty development. Given these realities the

> approach to developing curriculum in higher education institutions is and should be a prime concern for all stakeholders, especially for educators, policy-makers, government, parents and the society at large (Khan & Law, 2015, p. 66).

In the above statement, the researchers articulate that curriculum is the basic foundation where there is a good value and practice in the teaching-learning process, and where all stakeholders to including the society at large should have prime concern.

Employers and educational institutions view education as a mean to help students gain basic skills and knowledge (Bounds, 2009; Khan & Law, 2015). In addition, "there is a growing need for higher education institutions to respond to the changing environment in a positive and learner-centered manner through quality curriculum" (Khan & Law, 2015, p. 66). Nevertheless, several researchers imply that there is a need for students to learn to adapt to rapid change in the workforce and to develop managerial skills to successfully navigate a variety of work situations (Bounds, 2009; Khan & Law, 2015).

There has emerged a current of a global market that is now more integrated and connected, along with open and free economic systems; these revolutionary changes in information and communication technologies, combined with a democratic political system that promotes friendly investment caused drastic changes in the environment surrounding educational institutions (Hallinger & Snidvongs, 2008; Khan & Law, 2015). Therefore, due to the increase of global competition, professionals in the current workforce are now requiring more cooperation and flexibility along with critical thinking skills, where second career training and life-long learning would help develop and graduate students in all education systems who possess diverse competencies to be able to cope with the turbulent and rapid changes. In addition, they also need to be creative with problem solving skills (Sibley, 1998; Khan & Law, 2015).

Unfortunately, in order to provide additional educational capacity, building brick and mortar physical campuses is just too expensive, if not impossible because of cost and time constraints, not to mention the questionable long-term sustainability. Online learning has been an option to allow for such an enthusiastic goal of increasing enrollments in community colleges. Khan and Law (2015) suggest that, "designing an appropriate curriculum is considered (as) a foundation stone for high quality programs and services, regardless of the type of educational programs and institution" (p. 67). This statement is especially true if higher education is where students should expect high quality curriculum to satisfy their professional learning and career opportunity requirements.

Literature regarding higher education and workforce development describes the criticality of quality curriculum in support of students' learning needs to compete in the global workforce. Higher education has the responsibility and obligation to develop and offer high quality online education curriculum to satisfy the skill sets of current workforce needs. Research presented here describes the necessary quality of curriculum in higher education as a foundation to challenge students with the ability of critical thinking and the flexibility to adapt and to respond to the rapid changing diverse workforce environment.

The value of a college degree

Research shows that there are many benefits to having a college degree. During the 1980s, there was a growth in the earnings of college graduates that was greater than that of any other group. In 1980, they were 40 percent higher than those of high school graduates, and by 2000, that advantage had soared to almost 80 percent. As the payoff of college degrees and certifications became evident, other high-income countries followed this path. By the mid-2000s, college graduates (including those with short-term degrees) in many countries comprised

a greater proportion of their young adult population than was the case in the US (Rose, 2013). The arguments in favor of college education are based on the "larger earnings over the lifetime of the college graduates, lower unemployment rates, higher marriage rates, and greater civic involvement" (Rose, 2013, p. 25).

Factors that influence enrollment surge in higher education are: workforce training availability, cost savings, community outreach by community colleges, and new increased structural capacity (Mullins & Phillippe, 2009). Furthermore, "community colleges have traditionally served as an access point for educational opportunity and as a vanguard of innovation" (Mullins & Phillippe, 2009, p. 5).

Belfield, Liu, & Trimble (2014) discovered the benefit of higher education to include larger earnings of graduates in the health fields in North Carolina community colleges. Other significant increases of earnings are seen in many vocational-technical majors such as engineering, career-technical education (CTE), and information sciences. The authors believe these increases of earnings are evident in 2012 by students who first enrolled in college in 2002-2003 as measured by the baseline of college students who had average earnings. The authors found that, "greater participation in community college is clearly associated with higher earnings" (Belfield, et. al., 2014, p. 6). It only makes sense for adult students to continue to explore further learning and career opportunities when research is showing the increase of personal income for those with higher education.

Researchers in the field of higher education concur that continuing education for adults in the workforce increases their chances of higher earnings, career stability, and allow for additional career opportunity. Continuing education improves the overall stability of individuals' lifestyle to include greater involvement in their local community. Higher numbers of

skilled professionals lead to higher marriage rates and create family stability for establishing stronger community. Community colleges play a huge role in offering healthcare and CTE curriculums to provide the needed skill sets in the workforce to target the shortages and workforce gaps in these fields (Belfield, et. al., 2014).

Funding Model

Federal government involvement in education started 225 ago, when this country became a nation. In 1785 and 1787, ordinances were enacted to grant federal lands to states to create and support public education, which was:

> An institution that the nation's founders viewed as essential to democracy and national unification. This policy for land grants for education was reaffirmed through the 1950s in the federal acts admitting new states, and it continues to provide school revenues today. (Jennings, 2011, p. 2)

According to Jennings (2011), this endorsement of the land grant policies continued for the next 170 years.

In order to make higher education more affordable, an array of student aid programs was established. These federally funded programs include,

> Pell-grants, work-study grants, programs for students from disadvantaged backgrounds, and other direct aid are a major source of college aid for families. The Federal Direct Loan Program, Stafford Loans, Perkins Loans, and other type of loans are also subsidized by the federal government. (Jennings, 2011, p. 6)

Fowles (2014) considers public universities as “a curious mix of public and private entities” (p. 272), where they are considered “part church and part car dealer” (Winston, 1999, p. 31; cited in Fowles, 2014). Fowles (2014) further articulates that, because public universities

revenues are a mix of private and public funding, this funding model is critical to support the necessary higher education that most Americans are not able to afford otherwise and to be capable of competing in the global economy.

Moreover, Fowles (2014) writes, "traditionally, states interested in exerting greater influence over public higher education created powerful consolidated governing boards or regulatory coordinating boards, bureaucratic structures empowered with direct oversight and strict control over institutional budgets, policies, programmatic offerings, and the like" (p. 273). States' oversight and control over public higher education helps to keep the education affordable for many who are financially challenged. In addition, states' oversight also helps to keep private higher education and Ivy League education at a more reasonable rate to be able to compete with some of the more prestigious state institutions. For instance, due to the differences in costs, students may choose to attend elite public state institutions such as the University of Virginia (UVA) or Virginia Tech instead of private liberal arts universities such as Washington and Lee University, or Ivy League universities such as Harvard University or Princeton University.

Fowles (2014) employs "resource dependence theory" (p. 273) to explain the behavior of higher education as public institutions, where Pfeiffer and Salancik's (2003) theory states that organizational behaviors are shaped by external resources on which the organization can rely to survive. Furthermore, public universities in the United States can also generate revenue from commercial or non-commercial activities besides external resources (Bok, 2003; Fowles, 2014). The largest sources by far are revenue from tuition and fees, state appropriations, federal funding and endowment income.

Shareholders of public institutions of higher education are unable to extract surplus revenues from the institution in the form of profits; rather, these funds are shifted within the

organization to subsidize non-profit generating activities within the institution. Therefore, not all programs in the institution need to generate sufficient funds to cover their own costs. Through the second half of the twentieth century, the majority of public institutions increasingly rely on net tuition (take tuition from financial aid) as a primary source of funding due to the decrease of "revenue from state and local appropriations over time" (Fowles, 2014, p. 275). Hence, tuition rates are rising faster than the inflation rate, causing a major increase in the average family education burden (Fowles, 2014; Toutkoushian, 2001). Community colleges are subject to the same influences of privatization or marketization of public higher education seen in the overall trend towards greater reliance on tuition revenue and a concurrent trend towards decreased direct governmental financial support (Fowles, 2014; Zusman, 2005).

Fowles (2014) adds that, "strategic organizations necessarily prioritize the demands of those stakeholders that provide critical resources upon which the organization relies for survival" (p. 277). Nevertheless, he believes the external environment provides for institutional survival and success, are informed as much of that by the internal influence of the institution.

Fowles (2014) further writes that the Integrated Postsecondary Educations Data System (IPEDS) collects and contains "variables on institutional characteristics, finances, completions, staffing, tuition and fees, and student financial aid for the universe of institutions of higher education in the United States covering the years 1987-2008" (p. 280). His research also finds that universities might employ a certain degree of effort to replace declined public appropriations with income from other alternative sources. Other researchers also see a new normal of higher education where there is an increase of reliance on net tuition revenue and a decrease of state appropriations as a source of higher education finance (Fowles, 2014; Delaney & Doyle, 2013).

There has been a sharp decline of state and federal funding to support higher education.

Fowles (2014) explains that public universities and colleges are very complex organizations as they are public entities that support educating many citizens, yet part of the funding relies heavily on tuition, fees, and other external revenue. Furthermore, Fowles' (2014) research shows that influence from state oversight of these public education institutions help keep the price tag more affordable to students who are interested in pursuing higher education. Lastly, he believes that institutional successes are greatly influenced not just by the external environment, but also by that of internal institutional policies that govern the entities.

Adult students who are returning to higher education therefore still rely on many government assistance and financial resource options if they choose to further their personal learning and career goals. The history of public funding model, federal and state appropriations, along with many other sources of financial support to students in higher education further secure the government's desire to help fund the much needed higher education to promote greater individual well being and to increase household income, therefore promoting healthy spending, which leads to the boost of Federal, state and local economy.

Description of the community college mission

Community colleges are charged to provide many types of education opportunities, such as developmental education, workforce development and adult continuing education. One unique role of community colleges in the American education system is providing general education to support a transition to four-year universities, in addition to as terminal education for semi- or mid-level positions, such as medical secretaries, dental hygienists, and electrical technicians. These curriculum provide lifelong learning opportunities bearing no credit or non-transferrable credit, but offer industry-specific training to support business growth (Avery & Reeve, 2013; Johnson & Berge, 2012).

Ayers (2015) describes community colleges as a larger institution where their means are determined by the legitimacy of their goals. Three areas of research of the community college are as follows: their operating structures, their impacts, and their mission as quoted in public statements (Ayers, 2015; Dougherty & Townsend, 2006).

During the 1990s, due to the shift of national goals of community colleges from, "full employment to full employability" individuals were now responsible for their own gainful employment status (Ayers, 2015, p. 194). Community colleges also shifted their offerings towards local workforce development and employability skills (Levin, 2001; Mars, 2013; Shaw & Goldrick-Rab, 2006). Therefore, community colleges' institutional environment dictates their mission statements, so their missions can be complex, evolving, contradictory, and these missions are difficult to manage. The future of community college offerings may evolve away from a comprehensive range of program offerings towards realignment with local workforce needs (Ayers, 2015).

In order to understand the characteristics of community colleges, it is important to examine the make-up of community college student population. The Institute for Women's Policy Research (IWPR, 2014), which is a non-profit organization dedicated to research about important policy issues for women, describes the characteristics of all community college students to include: low income with diverse family responsibilities. Most of these community college students struggle with the difficulties of pursuing a postsecondary education while juggling at least a part-time job and many other life priorities. Furthermore, many of these students leave school due to the overwhelming stress and some decide to take time off from their coursework as a result of those competing demands. In addition, financial considerations are a major factor in drop out rates and are specifically problematic for students who must provide for

their children in addition to their financial obligations to the school (IWPR, 2014).

Students in the community colleges are adult learners with life experiences and relevant knowledge that they could incorporate into their curriculum of studies (Johnson & Berge, 2012). There is no single factor that would guarantee success in community college online education, but the community college system may "require some directed method of connecting students with the appropriate delivery method, at least over the short term" (Johnson & Berge, 2012, p. 902).

Mullins and Phillippe (2009) suggest that community colleges are institutions "where part-time enrollment growth outpaced full-time, or total enrollment growth" (p. 6). In addition, community colleges offer a lower price tag relative to other similar educational opportunities at proprietary institutions. Refocusing of program and course offerings to meet local workforce needs, increasing opportunities via innovative course scheduling and content delivery options, and maintaining flexibility to be able to adapt to various students needs are major focuses of community colleges. The flexibility of transfer or articulation policies also allows community college students to achieve their education aspirations with fewer frustrations and more convenience than other 4-year public and research institutions (Mullins & Phillippe, 2009).

Because community colleges are institutions with a mission to support careers in technical education and other vocational programs, their leaders should explore groundbreaking ways to offer content that can help learners with many unforeseen personal obstacles to achieve their higher education dreams and to fulfill their career aspirations. In additional to offering vast curriculum to support current local and global workforce development, community colleges play a very important role in the development of a much more innovative workforce of the future. Furthermore, community colleges are urged to be creative and to employ innovative and flexible

content delivery methodology such as online education and/or MOOCs.

Online education

The following incident at the University of Virginia (UVA) demonstrated the new wave of urgency in online course offerings at higher education as a competitive value alongside the traditional face-to face course offerings. In the summer of 2012, the President of UVA, Dr. Teresa Sullivan, was forced to step down by the Board of Trustee, chaired by Helen Dragas (Rice, 2012). This was an incident in which most individuals at the UVA community were caught off guard. Dragas promised the UVA community to replace Sullivan with a more strategically bold and visionary leader. Although Sullivan came equipped with extremely confident achievements as higher education administrators from the University of Texas and the University of Michigan, Dragas argued that under Sullivan's leadership, the institution was falling behind Harvard and Stanford in the aggressive development and offerings of online learning opportunities (Rice, 2012).

Pressures to offer online education.

This incident above clearly demonstrates the pressure public institutions feel about the need to offer online education. Certain groups of leaders in higher education feel that online education is a new wave of programming and understand the necessity competing in the rapidly changing landscape of education delivery methodology, especially when the pressures are coming from the private institutions.

Benefits to institution.

Research finds that the outlook of online education is very positive in the eyes of administrators (Nash, 2015; Allen, Seaman, Lederman & Jaschik, 2012), and there has been a significant favor of increasing online education in the past decade (Nash, 2015; Allen, et. al.,

2012). Furthermore, findings from The Babcock Survey Group show that nearly 77% (2013) of administrators consider online education valuable and as good as face-to-face coursework (Nash, 2015; Allen, Seaman, Lederman & Jaschik, 2012).

In order to support their positive outlook about online education, higher education administration and institutions can improve the quality of programming by creating readiness activities for students to determine their success probability in online education and to promote quality expectations and experience (Nash, 2015; CCRC pt. 2, 2013). Moreover, it is very critical for faculty and administration to have a teaching plan along with a reliable technical delivery system (Nash, 2015). The recommendation is that there should be a centralized reliable technical system in place for students and faculty (Khanlarian & Singh, 2013; Nash, 2015). Researchers are encouraging community college leaders to have a plan to help prepare faculty, students, and even the information technology staff to handle the different challenges presented by online education to better ensure successful retention rates.

Advantages and challenges for faculty and students.

Student and faculty views about online education differ from each other. Studies conducted by the Community College Research Center (CCRC) at Columbia University found students perceived online education as an easier way to acquire the certain type of coursework and degree due to its flexibility of course content delivery and flexible schedule. Due to this reason, students believe that instructors should take an active role in online education (Waschenheim, 2009; CCRC pt. 2, 2013). Yet, instructors in online education view their role as more of a facilitator (Nash, 2015). Furthermore, students in the online education environment expect instructors to be available all the time including the weekends (Mulig & Rhame, 2012; CCRC pt. 2, 2013). However, faculty did not share a similar view. While some students feel

that faculty should motivate them to learn, faculty are expecting students to be self-motivated and independent learners. In addition, higher education leaders expect online education to contribute to cost-reduction at the institution (Nash, 2015). Certainly, all of the above factors suggest that every individual in the community college has different views and expectations of their roles in an online learning environment.

Therefore, for institutions to develop quality online courses, higher education leaders need to strategically work out all the details with academic faculty to ensure success. Research about online instruction addresses several key areas. Some online education researchers suggest effective online instruction should be based on Garrison, Anderson, and Archer's (2001) COL model, which is the intersection of social, cognitive, and teaching presence (Burgess & Caverly, 2010; Trilling & Fadel, 2009). Asynchronous or synchronous online communicative interactivity among learners creates social presence that focuses on either social, constructivist activities. Learning technologies should embrace the social presence of critical thinking, collaborative problem solving of real-world problems. Furthermore, Trilling and Fadel (2009) writes that learning technologies should assist students to embrace collaborations, critical thinking, and to use their virtual social presence in resolving real world problem. On the other hand, some students are also frustrated with Information Technology issues in the online education environment. Consequently, it is very important for community college leaders to recognize that the success and sustainability of online learning is not about having the right technology, but having the correct pedagogy, mindset, and implementation plan to work with the necessary technology, hence the importance of collaboration among academic faculty, instructional designers, and technology support staff in this venture.

Researchers define cognitive presence as meaning that can be constructed by a group of

people who are sustaining communication (Burgess & Caverly, 2010, Garrison, et. al., 2001). Social presence must be established prior to the emergence of cognitive understanding. Teaching presence stresses the importance of instructor guidance and support to direct these social constructivist activities and foster the cognitive presence. It is particularly important for distance education students as many of them are learning self-regulatory skills (Burgess & Caverly, 2010).

The above statement stresses the importance of the components for implementing successful online learning environment. Again, community college leaders should be mindful of the time and commitment required to strategically plan and implement a purposeful online course. In addition, the authors stress that, "objectives for learning must be identified prior to teaching with technology as they guide the direction of learning" (Burgess & Caverly, 2010, p. 38). Burgess and Caverly (2010) further articulate that when instructors apply a COL perspective, they actually employ technology to help enhances information seeking, presentation, organization, integration, sharing, and assessment.

Online education is a form of learning where students can greatly benefit from the use of innovative technology to collaborate with others. These working relationships are so powerful that they can extend beyond formal education where students can continue to interact and to work with others in the industries to guide their thinking and ways to present and to share information. However, it is critical for community college leaders to understand that online learning is not about the technology, but the instructional design method and pedagogy to help students navigate through the course content and curriculum, to be able to master the subject matter. Technology should just be the tool to facilitate the learning and communication process.

Traditional online education

Shaw (2012) predicts that higher education is shifting away from traditional brick and mortar education, and towards online and distance learning programming. Factors that are driving this shift include: high costs of providing human and physical resources; inadequate faculty support and training; lack of strategic planning that reflects current realities; and the readily availability of social media platforms and technology, such as cloud computing learning management system (Briggs, 2013).

Online education is defined as a mode of education where the majority of the course activities occur when instructors and students are not in the same physical location (Ascough, 2002). Distinct characteristics of online education in comparison to traditional face-to-face education are as follows: very different experiences for both instructors and students where the education experience occurs mainly through the internet; instructors post course related content and information through the learning management system (LMS); communication and participation amongst students in online education can happen either via asynchronous and/or synchronous discussions, or collaborations with each other and/or with the instructor; social dynamics of online learning environment changes due to the nature of the medium changes (Ascough, 2002).

A major factor for creating successful online learning experience is through collaborations with key players. According to Vandenhouten, Gallagher-Lepak, Reilly, and Ralston-Berg (2014), "E-Learning in higher education is a team endeavor" (p. 1). The authors also state that to be successful, there is a need for a wide range of collaboration efforts amongst all professionals to include instructional designers, media and computer technical support specialists, instructors, etc. Therefore, it is very important to provide adequate support resources

and personnel to be able to support effective and sustainable environment to allow students to thrive in an online learning setting.

Khan's (2005) Flexible E-Learning Framework includes the following eight dimensions: ethics, evaluation, institution, interface design, pedagogy, management, resource support and technology (Vandenhouten, et. al., 2014). These dimensions help each professional understands their role and their importance on the E-Learning team, and therefore promotes cohesiveness in their collaboration efforts. Furthermore, members of the collaboration team share many areas of expertise with each other contributing to a design where no one member can claim ownership. Such collaboration therefore, can lead to higher quality product (al, 2010; Vandenhouten, et. al., 2014). All team members of an online learning program need to understand their individual uniqueness and responsibility to be able to feel passionate about the end product that they are working to put together.

On the other hand, very little attention is paid to understanding and analyzing learners prior to any teaching and learning occurs (Koper, 2015; Naidu, 2013). In order to design appropriate online education, there needs to be more knowledge about learners' preferences and appreciation of certain types of learning process to maintain students' interests with favorable outcomes (Koper, 2015).

Koper (2015) further articulates that "student satisfaction is a factor in the management of educational quality" of online education (p. 309). He defines the teaching learning process where the teaching process occurs when there is "a process that aims to transform the knowledge, skills and attitudes of the input (enrolled students) into certain outputs" (Koper, 2015, p. 309). In addition, he considers students' satisfaction, the volume of dropouts coupled with learning and accredited (degree) outcomes as interesting outputs. Therefore, Koper (2015)

stresses the importance of students' feedback as part of the success strategy for online learning program. Community college leaders should pay more attention to and truly appreciate the communication from students along with providing adequate support to teaching faculty and instructional support staff in creating an online learning program that is maintaining the learning outcomes where learners are obtaining the needed skill sets to be comfortable in competing in the rapidly changing workforce.

Muilenberg and Berge (2005) identify several online learning barriers, such as: an insufficient number of academic advisors online, unclear communication of expectations, and difficulties with getting in touch with academic or administrative staff. In addition, individual barriers such as limited social interaction, lack of technical and academic skills, little time and support for studies, along with cost and network access, technical problems and learner motivation are also concerns with online learning (Koper, 2015).

Literature reviews about traditional online learning clearly point out the need for adequate support resources and the discovery of barriers in online learning that community colleges cannot ignore. As previously mentioned, any form of online education is best approached from the pedagogy perspective rather than from the technological perspective. A well-designed course and curriculum should support students' learning growth processes. Community college leaders need to be mindful of the necessary resources to support adult students in the distance environment, not just about supporting students in their online coursework. Community colleges must also provide support services to help students navigate their own personal learning needs, such as tutoring, academic advising, financial aid, helping students to recognize their own learning style and to provide an environment that can encourage them to experience success and continue a course of study.

MOOCs

A major difference that separates MOOCs from traditional online learning is that it is "free" or offered at a minimum price per course compared to traditional online or on campus course, where students are expected to pay on average of $3,131 for a full-time, full-year in community college experience. Additionally, MOOCs are implemented on a massive scale. The MOOCs strategy advisory committee from The Office of the Chancellor and the Office of the Provost (2013) at the University of Illinois at Urbana-Champaign suggests two distinct features to define MOOCs: MOOCs are designed to reach very wide audiences; and anyone can sign up for a MOOC (p. 5).

The committee further describes MOOCs as a mode of online learning that can reach very large audiences (both geographically and demographically) whom normal online courses would never reach. MOOCs have many successful course takers who are highly engaged with participations through peer review of each other's work and are very self-motivated; this mode of learning can generate many detailed large data sets to allow for analysis of how learners learned and what works for the course. High quality video content developed for MOOCs that can also be used in traditional online and face-to-face courses. Uncommon to traditional classes, pedagogical tools such as peer-to-peer grading is highly utilized in MOOCs environment**.**

Firmin, Schiorring, Whitmer, Willett, Collins, and Sujitparapitaya (2014) studied the early intervention model necessary to help MOOCs participants to be successful. Research by Seaton, Bergner, Chuang, Mitros, and Pritchard (2014) studied students' behavior and activities for those who are engaging in MOOCs. Koutropoulos, Gallagher, Abajian, Waard, Hogue, Keskin, and Rodriguez (2012) discovered the frequencies of students' participation in discussion forums has strong relation to MOOCs retention.

Combined pressures of rising expenses and rapidly changing technologies are pushing online education, and in this case, MOOCs, to the forefront of current innovations (Briggs, 2013). The changing expectations of higher education institutions to provide innovative online and distance learning, along with the current federal government mandates for course and program completion are now changing the lives of faculty.

A MOOC is described as a game changer in online education. MOOCs are seen as having the potential to support vast learning of a specific subject matter. This methodology of course offering can be appealing to those who would like to explore many different career or learning options. Due to the nature of its openness, students in the MOOCs environment have the potential to learn from many others who are out of their local community or region, and a way for them to experience learning from those of other cultures or country. Designing a MOOC can also be challenging to faculty. Faculty are now faced with the task of shifting pedagogy used in face-to-face environment to tackle the challenges of online instruction and expectations from students in a very different learning environment. Faculty charged to develop such courses need to have a totally unique approach to course design and curriculum delivery, which requires the collaboration with an instructional designer or instructional design team. Thus, offering a MOOC should be a team approach instead of just a faculty or departmental matter.

MOOCs in Higher Education.

It is widely accepted that the first MOOC was likely offered in 2008 at the University of Manitoba. Dr. George Siemens and Dr. Stephen Downes co-taught the first class "Connectivism and Connective Knowledge" in MOOC format. This course was offered to 25 tuition-paying students at the University of Manitoba along with about 2,300 students from general public for no cost (Educause, 2011).

But soon after, other educators such as Jim Groom from The University of Mary Washington and Michael Bransom Smith of York College adopted this course structure within multiple universities (Jones, 2013). Both of them offered credit bearing courses at their home institution, and free online courses to public (Educause, 2011).

Implementing MOOCs in higher education has proved politically risky in some cases. Those risks include the amount of time for planning, student and faculty support resources, and technology requirements, in addition to the concerns with the massive dropout rates from students who have signed up for courses. An example of this is Udacity leaving the higher education scene (Waters, 2013). Kolowich (2013a) points out that there have also been cases in which institutional faculty leaders refused to move quickly enough to embrace online or distance learning, such as with SJSU. The removal and reinstatement of a higher education leader such as Dr. Teresa Sullivan from a prominent and highly respected institution like UVA, for instance, was in response to the Board of Trustees' perception that she had not moved aggressively enough in the institution's adoption of online learning, when all major Ivy League universities such as Princeton, Harvard, and Stanford were quickly embracing the MOOCs ideology and offer MOOCs (Rice, 2012).

Gardner and Young (2013) observed the effects of over capacity to support course offerings on campus in the recent happening in California, where the University of California System is running out of physical location to offer classes students need to graduate. A California Senate bill (Student Instruction: California Online Student Incentives Grant programs SB-520, 2013) is currently at the desk of the House Assembly, which if passed by the legislature, Governor Jerry Brown will sign into law allowing colleges and universities to accept credits earned in MOOCs.

Higher education institutions are now expected to behave like businesses (Lederman, 2009). Yet, close to 60 percent of Americans believe that the country's higher education is failing to provide a good value of money to students, according to a 2011 survey by Pew Research Center (Lederman, 2009; Carr, 2012).

Findings by Carnevale (2007) also suggest that faculty are expected to keep up with the fast pace of technological innovations by implementing sound pedagogical integrations into course curriculum to respond to institutions' and consumers' demands. Higher education leaders are now facing the increasingly high costs of technological infrastructure maintenance required to provide students with the foundation to support the mass consumerization of ubiquitous technology access.

Briggs (2013) interviewed Brian Voss, Vice President of Information Technology and Chief Information Officer of the University of Maryland regarding the importance of pedagogy, and the necessity of careful planning and integration of available technology. Nevertheless, none of the available articles address the role of MOOCs in community colleges, the planning process, and lessons learned.

> Pappano (2012) christens the MOOCs as 'The Next Big Thing" in the *New York Times*,
>
> The paint is barely dry, yet edX, the nonprofit start-up from Harvard and the Massachusetts Institute of Technology (MIT), has 370,000 students this fall in its first official courses. That's nothing. Coursera, founded just last January, has reached more than 1.7 million – growing 'faster than Facebook,' boasts Andrew Ng, on leave from Stanford to run his for-profit MOOC provider. 'This has caught us all by surprise,' says David Stavens, who formed a company called Udacity with Sebastian Thrun and Michael Sokolsky after more than 150,000 signed up for Dr. Thrun's 'Introduction to Artificial Intelligence' last fall, starting the revolution that has higher education gasping. A year

> ago, he marvels, we were three guys in Sebastian's living room and now we have 40 employees full time. I like to call this the year of disruption, says Anant Agarwal, president of edX, and the year is not over yet. (p. 1)

The above statement demonstrates the rapid development of the technology innovation of MOOCs. It is paralleled with the fast movement of all new technology startups, where an innovative idea just took off from one person and quickly became an entrepreneurial adventure. According to Pappano (2012),

> MOOCs have been around for a few years as collaborative techie learning events, but this is the year everyone wants it. Elite universities are partnering with Coursera at a furious pace. It now offers courses from 33 of the biggest name postsecondary education, including Princeton, Brown, Columbia and Duke. In September, Google unleashed a MOOC-building online tool, and Stanford unveiled Class2Go with two courses (p.1).

Again, the development of MOOCs has been moving forward at such a fast pace that all major Ivy League universities are jumping in quickly without much planning and thought process (Pappano, 2013). Most of the faculty who help created MOOCs are engineers with understanding of very complex technology innovation, yet they are not truly faculty with an education background, who are constantly researching ways to provide the most effective interactions with students and who also understand the importance of pedagogy in promoting successful learning experience.

The lack of teaching experience from these engineers led to multiple examples of serious concerns regarding MOOCs in higher education. Firmin, Schiorring, Whitmer, Willett, Collins, and Sujitparapitaya (2014) write that during the 2008-2010 economic downturn, San Jose State University (SJSU) was forced to reduce course offerings on campus, limiting access that in some

cases caused graduation delays. In order to alleviate this problem, SJSU collaborated with Udacity, a Silicon Valley-based massive open online courses (MOOCs) provider to develop SJSU Plus (Firmin et. al., 2014). SJSU Provost suggested that faculty incorporate course material of a famous Harvard professor's edX course into their curriculum. This move generated dismay and protests from many philosophy professors at the university. In an open letter in *The Chronicle of Higher Education*, faculty criticized the notion of "one-size-fits-all" courses designed in a vendor concept.

> First, one of the most important aspects of being a university professor is scholarship in one's specialization. Students benefit enormously from interaction with professors in such research. The students not only have a teacher who is passionate, engaged and current on the topic, but in classes, independent studies, and informal interaction, they are provided the opportunity to engage a topic deeply, thoroughly, and analytically in a dynamic and up-to-date fashion. A social justice course needs to be current since part of its mission is the application of concepts of justice to existing social issues. In addition to providing students with the opportunity to engage with active scholars, expertise in the physical classroom, sensitivity to its diversity, and familiarity with one's own students are simply not available in a one-size-fits-all blended course produced by an outside vendor. (Dept. of Philosophy, San Jose State University, 2013)

Clearly, professors at SJSU did not feel that MOOCs were an adequate format for substituting the traditional courses they were developing and offering at the university. It has proven that MOOCs are lacking the necessary human interaction factor as a course delivery model due to the nature of their openness and massive scale.

In the spring of 2013, mathematics courses that were redesigned for Udacity's open

learning platform were offered for credit to a number of students enrolled at Stanford University. The results of this experiment were not promising as students performed significantly worse than their classroom counterparts (Kolowich, 2013b). The co-founder of Udacity, Sebastian Thrun, an artificial-intelligence professor at Stanford University, was disappointed in the low completion rates. He hired online mentors to assist students to stick with their online-open-learning classes because the university was hoping to show its leadership in online learning and reach more students. With all of the subsequent failed results of MOOCs in higher education, and due to inadequate preparation time for the rapid expansion, Sebastian Thrun finally surrendered to the idea, and quickly planned to refocus this concept from higher education to corporate training (Waters, 2013).

Some of the most prestigious universities are having second thoughts about MOOCs. In December 2013, a team of researchers from the University of Pennsylvania (U. Penn) conducted a study regarding the course completions rates of sixteen U. Penn Courses on the Coursera platform. Only a four percent completion rate was recorded across all of these courses and participation fell drastically after only the first few weeks. A second study performed by a Princeton team also uncovered a major flaw in MOOCs; this study shows that the involvement of teachers in the online discussions of these open online courses made participation worse (Wladawsky-Berger, 2013). Researchers cite "information overload" (Brinton, Chiang, Jain, Lam, Liu, & Wong, 2013, p.1) as the main reason for the failure in these online discussions. Students were having a hard time keeping up with the discussion postings and volume. Stanford President, John Hennessy, believes MOOCs are just too massive and open, with the course content being too rigorous to engage in or to motivate average online students (Drake, 2014).

At the PK-12 level, MOOCs were implemented for charter schools students in Oakland,

CA. Those who participated in this experiment did worse than those in face-to-face on campus classes (Lewis, 2013). The University of Miami Global Academy, an online high school run by the University of Miami, is using a MOOC to help students prepare for the SAT II subject test in Biology. Educators caution that MOOCs are not ready for widespread adoption in the PK-12 level, as online learning generally benefits only students who are self-motivated. Fred Singer, who is the chief executive office of Echo360, a for-profit course provider for universities, believes that even though MOOCs are impressive, they have not yet been a game-changer for K-12 education due to the inflexibility of current models to accommodate various types of learners, which he sees as necessary (Bock & O'Dea, 2013).

Literature shows that MOOC methodology has a turbulent yet progressive history, and it has been moving quite rapidly across many uses in the world of education. However, the history of MOOCs also demonstrate more failures than successes, therefore, as quickly as MOOCs moved into the education and higher education scene, the concept was also being condemned very swiftly. Although the notion of offering MOOCs was embraced very quickly, there was no evidence of careful planning when it comes to content, instructional design, and pedagogy, in addition to offering quality support services to students. This lack of full implementation has proven to be a major failure. The idea of offering course content and curriculum in MOOCs methodology itself may still prove worthy, but the lack of planning as shown in the history has caused their major demise in the early stages.

Potential of MOOCs offerings.

Even though the MOOC development and implementation has raised concerns among faculty and students, this methodology of course delivery provided another avenue of curriculum and content offering. Developmental education and workforce development are two areas where

using the MOOC delivery strategy to offer content has proven to be effective. Furthermore, MOOCs continue to have potential to supplement traditional coursework on campus and within hybrid courses as describe in Straumshein's article (2014), where instructors save many hours in course preparation with the integration of existing material into their courses without having to spend time reproducing course content.

If students can take courses and transfer credits of gateway or remedial MOOCs for $150 each, as exemplified by the SJSU Plus pilot in California, there would be more on-campus capacity availability for advanced level courses and therefore increase students' retention rates (Murphy, 2013). It would promote certification and degree completion rates to comply with President Obama's plan to curb college costs (MSU, 2013).

Challenges of MOOCs for community college students.

Nevertheless, there are also some pitfalls of MOOCs and online learning that higher education leaders need to address, including the challenge of student retention. Tinto's (1993) research shows that one of the three major causes of student departure was being disconnected from intellectual and social life of an institution (Wooten, Hunt, LeDuc, & Poskus, 2012). For a successful MOOC delivery, considerations are critical when developing activities where students are involved not just in the content, but provide intellectual and social life stimulations amongst student body. Wooten, Hunt, LeDuc, and Poskus (2012) write, "research continues to reinforce the significance of peer connections as a 'gateway' for student success" (p. 47). Furthermore, researchers recognize the consistent impact of peer group interaction on student's individual growth (Baxter,1992; Chickering & Reiser, 1993; Evans, Forney, Guido, & Patton, 2010; Pascarella & Terenzini, 2005). Wooten, Hunt, LeDuc, and Poskus (2012) also quote that, "student development theorists consistently recognize the impact of peer group interaction in individual

growth, meaning making, interpersonal cognition, and identity development" (p. 47).

Peer interaction and evaluation.

Peer evaluation has seen success when implemented in MOOCs. Wooten, et. al. (2012) further argue that there is a "need for college and university community to maximize opportunities for student learning and argued that peer leadership and campus engagement are central components of this learning process" (p. 47). Therefore, increasing MOOCs activities to center on peer review and evaluation would help to promote peer leadership and content engagements amongst all students in the course.

In addition, leadership engagements and peer mentoring programs help students to develop greater self-confidence (WLA LEADS Student Leadership Forum: The Increasing Importance of Student Leadership Development Programs in Higher Education – Part 1). Wooten, Hunt, LeDuc, and Poskus (2012) agree and suggest that,

> Students engaged in leadership and peer mentor programs reported greater confidence in self and the ability to have an impact on their communities. Therefore, institutions must continue to integrate such peer leadership programs to foster student growth, support the educational process as a partnership between the various components of the campus community, and keep students at the center of their mission. (p. 55)

With this indication, it is very important for community college leaders to keep in mind the funding necessary to develop meaningful peer mentorship programs within MOOCs to ensure continued long term success and student retention.

Wide audiences.

Allen and Seaman (2014) also noted that, "academic leaders selected 'Workforce development/Gainful employment' second most often, with 20.4% picking it as the most

important factor and 64.4% as one of the top three factors" (p. 36) that drive the future of higher education.

According to *Grade Change*, a report produced by Babson Survey Research Group, "the two most cited reasons for offering such coursework, accounting for just under one-half of all institutions with current or planned MOOCs, are marketing-related to increase the visibility of the institution and to drive student recruitment" (Allen & Seaman, 2014, p. 25). They further write that over one-third of institutions with current or planned MOOCs cited reasons related to course design problems, including desires to "experiment with innovative pedagogy" or "provide more flexible learning opportunities" (Allen & Seaman, 2014, p. 25).

Literature regarding MOOCs in higher education discusses the need to have adequate funding to develop meaningful interactive curriculum and course activities that are engaging to students. MOOCs may also be a viable methodology to offer courses in workforce development. The concepts of peer stimulation, collaboration, and engagement are critical when using MOOCs as course and curriculum delivery mechanism. Furthermore, institutions that offer MOOCs are gaining visibility not just from learners in the local community but global audience as well. Learners are gaining not just the subject matter knowledge, but self-confidence and global perspectives from interactions with others.

MOOCs evolving in community college.

MOOCs have quickly emerged in the community college scene through the availability of 13 grants, funded by the Bill and Melinda Gates Foundation, totaling over $3 million. This funding helps schools to offer MOOCs in mathematics and writing as a pathway for transfer credit (Lewin, 2012). The National Repository Online Content (NROC) project is a community-based non-profit, digital content development, distribution, and use network. This is a national, non-

profit group that produces programs for career and college readiness funded by The William and Flora Hewlett Foundation, the Bill and Melinda Gates Foundation, and memberships from participating institutions, such as the Nevada State Higher Education (NSHE) Chancellor's Office.

Laura Kalbaugh, Dean of Academic Success and Transition Resources at Wake Technical Community College, sees MOOCs as an open door opportunity, supporting the mission of community colleges to allow students to explore education and career options (Straumshein, 2013). Furthermore, Tanya Zlateva, interim Dean of Metropolitan College, part of the Boston University College stresses that community colleges can offer training for workforce development using MOOCs to respond to the changing workforce and workforce development needs (Olson, 2013). According to Graham (2013), "MOOCs provide learners with the ability to work on their own pace and to receive high-quality course content from anywhere in the world with internet access" (p. 169).

Although MOOCs are seen as an unfavorable form of online delivery strategy by some higher education institutions, they have a place in the range of offerings. Non-profit foundations are not totally giving up this innovative content offering approach (Lewin, 2012). These foundations are now shifting direction in funding content development and encouraging the use of MOOCs curriculum in the community colleges. The literature on MOOCs describes their use in community college primarily in two areas: one is in remedial education to help improve basic mathematics and writing competencies, therefore promoting continuing education for those interested in higher education certificates or degree programs; and, two is in the workforce development arena to bridge the workforce gap. MOOCs are used for other purposes, but this study focuses on the two common uses.

Remedial Education and Workforce Development

Three journal articles that examine possible MOOCs offerings in community colleges are reported here. The uses include MOOCs as remedial courses (Murphy, 2013) or so called gateway courses (Lewin, 2013) to fulfill general education requirements; as advanced skills and certifications necessary to promote career enhancements and retentions (Olson, 2013); and as a way to bridge to the educational gap for lower-income populations.

Uses of MOOCs for remedial education.

About two-thirds of incoming community college students are academically underprepared for college (Jaggar, Hodara, Cho & Xu, 2015). They must enroll in developmental education courses designed to help them improve their readiness for post-secondary coursework (Bailey, Jeong & Cho, 2010). Unfortunately, for most community college students, only a small portion of them have successfully completed their developmental curriculum and requirements to move on to enroll in college-level English or Mathematics courses (Bailey, Jeong & Cho, 2010). One way to improve their progression into college-level courses is with the accelerated developmental education models offered in some community colleges. Students complete their required remediation courses and moved on to enroll into college-level English and Mathematics courses within a shorter period of time (Jaggar, Jaggar, Hondara, Cho & Xu, 2015).

Some of the underlying factors such as de-motivating curricula or pedagogy, placement errors, and the power of external pulls contributed to these students' poor progression (Edgecombe, 2011; Grubb, 2013; Hodara, Jaggars, & Karp, 2012; Jaggar, Hondara, Cho & Xu, 2015). Errors in single measure placement exams may have caused students to be 'underplaced,' when they could have success in college-level course, or 'overplaced,' where they are placed into college-level courses and failed (Belfield & Crosta, 2012; Scott-Clayton, 2012).

There is strong evidence suggesting 'underplaced' students are more vulnerable to college dropout, believing they may be wasting time and money in unnecessary coursework (Scott-Clayton, 2012; Venezia, Bracco, & Nodine, 2010; Jaggar, Jaggar, Hondara, Cho & Xu, 2015). Students may also lose motivation to succeed in the course if they perceive that the developmental coursework is weak in connection to the demands of college-level work (Grubb, 2013).

External factors such as child-care responsibilities or employment further contribute to students dropping out (Jaggar, Hodara, Cho & Xu, 2015). Therefore, students are placed in an accelerated approach where a college offers a few developmental courses into a single one-semester experience for them (Edgecomb, Cormier, Bickerstaff & Barragan, 2013; Jaggar, Jaggar, Hondara, Cho & Xu, 2015).

On the other hand, some administrators and faculty are skeptical of the accelerated strategies (Goudasm & Boylan, 2012). They worry that by rushing students through the developmental education, students arrive in college-level courses with inadequate preparation. They are concerned about the students' vulnerability to failure and dropout because of this approach to remediation (Jaggar, Jaggar, Hondara, Cho & Xu, 2015).

MOOCs on the other hand, have proven effective as a tool for remedial education. Positive results occur when MOOCs are integrated into classroom environment. Research results show that when instruction is integrated with technology, learners' attitudes and outcomes match or surpass those that do not use technology (Burgess, 2009; Rosen & Salomon, 2007, Burgess & Caverly, 2010). Burgess and Caverly (2010) further believe that "technology enhances information seeking, information presenting, knowledge organization, knowledge integration, knowledge sharing, and knowledge assessment" (p. 39).

Research also shows that there is "significant relationship between the MOOC platform use and students achievements" (Firmin, Schiorring, Whitmer, Wilett, Collins, & Sujitparapitaya, 2014, p. 195). This research suggests that "early warning systems and learning analytics drawing on MOOC engagement data could be helpful for software development to increase student achievement" (Firmin, Schiorring, Whitmer, Wilett, Collins, & Sujitparapitaya, 2014, p. 195). Additionally, "the research team infers that relatively frequently required assignments throughout a course may be effective strategy to increase student pass rates" (Firmin, Schiorring, Whitmer, Wilett, Collins, & Sujitparapitaya, 2014, p. 196).

Many examples have shown promising results of using MOOCs to target students who need to prepare for standardized placement tests prior to acceptance into continuing their education in accredited programs. Students' engagement within a MOOC helps to increase chances of student success in remedial courses. Examples also point to the danger of being unable to provide retention intervention to students who are "under-placed" or "over-placed" in courses based on results of placement tests. Data shows that students in either category may leave the program all together due to unsuccessful placement into qualified courses, as they perceived these under- or over-placements as a waste of time and money. A MOOC, when properly designed, can address some of these concerns where each student will have their own personal learning path to address weaknesses that each student needs to address. Within MOOCs, there are frequent activities being integrated into the course content to engage students, to help them master the area that they need assistance with, and therefore fit into this description of an effective strategy to help increase successful placement rates.

Uses of MOOCs for workforce development.

MOOCs, when used as a form of self-regulated workforce development learning, allow

free participation where partakers are encouraged in their learning while lowering cultural, geographic, and social barriers (Milligan & Littlejohn, 2014). MOOCs allow for tailoring of individual learning needs to participants' work demands. Participants are also able to align their shared practice, experience, and expertise via this open formalized learning environment. This form of learning also attracts learners from various ranges of experience, from experts to those who are new to the profession. Furthermore these researchers suggest that "the professional learning MOOC could encourage professional learners to take ownership of their learning by asking them to set personal goals, or at least personalize course goals that link theory to their own practice" (Milligan & Littlejohn, 2014, p. 210).

Another adapted model for the creative use of MOOCs for workforce development is the Targeted Open Online Course model (TOOC) at Tarleton State University. This model is an "adapted version of the increasingly hyped MOOC model that allowed the University's College of Education to leverage existing partnerships to offer free coursework (in this case, for graduate credit and CPE credits) to area educators" (Baker & Gentry, 2014, p. 1). This model provides an advantage to regional institutions that "lack resources and exposure to offer a MOOC, but would like to make an impact and increase their exposure by targeting smaller populations of interest (e.g. educators, businesses, health care professionals, etc.)" (Baker & Gentry, 2014, p. 5).

Examples above show some promising uses of MOOCs as content delivery methodology for the purpose of workforce development. It is particularly important to address the fact that effective design of a MOOC allow for successful personalized learning experience for learners therefore encouraging them to stay with the curriculum or program, or even inspire them to participate in a regular accredited online program to further their education and career. The above examples include possible use of MOOCs in many professional career, such as education,

businesses, or health care professionals.

Planning Processes of MOOC Implementation

Governance is described as "enlisting others effectively; it revolves balancing the interests of multiple constituencies and respecting the process of decision making" (McLaughlin, 2004, p. 10). A strong governance structure with active faculty participation in a community college decision making process can often lead to successful curriculum and programming implementation. One example showed that "Metropolitan Community College (MCC) (Nebraska) has developed an academic planning process that involves faculty in strategic dialogue, strengthens relations with critical areas in the college, and synchronizes college-wide strategic planning" (VanWagoner, 2001).

To address the question of fit of the MOOC offerings in community colleges, there is a need to understand the level of participation in the strategic planning process. Also crucial is the level of collaboration between faculty and administrative staff representation in the decision making process that leads to the quality of program design, instruction, and delivery. Also important are the correlations between faculty and administrative staff participation that leads to acceptance of MOOCs in community colleges (Kolowich, 2013a).

The five key learning initiatives that drive faculty conversations and participation and that serve as the framework for academic planning are that they must be: mission driven; learner-centered; curriculum focused; partnership rich; and inclusive culture (McBride, 2010). He also points out the complexity of planning process of program implementation within a higher education institution.

Other researchers agree with the fact that the success of running a higher education institution involves everyone's efforts. The planning process of effective program implementation

requires the collaborations between all members of the institution to address the framework that focuses on the mission, curriculum, culture, and learners of the institution. Furthermore, this process also serves the purpose of strengthening many important areas of the institution with the expectation of a positive outcome.

Governance and faculty participation in strategic planning.

Effective strategic planning, along with a good working governance structure that includes active faculty participation is a very critical component for successful program implementation and long-term sustainability. Higher education governance processes, influenced by factors such as one's learning mindset, environment, technology learning, leadership behavior, and organizational support for change, are critical to examine. Effective governance is necessary to support the transformative process of higher education in this new age of technology and online learning (McBride, 2010).

The researcher further articulates that collaborative efforts amongst all stakeholders such as faculty, administrators, and professional community leaders are all essential for the successful implementation of strategic directions of the institutional enhancements. He discussed some of the reasons for faculty resistance to change and the importance of learning agility in higher education. Faculty negativity, and the inability to respond to achieve curriculum and programming expectations, may stem from factors such as the lack of institutional support resources; overload of teaching and other necessary academic priorities; combined with the personal demands from family obligations. These reasons lead to the faculty's sub-performance in program development, and may limit or prevent transformation, which requires faculty attention as part of the strategic planning process and action plans (McBride, 2010).

A primary purpose of higher education leaders must be to engage and to empower faculty

colleagues, which requires shared governance instead of top-down autocratic models of decision making (Freire, 2000; Schoorman & Acker-Hocevar, 2010). Shared governance allows faculty to be consciously aware of the dynamics of the decision making process of the institution, allows leaders to recognize faculty need to have a voice in the decision making model, and to demonstrate how faculty could engage in a collective agency via the faculty assembly. Researchers also stress the importance of "the creation of governance and decision making structures that support different viewpoints, debate and dialogue, to generate a bottom-up representative governance/decision making structure" (Schoorman & Acker-Hocevar, 2010, p. 314). These actions are further defined as political, cultural, and technological where active participation is encouraged and expected (Schoorman & Acker-Hocevar, 2010).

However, despite all the positives of establishing a shared governance, there is a need to recognize the struggles such as the direct impacts of faculty work/compensation with added responsibilities and unpaid workload, shrinking budgets and layoffs (Schoorman & Acker-Hocevar, 2010). Moreover, there is "tension between expediency and deliberation, and decision making product over process" (Schoorman & Acker-Hocevar, 2010, p. 321). Lastly, there is a third struggle,

> A consequence of doing democracy in an autocratic culture was the discomfort generated among both faculty and administrators who interpreted resurgent faculty voice as challenges to administration, especially on questions about budget and resource allocation. (p. 321)

With these challenges of the faculty and a limited financial pool in community colleges, leaders are facing with the challenge of,

> Our ability to analyze power dynamics and consider multiple perspectives – central

> concepts in social justice pedagogy – allowed for increased critical consciousness in decision making as we raised questions about whose agenda and interests were represented in decision making, challenged rhetoric unaccompanied by action, and worked toward building consensus across diversity. (p. 322)

Communication is the essential component of a shared governance process (Tierney & Minor, 2004). It serves as a means to promote understanding and foster deeper cooperation between faculty and administrators. Positive attitudes also play an important role in relieving the tensions of shared governance. Furthermore, it is up to the leaders within these groups to extend their spirit of openness and respect to model and reinforce positive behaviors (Crelin, 2010). The researcher also warns that, "shared governance without principled leadership can quickly devolve into a political exclusion exercise and leaders should therefore be mindful of the strategies of incorporation and inclusion" (Crelin, 2010, p. 79).

Johnston (2003) believes that, "academic administrative leaders are most effective when they understand and value academic culture and governance and can apply understanding within the content of the institution's mission, its organizational needs and its overall governance structure" (p. 57). Therefore, it may be beneficial for community college leadership teams to determine if encouraging faculty with strong industry experiences and networks to participate in the strategic planning and governance process of online learning and MOOCs development. This will help stimulate the industry leader's willingness to become sponsors and to have the chance to collaborate with higher education institutions for programming and curriculum redevelopment.

Research shows the importance of providing adequate and necessary resources to encourage faculty participation to ensure future transformation of online learning environment as

described by Fred Lokken (as cited in Bradley, 2013). Jencks and Riesman (1968) describe 'shared governance' as, "growth of membership in disciplinary associations, the creation of national labor markets controlled by the disciplines and the development of expectations that college teachers would also be scholars and researchers" (Apkarian, Mulligan, Rotondi, & Brint, 2014, p. 152). This perspective contrasts to the perspective of a division of labor and responsibilities between the administration and the faculty, by emphasizing areas of joint responsibility for decision making, where commitment of resources and expertise are involved in a higher education institution (Apkarian, Mulligan, Rotondi, & Brint, 2014).

In many institutions, departments actually have their own exclusive operational authority over decision making and the decisions are made predominantly by active faculty members (Apkarian, Mulligan, Rotondi, & Brint, 2014). Faculty exercise their role in the governance structure through the creation of academic senates at the institutional level (Birnbaum, 1989; Apkarian, Mulligan, Rotondi, & Brint, 2014).

The three main expectations of decision making via a shared governance model are, "(1) evaluation of faculty for promotion, (2) planning for new interdisciplinary programs, (3) planning for new campus-wide initiatives" (Apkarian, Mulligan, Rotondi, & Brint, 2014, p.158).

Modern higher education institutions are described as "often made up of multiple campuses. Sometimes they are located close to each other within the same town or city. In other cases, they are further apart either within the same country or in different countries" (Gaskell & Hayton, 2015, p. 43). Moreover, Scott, Geoff, Leonid, Grebennikov, and Johnston (2007) define the physical campus organization structures indicating that there are "three ways to define the organizational structures of multi-campus universities: single campus, main campus with one or more satellites and multi-campus" (p. 44). Community colleges are usually made of main

campuses with satellites; this article offers good advice on administrative challenges of multiple campuses with perspectives from an administration point of view. It is important for the leadership of these institutions to understand the following,

> The perspectives and indeed priorities of colleagues on the main site will be different from the perspectives of those based at the satellite. There will be different levels of empathy and understanding from 'head office' colleagues regarding the reality of the satellite-based roles and the pressures faced by their incumbents. (Gaskell & Hayton, 2015, p. 46)

It is also critical for these leaders to ensure clarity about institutional regulations and the various degrees of freedom for campuses or satellites to "adapt to the local context." (Gaskell & Hayton, 2015, p. 46) Researchers believe in clarity of boundaries and support of delegation and empowerment to encourage participation in this situation. For this reason, promoting "shared governance" is crucial. In some institutions, the academic identity tends to be aligned with the faculty department rather than that of their institutions, but the situation is reversed for professional managers (Bacon, 2009; Gaskell & Hayton, 2015). In addition, "satellite-based management roles can provide rich crosscutting experiences with broad portfolios and significant decision making autonomy" (Gaskell & Hayton, 2015, p. 47). Again, this illustrates the importance of a "shared governance," especially for an institution with multiple campus or physical locations.

It is also necessary for higher education leaders to examine the decision making models to determine the most effective and efficient way of governance to make appropriate recommendations and decisions for the institutions. Research shows that "higher education has relied on the power of collaborative decision making on college and university campuses through

the model of shared governance since the early 1900s" (Tierney and Lechuga, 2004; Crelin, 2010, p. 71). Furthermore, trustees' and administrators' view of the faculty role as important contributors to conversation in a shared governance structure is critical, but administrative decisions are still the purview of the administration (Crelin, 2010).

On the other hand, the research by Weick (1979), and Eckel and Kezar (2006) is summarized by Crelin (2010) and further shows that,

> When decisions are not coordinated across different units, decentralized decision making may place groups at odds. Loosely coupled systems are not without their benefits: they are able to respond to changes with greater flexibility and enable professionals with focused expertise to weigh in on issues and problems without requiring centralized knowledge on all disciplines. The loosely coupled system, however, may embrace autonomy at the expense of widening the divide among other departments or units within the university. (p. 77)

Higher education leaders should also recognize that, "faculty governance is part of this institutional system of decision making" within colleges and universities (Johnston, 2003, p. 58). Moreover, effective leadership requires academic administrators to encourage and accept faculty governance as one component of an entire governance structure in an institution (Johnston, 2003). For faculty members who are interested in administrative leadership positions, participating in faculty governance will definitely help with awareness development in terms of process and politics as effective academic leaders (Johnston, 2003).

In the case of Portland Community College (2014), the institution's leaders are interested in exploring the fit of MOOCs into their environment and the roles that technology and pedagogy play in the success of implementation. Wright State University (2014) is also

including MOOCs as possible online solution to increasing retention and as a tool to help meet students' career goals as part of their strategic planning process. Furthermore, Princeton University (2014) is exploring pedagogy of MOOCs as part of the university's new strategic directions in terms of teaching and learning strategies.

Research and these examples are showing the importance of faculty participation in the governance process and to encourage their participation in the institution's strategic planning activities. Furthermore, some of the researchers pointed out the importance of trust in a shared governance model in community colleges with multiple campus and locations. The executive leaders of such community colleges are urged to trust the decision making of leadership in each campus and location to build programs and curriculum that best suit their individual culture. Lastly, literature also reveals examples of some higher education institutions that employed shared governance model in the decision to offer MOOCs as an online learning strategy.

One effective methodology for collaboration between faculty and administrators is a Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis. SWOT analysis is used as a way for program improvements and professional development (Orr, 2013). It is a process where the strength, weakness, opportunities, and threats of a curriculum initiative are studied and examined with the purpose of improving current offerings. SWOT analysis is not just a critical tool for strategic planning for an institution it is also a tool to help all to understand the plan for expectations in terms of professional development planning for an organization (Creswell, LaVigne, Simon, Dawes, Connelly, Nath, & Ruda (2000); McLaurin, et. al., 2009). Professional industries should also use the SWOT analysis methodology in collaboration with community colleges to study the needs for programming and curriculum improvements, prior to making improvement plans.

In addition, seasoned leaders should "know when and how to involve others. They gather input, understand and respect differing perspectives, elicit support, develop partnerships, and create a sense of engagement and ownership" (McLaughlin, 2004, p. 10). Even though the process can take a long time, the likelihood of decisions being accepted and seen as legitimate is increased (McLaughlin, 2004).

Duke University President Nannerl Keohane explained that this process actually energized others, while harnessing their energy to direct their attention in building coalitions to achieve the leadership goals (McLaughlin, 2004). Temple and Ylitalo (2009) argue that, "transforming the traditional top-down administrative and managerial leadership approaches requires nurturing productive cross-cultural alliances and collaboration" (Temple & Ylitalo, 2009, p. 278). In order to meet new challenges, academic leaders are encouraged to practice integrating "the strengths of collegial traditions to more post-modern ideas of collaborative and inclusive leadership" (Temple & Ylitalo, 2009, p. 278).

Furthermore, academic leaders are also highly impacted by the increase in globalization and changing demographics. There is a need for these leaders to become more diverse in intercultural communication and increase social justice sensitivity (Temple & Ylitalo, 2009). This is a new type of leader who can create empowering policies that embraces and accepts teaching and learning of different cultural values. Researchers believe, "the universities are facing global requirements for new conscious leadership roles and practices" (Temple & Ylitalo, 2009, p. 280).

Such an ongoing process would allow many educational systems and institutions to adopt the step of inclusion, where students' access to education is a right and not an earned privilege. This inclusive perspective allows everyone to contribute to the greater good of the world (Kunc,

1992; Temple & Ylitalo, 2009).

Moreover, for successful curriculum design implementation, administrators are required to collaborate with and seriously engage colleagues in the decision making process and to be innovative in their thinking and be more open to new ideas (Jones, 2006; Temple & Ylitalo, 2009, p. 283).

When participatory decision making is encouraged and engaged, individuals are likely to take ownership of these decisions and promote cooperative actions with a sense of belonging in the community they serve. This is a practice of building a community for change (Thousand, Fox, Reid, Godek, Williams & Fox, 1986; Ryan, 2006; Temple & Ylitalo, 2009). This is a way of promoting a worldview where "administrators are driven by their assumptions and beliefs that all students have the inherent right to be educated" (Temple & Ylitalo, 2009, p. 286).

For the institution that believes in "participative governance" (Grasmic, Davis, & Harbour, 2012, p. 68), refined leadership roles in the organization will be evident through communication, consensus, empowerment, and motivation. Leaders will also maintain commitment to team building of a balanced structure and autonomy. This is an ongoing process of learning that causes leadership to share similar values across the institution (Grasmic, Davis, & Harbour, 2012; Twombly and Amey (1994). In the model practiced by some community college presidents:

> Participative leadership is a highly interactive, dynamic process fundamentally linked to the visioning process. When leaders committed to participatory leadership are guiding the organizational change process, emergence of cultural participative governance is not only possible but probable. (Grasmic, Davis, & Harbour, 2012)

Therefore, it is critical to determine if successful institutional programming and

curriculum are part of the by-product of participatory and shared governance model, and if so, to what extent does this model work.

Research by Grasmic, Davis, and Harbour (2012) concludes that, "personal experiences and perceptions help shape the presidential vision for participative organization" (p. 70). The researchers further articulate the grounded personal values and believe systems of presidents that are the core elements of these presidents' visions resulted in their encouragements and expectations of participative roles in their institutions. Presidents of these institutions manage the mutual dynamics of various stages of interactions in a developmental sequence of the decision making process, leading to successful negotiations in this shared governance (Grasmic, Grasmic, Davis, & Harbour, 2012). Therefore they describe this process:

> As the change process unfolds, the organization undergoes a transformative process. The transition is from a hierarchical, bureaucratic organization into a more open and integrated organization. The intent of the participative leadership process is to guide the campus through changes in its climate and culture. (p. 73)

Johnston (2003) states that "shared governance is applied to the process that connects and holds in balance the governance structures contributing to institutional decision making" (p. 60). In addition, "shared governance is central to the distinctive nature of American higher education and outlines those areas typically reserved for faculty responsibility" (Johnston 2003, p. 60). He believes in shared governance as most effective when there is a balance of powers where those in authority act based on the best interest of the institution and with respect to properly engaged others who are affected by the process.

The four functions of faculty governance are the development of shared understanding, collaboration amongst faculty on their commitment to institutional goals, contribution to the

institution's management, and to provide a forum for faculty to debate about and agree on institutional policies (Birnbaum, 1989; Johnston, 2003).

Research suggests the importance of trust between higher education leaders and faculty to collaborate effectively and make consensus decisions within an institution is critical. In addition to enlisting faculty to be involved in the institutional SWOT analysis as a way of supporting professional development and programming improvements, there is a strong need for leaders to provide a forum to encourage faculty debate on and have the shared responsibilities to properly engage each other in the institutions policy making. These actions will initiate trust between faculty and the leadership team in addition to allowing for individual faculty ownership of the institutional culture, programs, activities, policies, and processes.

Conceptual framework

According to evidence from literature review, community colleges should respond to and support the workforce gap by encouraging and funding faculty to experiment and to produce appropriate workforce development courses via expanding offerings in the MOOC format and in addition to creatively use MOOCs as a remedial education tool.

Concept 1: Community colleges and faculty role.

Community colleges provide remedial education and workforce development for un- or under-prepared adult students. One of the faculty roles in community colleges is to strategize about adopting appropriate online teaching pedagogy and curriculum for students to encourage them to stay with their personal intentions of obtaining needed higher education to achieve their own learning and career goals.

Concept 2: Faculty governance.

The mission of community colleges is to provide the basic foundation to students'

successes in their pursuit of higher education endeavors. Therefore, community colleges are encouraged to continue with the exploration of using MOOCs as an online course offering methodology to fulfill their mission. Community college leaders must recognize the importance of the faculty role in support of a strong governance structure for the purpose of sound decision making. Thus, community colleges should have an adequate governance structure in place to better promote faculty's participation in the long-term development and sustainability of course and curriculum offerings that include MOOCs.

Concept 3: Decision making model.

There are many decision making models in community colleges, depending on the culture and leadership of the institution as reviewed here. Some community colleges with a strong leadership culture employ top-down decision making models, yet others with strong faculty governance utilize bottom-up decision making models. When it comes to offering MOOCs in community colleges, there is a need to determine if these institutions employ the same decision making model as the one used in the process of implementing traditional face-to-face and online curriculum offerings. Most of the literature suggests strong collaboration between faculty and administration in a shared governance model results in the most successful implementation of curriculum. On the other hand, literature on decision making in community colleges with multiple campus suggests the need to have clear articulation of institutional policies. Decisions about specific campus location are delegated to individual executive leadership or faculty of that location to determine what is best fit for that campus. If these are the best practices, the similar decision making principal should be applied to MOOCs implementation to achieve success stories.

Summary

In conclusion, this literature review focused on higher education historical background, its funding model, and the current online education development that supports the use of MOOCs as a viable methodology for offering courses in developmental education (remedial education in Mathematics and English), and as workforce development in the higher education environment. MOOCs have proven to be useful in several cases where they allow students who are exploring options to address their personal learning needs and pursue career goals. The mission of community colleges is to provide such opportunities. Research suggests there are useful applications of MOOC technology and that community college leadership teams need to encourage faculty participation through shared governance and by providing funding. Curriculum developers need to experiment with ways to support MOOC enrolled students.

CHAPTER 3

METHODOLOGY

Appropriate research design and approaches are critical factors to the success of any research study. A research question should have passionate and personal interest to the researcher. Furthermore, the research question should determine the research method used to find an answer (Burton, 2014). This research focuses on five community colleges to study their uses of MOOCs as:

1. Developmental or remedial education in Mathematics and English.
2. A response to workforce development need.

This study also explores and documents the planning and the implementation processes employed by five representatives of community colleges offering a range of MOOCs.

This research design is a qualitative case study. Yin (2009) defines a case study as research of a real live, contemporary setting or context. Creswell (2013) also states, "case study research involves the study of a case within a real life, contemporary context or setting" (p. 97). Yin (2009) further articulates that in a qualitative case study, researchers often form conclusions from an explanation of patterns seen in the data. In this particular research, one-on-one phone interviews were set up with each individual representative from five community colleges that are offering MOOCs. This study provides a case description and case themes for a multisite study (Creswell, 2013). In multi-site case study, Creswell (2013) states that:

> The investigator explores a real-life, contemporary bounded system (a case) or multiple bounded systems (cases) over time, through detailed, in-depth data collection involving multiple sources of information (e.g. observations, interviews, audiovisual material, and documents and reports), and reports a case description and case themes. The unit analysis

in the case study might be multiple case (a multisite study) or a single case (a within-site study). (p. 97)

Yin (2009) further suggests the use of replication method for case study of multiple sites so researchers can see data from multiple perspectives as Stake (1995) suggests, in order to capture the unique situation at each site. In this research, each representative was asked the same set of interview questions. The answers from each participant enabled the researcher to draw conclusions and to determine if specific patterns exist at all study sites. The researcher used the patterns to describe phenomenon regarding faculty engagement in MOOC development in community colleges. Lastly, the researcher did not study these five institutions over time, but all five participants shared their MOOC decision making model based on their experiences in MOOC development over a period of at least one semester at their institution.

Purpose of Study

The purpose of this study was to explore and to document the planning and implementation process employed by five representatives of community colleges offering a range of MOOCs. Two of these community colleges offer MOOCs as developmental or remedial Mathematics and English courses to students who are preparing to return to college or planning to enroll in an accredited certificate or degree program that these institutions are offering. The other three community colleges offer MOOCs as non-credit, not accredited workforce development courses to introduce students to a specific learning or career opportunity.

Research Questions

1. At the community colleges in this study, who determines the usefulness of MOOCs as another online learning avenue to fulfill its mission of providing remedial education opportunities and workforce development training targeting the workforce gap?

2. What were the reasons and the decision making model used for developing MOOCs for remedial education and workforce development?

3. What were the implementation processes for offering MOOCs at the community colleges?

Setting

Creswell (2013) suggests that, "for a case study, the researcher needs to select a site or sites to study, such as programs, events, processes, activities, individuals, or several individuals" (p. 150). In this research, representatives from three community colleges in the urban settings and representatives from two community colleges in rural settings were selected for the telephone interview process. Community colleges in urban settings have similar characteristics as they are catering to a diverse population of students. The two community colleges in the rural settings also have very similar characteristics to each other as they are much smaller than the community colleges in the urban settings and their students are local and regional rather than national and international. These participating representatives were chosen due to their leadership role in spearheading the offering of a MOOC at each of their individual community college. Stories of planning, implementation processes, reasons for offering MOOCs, and lessons learned are important parts of community college representatives' experiences that this research case study captured. The researcher scheduled one-hour telephone interview with each individual participant following Janesick's (2011) recommendations on "the interview and writing habit" (pp. 99 - 136). These interviews captured background information regarding the role of the participants in these community colleges. They also included "basic, descriptive, and big-picture questions" (Janesick, 2011, p. 101). Each participant was asked to describe detailed background information about the historical events of their process for program planning and implementation stages at each

institution. Furthermore, data such as "follow-up questions and clarification questions" (Janesick, 2011, p. 101) regarding planning and implementation processes were also discussed. Additional conversations about "examples and experience" (Janesick, 2011, p. 101) concerning lessons learned from each participant and their institution helped the researcher to derive patterns of similarities and differences about each of the institutions.

Participants/Sample

Similar to Browne's (2003) qualitative method used to gather the change management experience from students with the introduction of new technologies into course delivery, this research provided views from representatives at five community colleges, who have had experience leading the MOOC design process and implementation at these community colleges. These individuals were selected to participate in this research study due to their active participating role in a MOOC offered via various learning management systems and recommendations from the researcher's professional network.

These five participants were chosen from among twenty other potential participants on the list of institutions that offered MOOCs. All of the other participants either never returned the communication from the initial contact or they were not interested in participating in this research due to scheduling conflict. The researcher's colleagues recommended two of the five participants, whereas another two participants have working relationship with the researcher on other projects: one of the projects on developmental education and another on workforce development. The researcher identified and contacted one of the participants due to information presented in one of the research articles (Roubides, 2015). Below is the chart documenting each of these participants, their settings, geographic location, their role at their home institution, and the rationale for being chosen as a participant in this study.

Participants	Role at institution	Geographic Region	Settings	Rationale for choosing this candidate
Participant #1	Leadership	Northeast	Rural	Saw the potential in MOOC and spearheaded the MOOC project
Participant #2	Leadership	Southeast	Urban	Plays a leadership role in leading the implementation of MOOC project
Participant #3	Faculty/Program Administrator	Southwest	Urban	Brought the use of MOOC for remedial education to community college
Participant #4	Program Administrator	Pacific Northwest	Urban	Spearheaded and formed partnership with vendor to bring MOOC to community college
Participant #5	Leadership/Faculty	Southwest	Rural	Spearheaded and formed partnership with vendor to develop MOOC in community college

Stakeholders

Stakeholders such as senior administration colleagues and higher education leaders from all community colleges may find the results of this study useful to develop or extend a logical rationale to consider offering MOOCs. Furthermore, faculty and the leadership team at community colleges can take advantage of the information in this research to strategize about different approaches in the planning and implementation processes to support MOOCs offerings when determining their own individual institutional planning needs.

Ethical Issues

A potential ethical concern for the researcher includes ensuring participants' identity is protected. This research methodology sought to safeguard individual and institutional anonymity. Each participant was asked to return a signed informed consent form during the initial introduction and invitation email to participate in this research study. In order to protect the privacy of the participants, each participant was coded based on the order of the interview so the responses they provided to certain sensitive subjects would not jeopardize their professional or institutional position. Their roles in their institution were generalized as well as their physical campus settings. Their identifying characteristics are not disclosed along with their responses.

Data Collection, Organization, and Analysis

The researcher set up a one-hour telephone interview using the speakerphone feature of an iPhone with each of the participants and recorded the interview using QuickTime audio recording tool on a MacBook Pro. The researcher then manually transcribed all interview conversations using the InqScribe software on the MacBook Pro. This machine is password protected with hard drive encryption to protect all data. In addition, the researcher also manually distinguished the content of each participant by assigning each participant with a number code. The researcher transferred the answers of each question to MS Excel and used the software to identify common themes and sub-themes. NovaMind was used to map out all themes and sub-themes from data in MS Excel after the completion of the transcription process. This was how each interview was coded, transcribed, and mapped to identify the content, which informed larger themes where the researcher formed relationships with the smaller results.

For instance, the physical settings of the community colleges; individual role of participants within the community colleges; similarities and differences of their planning and

implementation process were derived from interview data with the intention of identifying similar larger themes for the final writing.

During the coding process, the researcher used MS Excel to distinguish each sentence from the interviews with the participants. The researcher later categorized the sentences into larger categories based on interview questions asked. From the mapping and grouping of each sentences and larger categories, the researcher was able to see the common themes by the number of cells these sentences fit into each of the categories. Within these larger themes, the researcher then re-arranged and grouped the sentences into similar smaller categories, hence the researcher was able to identify the sub-themes of this study.

Although the data collection, organization, and analysis process were labor intensive, the researcher was able use the appropriate procedures and technology to expedite the process. The researcher was also able to better understand and appreciate this qualitative part of the research to get valuable data needed for this study. Furthermore, the researcher was able to establish and to document a formal process and knowledge for future qualitative research projects.

Summary

This research employed qualitative case study research methodology that was used to determine who in the community college makes decisions about MOOCs implementation (Creswell, 2013). It explored the reasoning behind offering courses using MOOCs methodology, along with detailed implementation process at each institution. The research identified the participants' perceptions of the legitimacy of using MOOCs as a viable online learning option for serving those who are disadvantaged and may have limited access to higher education opportunities.

Community college leaders will be able to employ similar research methods to add to

further studies of this subject. In addition, qualitative research method is found to be a good methodology to properly describe and tell the story of each participant and their projects. Furthermore, the researcher was able to compare the process used to implement a MOOC at each participant's site and to identify critical themes and sub-themes regarding the use of MOOCs as content delivery methods in community college settings.

CHAPTER 4

RESEARCH FINDINGS

The purpose of this study was to explore and to document the planning and implementation processes employed by five representatives of community colleges offering a range of MOOCs. Two of these community colleges offer MOOCs as developmental education or remedial Mathematics and English courses to students who are preparing to return to college or planning to enroll in an accredited certificate or degree program that these institutions are offering. The other three community colleges offer MOOCs as non-credit, not accredited workforce development courses to introduce students to a specific learning or career opportunity. Research findings are critical to back up through data to support some of the theories gathered through the literature reviews process. This chapter addresses the review of research methodology employed and presents the three themes identified from the interview transcriptions. Sub-themes in each of the three main themes are also thoroughly cited and explained.

Review of Methodology

Research methodology review is a critical way to identify if there were gaps in the research process or if the rationale for the method needs further examination. The method used reflects the qualitative approach to case study described in Chapter Three. Discoveries from this qualitative research case study are grouped into themes and sub-themes to address findings for each research question. The recording process captured the majority of the interview data and the transcripts were reviewed to address missing or incorrectly transcribed material. After transcribing all interviews, the data were coded as part of a required systematic and careful analysis. This transcription process helped the researcher to effectively capture every single

detail of the audio recording.

The researcher first recorded each sentence of the interview answers in MS Excel after the completion of the transcription process. The researcher then highlighted similar ideas in each answer to form major themes and sub-themes. After this process, the researcher used NovaMind to map out all highlighted themes and sub-themes from MS Excel. This graphic mapping process allows the researcher to capture the major themes and sub-themes highlighted and then visually display each of the relationship on a map that showed how each sub-theme is related to the main themes. NovaMind also allows the exporting of these mind maps into a word document for integration into this chapter write-up of the research. Overall, this qualitative research methodology and process works very well to organize the data and complete this study.

Study Findings

All five community college participants shared with the researcher some very interesting and unexpected outcomes that they discovered. The two main focuses of developmental education and workforce development led to the identification of common discoveries at five institutions. The themes reflect purposes of MOOCs development that were never the original intention for these participants to offer a MOOC. Although most participants were surprised with certain positive aspects of offering a MOOC, they also described some negative aspects about the MOOCs production and implementation processes that caught some of the participants off guard. The key themes that emerged from this study were: student population served; challenges for institutions during the MOOCs development and implementation processes; and variation in the decision making models.

This section will describe these positive and negative discoveries about production and implementation and how each participant and their institution collaborated to attain appropriate

solutions for each of the unanticipated challenges. Even though two of the three community colleges are in the rural location, due to the limited number of cases studied in this research, the researcher is not able to analyze if any of the challenges are due location of the institution. Below is a chart about what these findings are:

Theme	Sub-theme
Student Population	National and international, not just local Personalized Learning within MOOC
Challenges	Course Development Process Financial Support Course Rigor and Facilitation Management
Decision Making Model	Vendor Initiated Bottom-Up Top-Down

Theme 1: Student population served.

Throughout all five of the interviews, discovering the student population served was a strong theme about the participants' experiences planning for local and regional populations and then finding students from around the globe enrolled. At the completion of these MOOCs offerings, participants who were also program administrators were surprised to find different demographics of students taking these MOOCs than they anticipated. For example, they noted a strong national and international population. Participant #1 noted about a third of the student population was from global audience whereas Participant #5 saw about fifty percent of enrollments from the global community from learners with Masters and Ph D. degrees. This

research focused on the two major uses of MOOCs in the community college environment where community colleges employ MOOCs methodology to offer content for developmental education in mathematics, reading, and writing and in workforce development.

Sub-Theme 1: Developmental education.

Personalized Learning is critical to help guide students by assisting them to understand their strengths and weaknesses within a particular subject matter. Of the five institutions that participated in this research, two of them use MOOCs to provide developmental coursework for local students. Participants #2 and #3 themselves proposed and employed MOOCs as a strategy for offering developmental education. Both seemed to feel that this was a successful use of MOOCs. For Participant #2, the institution produced its own developmental MOOC while Participant #3 decided to adopt the use of NROC EdReady resources at her institution. Some of these students were local high school students who took the MOOC as "remedial college courses in reading, writing, and mathematics" (Participant #2).

Participant #2 offered the course as a MOOC with the goal of college readiness. Implementing the MOOC responded to their goal, "to find a very easy method to provide college readiness and preparation for our college placement test for high school students in both our local district and also throughout the state" (Participant #2). The course was made up of three subjects: reading, writing, and mathematics. The course content was based on the state's learning outcome for each of these subjects where the institution resides (Participant #2).

According to Participant #2, MOOCs can support the institution's ability to offer developmental courses and provide the much needed personalized learning experience:

> So those are the skill sets we are hoping to improve before students come in so they can be college ready or they have to take the placement test. It's really easy way for

them to go through and make sure they are well prepared and have basic college skills that they'll need (Participant #2).

In addition, Participant #2 saw successes in offering this course in MOOC format:

> The results are showing that students who took the MOOC as preparation for taking the college entrance exam, they did better when they took the gateway courses. Those were the college, algebra, and composition one, courses that students have to get through. They did better and the retention rates were also higher. The only caveat I would put out there is that, this was not a scientific experiment, so that's just a correlation of what we've seen, and we don't have anything where we've taken specific test groups, and in a more clinical setting than any deeper kind of evaluation. But they do appear to be more successful. And the other side is that students for the most part are satisfied with the experience and [their MOOC entry points were all] over the place because we have so many people taken it for so many different reasons (Participant #2).

The reason for such success is that personalized learning allows students the opportunity to learn and to understand the specific concepts that they haven't yet mastered therefore they wouldn't be bored with repeating information that they are already familiar with. The personalized learning experience really challenges students to do better in preparation for their college entrance exams by offering them the opportunity to acquire information that they may have missed or forgotten from previously studied secondary education.

Participant #2 also noted that, "every student takes developmental courses for different reasons and personalized learning experiences allow students to gauge what their own level of learning needs are and help them master those needs" (Participant #2).

Similar to Participant #2, Participant #3 adopted NROC EdReady developmental

mathematics (which is a MOOC) resources for incoming freshman. Participant #3 actually "combined the face-to-face with the NROC resources" (Participant #3). They continued to offer a face-to-face course three hours a day for two weeks, where the teacher just met with these students to help them navigate through the material. Students begin immediately with the EdReady assessment, and then work through their individualized study plans with the teacher and tutor there to help them as they work through the problems (Participant #3).

These students who were taking this MOOC were actually local students in the community college in a major metropolitan area in the southwest part of the country. According to Participant #3, "they are new students who haven't scored well on the test so they are trying to do better. And that's what we intended" (Participant #3).

When asked about success stories to share, Participant #3 indicated that:

> Our target is to help people to do better on their placement tests and we have definitely seen that. Looking at the data now, a year and a half [into offering the course], over 80% of the students have participated in the Boot Camp actually do succeed in placing into a higher class. After Boot Camp, which for them means they save time and save money, and not having to take classes that they didn't need. So for us, to see students were able to save themselves time and money, and end up in classes that they actually need, versus ones that would be a waste of their time, is hugely successful. So we're going to keep going with this (Participant #3).

Responses from Participants #2 and #3 have indicated positive impact when the MOOCs methodology is designed as personalized learning in developmental education for students who needed the extra assistance with learning foundation material. These students need the extra help to be able to successfully navigate through higher education course work. As mentioned by

Participant #2, there is less concern with completion rate when using a MOOC to deliver developmental education as students can start and stop at various points in the course, hence personalized learning. Students who mastered specific subjects can move on to learn other information that they may not have been as proficient with. This use of a MOOC as a content delivery format is serving as a positive reinforcement tool that encourages students' participation.

These two examples of using MOOCs methodology to offer developmental education resources to students. They achieve better scores and demonstrate understanding of basic mathematics, reading, and writing content, are showing the innovative use of the technology combined with effective instructional design method to deliver personalized course content.

Sub-Theme 2: Workforce development.

Three of the five participants employed MOOC as workforce development methodology, with the intention of serving local and regional populations. The original idea of each research participant was that they saw the demand to offer a specific subject that could benefit the local and regional workforce needs. They intended to offer the subject content in MOOCs in anticipation of enrollments from local and regional population to help offset the critical workforce shortage in the area. Surprisingly, they discovered the unanticipated global student population who were taking part in their MOOCs. Participant #1 uses MOOC as workforce development for home health aides, because she saw the necessity to respond to the local and regional workforce shortage. Participant #4 saw the need for accessibility training for educators at the national higher education level. Participant #5 has been offering a course for educational technology certification for local and regional students at the community college. All of their accounts indicated a MOOC was a good methodology for their instructional needs as they can

just develop one course and offer it to a massive learning community. Participant #4 felt that they learned to set time limits as a realistic means of lessening the burden of commitment for mentors and instructors of the course. Participant #5 decided to discontinue offering MOOC due to the financial burden providing adequate mentorship to massive student population.

There are several success stories with offering content using MOOC methodology. Participant #1 mentioned her own expectation of diverse populations who would be taking this MOOC, "who were already interested in that field" (Participant #1).

She stated that:

> This was a desire in our region to meet those workforce needs. There was a need to educate a population for a specific job, in this case, it was home health aides and the educational model were producing people trained in this field. It was not adequately meeting the need, and it wasn't that this situation was unique to our region, it was an issue in lots of regions. So we had the desire to look at a new model for offering education and training for this very high need job opportunity (Participant #1).

Moreover, additional national and regional populations were expected when they were planning to move forward with offering their MOOC as:

> Open resources for educators in the other school to use it as part of their educational program, and actually we're running down our base where we are partnering with another school, actually having them pilot [the course by] using it as part of their program (Participant #1).

Participant #1 expressed surprise at discovering of "global interest" in the MOOC:

> I think a third of the learners who signed up were from the emerging economies, so I'm assuming that these were not individuals that were connected to any kind of

> formal education [from their home country] in the field. So we were really meeting an interest of our needs globally that we didn't anticipate they would be so engage with us so early (Participant #1).

Furthermore, Participant #1 also considered globalization as a major success:

> The MOOC meets far beyond the limits of our region. We had success with our initial goal, and we think that it forms some models that could be replicated and expanded to other education programs. We are already at the next phase of it. Actually I told you about partnering with other schools to look at different models and that this can be used formally and informally for educational programs (Participant #1).

Participant #4 said that, through her collaboration with a learning management company, both she and the vendor who represented the learning management company came up with "the idea to do the MOOC and saw MOOCs as a way to teach tech compliance issues and professional development as a good use of MOOCs" (Participant #4). She intended to offer this MOOC mostly to educators, but there was participation from instructional designers, "with beginning level understanding of accessibility, and we also have some [at] the advanced level" (Participant #4).

Participant #4 stressed that their first MOOC offering "got a larger than we expected" (Participant #4) enrollment. "We got over fifteen hundred enrollees the first time, so I don't know, we were expecting may be a thousand" (Participant #4). This was a good indication that the MOOC methodology was working for this particular form of use.

Furthermore, Participant #4 indicated that this experience had given the institution a name of:

> Offering this high quality educational experience and accessibility, we get a lot of

requests to share information and lot of requests to offer the MOOC again; and we've been asked to offer the MOOC for a particular group, for the ITC (Participant #4).

She also believed that there is a chance for the institution to contribute and expand the knowledge of accessibility to other institutions:

> And there are a lot of small community colleges, [which I'm from, community college] that can't afford training. It's standard training that you need, that every college needs, then why not offer it in a MOOC format, and that way each college doesn't have to create their own (Participant #4).

Participant #5 said that the MOOC at their institution:

> Actually offered exactly the same rigor, with exactly the same assignments as it was for three credits course, two hundred level course. It's for freshman and sophomore. And [an] entry level to the education program [for the] ones that have already chosen their major[s] (Participant #5).

Participant #5 also attributed globalization of enrollment as an interesting discovery of their implementation. Her team realized that, although the intended population was for,

> Those students [who] needed recertification credit, or students that were in the education program that needed an educational technology course, [they reached other types of students]. What really happened is that forty-five percent of the students had [a] Masters or Ph D. (Participant #5).

In addition:

> Thirty-five percent [of these students where] English was not their primary languages. So it was a huge percent of secondary language learners. And I also had quite a few from China. Only thirty-one percent of the students were from North

America (Participant #5).

This instructor discovered that the diverse participants created a very positive experience for students who were from their home institution because the diverse background brought richness to the course discussions. There were also plenty of students who took this course from "East Asia, Africa, Eastern Europe, Western Europe, and some South America" (Participant #5). She felt that students were able to connect more with the global community to learn about different cultures and challenges these countries are facing, and how international students overcome those challenges.

One example she shared was:

> A teacher from India teaching 150 students using inexpensive Wi-Fi tablets, and they all have their textbooks on tablets. That was really interesting to [local and regional] students here, how that technology was being used to get books to students in this classroom and that was just a really interesting experience they won't have gotten in a regular classroom. So those, that cultural diversity and those one-on-one stories were just really amazing (Participant #5).

The MOOC offered at this community college allowed students to register for optional credit. The community college of Participant #4 offered a certificate that is not accredited. The community college of Participant #1 was not offering any credit or certification for the MOOC.

All of the examples point to the role of a MOOC as a good methodology to offer workforce development course content that benefits local, regional, national, and global student populations. These participants provided examples of how MOOCs serve the purpose of bridging the workforce gap by providing the flexibility for individual student personal development and providing local and regional students with a much needed global view.

MOOCs methodology, when used to offer workforce development content, allows for participation by a global audience. These three institutions employed MOOCs as a content delivery methodology to fulfill workforce development needs that were not just sharing content, but also promoting cultural exchanges. This unanticipated benefit helps local and regional students to gain useful knowledge on the perspectives of how different countries and cultures are adapting learned practices in each of the subjects offered in MOOCs.

Theme 2: Challenges.

All of the participants' institutions in this research experienced some form of challenges, one way or another, whether small or major obstacles during the planning and/or implementation process, or during the course offering. This section explores responses from individual research participants regarding challenges at their institutions.

Sub-Theme 1: Course development process.

One of the challenges of planning, according to Participant #1 was considering providing some type of digital credentials or "badge" which students could get after completion of the course, that her institution was looking into implementing credentials or a "badge" for students in the future. Unfortunately, the platform available at the institution system level did not offer this feature, therefore Participant #1 had to work out major steps to determine her team's priorities in order to implement a successful MOOC. She ended up using the available platform from the institution system level.

> I think again, when I referred to one of our biggest disappointments, was that we really wanted to implement and to test the badging system. And we spent, I would say couple of months, really trying to figure out how to do that, because it was actually part of our original proposal on the MOOC [implementation plan]. We got back the answer

> that it was more important to the [institution system level] that we use [their learning management system] than for us to accomplish the goal of badging. (Participant #1)

According to Participant #1, another challenge she and her instructional design team experienced was, "how much time it took on the instructional design side" (Participant #1). Participant #1 further elaborated that:

> We budgeted for an amount of time for the instructional design process, and with lots of inputs from the instructional designer about how much time that was going to take. But at the end, it took longer than she anticipated. And we had postponed our release date. We were really hoping to release about a month and a half earlier than we actually did [the final release]. But on the other hand, it was our goal to have everything done before we opened the course. I know we could have opened it with some modules we still had to finish, but I just was not comfortable with that. I wanted to be able to look at it from the beginning to end before I opened it up for others (Participant #1).

Another minor challenge experienced by Participant #1 was the recruitment of subjects for the video:

> Because they were demonstrations professional providing care of patients, we had to find people willing to provide the care, simulating providing the care and simulating being the patient. And that was tricky because they weren't necessarily dignified videos. So we had to find people who understood that they were going to be in the videos. We didn't compensate them at all. And they might be in bed bath, get a bed bath on video, and the world would be able to see the video (Participant #1).

Participant #2 pointed out the aspect of recruiting appropriate faculty as a subject matter expert to provide for content, lessons, assessments, and so on. Participant #2 also thought it was

critical for close collaboration between instructional designers and a game-based developer to simulate successful student engagements experience. Furthermore, Participant #2 mentioned that there were several instances where the rough outline of the course was developed and had to go through multiple review processes along with adding additional built-in content and multimedia. Participant #4 discussed the challenges at the beginning of the development process to include registration and how to implement successful course discussions, interactions, and course activities for fifteen hundred people.

Examples provided from some of the participants show that the process of a MOOC course development can run into multiple issues just as any other online course development process. It is very crucial to have clearly identified objectives, goals, and a clear mapping of necessary collaborations to recognize individual roles in the course design team and technology needed to help achieve the desired outcome of building a MOOC.

Sub-Theme 2: Financial support.

Financial challenge of putting together a MOOC is another a sub-theme noted during the conversation with a few of the research participants. Participant #1 was encountering some tough moments obtaining initial funding when she approached the subject of offering a MOOC at her institution. But she insisted, "that people throughout the region could use help, we must provide additional graduates to fill the work force need" (Participant #1). She continued to work on the idea and finally was able to obtain funding via a "competitive small grant" (Participant #1) from the institution system to produce the first pilot. Participant #2 pointed out the need to identify a content hosting platform where students can easily enroll without having to worry about "additional cost to existing campus site license and restrictions" (Participant #2). Participant #3 did not experience major financial challenges at the beginning because the

department chair agreed to fund the initial year of the offering. Their results have proven that it's a worthwhile endeavor, therefore the second years were funded out of a Title III grant (Participant #3). For Participant #4, the institution actually partnered with a learning management vendor and therefore eliminated a lot of the financial burden. Furthermore, during the course development process, they were very aware of the time limit for interactions and the funding necessary to support such activity. Therefore they did put in a lot of effort at the beginning to prevent this from being a financially draining experience (Participant #4). Participant #5 experienced funding a challenge due to the need to hire graders for the MOOC because of the highly project based activities. Therefore it was necessary to provide the human interactions to ensure students' successes. At the end, this participant and her institution were unable to continue with this MOOC offering due to the "financial obstacle" (Participant #5).

From experiences shared by all of the participants in this research, offering a MOOC has some financial burden attach to it. Community college leaders must determine is if the cost is going to outweigh the benefit of offering MOOCs. Furthermore, it is also essential to determine if institutions offering MOOCs help to sustain or increase enrollment therefore letting these institutions continue to obtain the necessary federal or state funding. This will allow them to provide education and learning experiences aligning with the community colleges' mission through this content offering methodology.

Sub-Theme 3: Course rigor and facilitation management.

Conversations with participants are leading to the discussion of whether course completion should be the mean to determine satisfactory measurement of MOOCs' effectiveness as content delivery strategy. The quality and quantity of learning that takes place in a MOOC should decide if a MOOC is another good methodology to offer online education.

According to Participant #1:

> I think one thing we did learn was that our first pilot, which is in a cohort model and it was lengthy. I think we ran it for twelve weeks, and we were very rigid about the time frame for the various activities in the modules. I think what we're transitioning to on-demand, where learners can move through the course in a self-paced model. As they master each section, they can move to the next part. And I think that would be better for more learners (Participant #1).

Participant #2 stated that the lesson learned was the importance of having the MOOC facilitated. He said about the students that:

> Even though they are taking a free self-paced course, they might run into problems where they need some assistance from the instructor. Also having a facilitator that gives an opportunity for somebody to introduce and to personalize, and to have a feeling of instructor presence in the course, so that was certainly one of the valuable lessons we learned (Participant #2).

Participant #4 considered the major lesson learned from offering a MOOC was to divide the participants into small groups for easy management, where multiple facilitators were recruited to help encourage participations. In addition, there is a time limit placed on those who are facilitating to help set realistic expectations of time commitment in responding to activities (Participant #4).

Participant #5 identified the challenge of offering a credit course in a MOOC where students have unrealistic expectations of the course rigor:

> I think a lot of people expect it to be easy. They didn't expect the tough rigor. They expect an easy course and they didn't expect deadlines and requirements. They

expected just something easy. And this was anything but that. If we were going to offer it for credit, we were offering it for the exact rigor as our regular credit course (Participant #5).

Examples from participants are showing that adequate personnel resources are critical to help students gain a successful learning experience in a MOOC, especially if the course content is a rigorous one. Having the personal touch also allows students to feel the importance of the mentoring process that is taking place during their learning process.

Theme 3: Decision making models.

It was very interesting that there was more than one type of decision making model for MOOC offerings. This section will examine each one of the decision making models at each of these five institutions when deciding to offer a MOOC. Each model is discussed separately in each sub-theme.

Sub-Theme 1: Vendor-initiated.

One particular model that stood out was the vendor-initiated model, where vendors approached the institution about offering a specific MOOC. For instance, Participant #4 described the process when a learning management company approached her to be the content subject specialist and to discuss about possible collaboration effort.

> At first, they just wanted to hire me to be the subject matter expert, and to co-facilitate. There was a pay as a fee and whomever my Director talked to, it was determined that it was better somehow to co-facilitate, so we ended up sponsoring the project (Participant #4).

The original discussion was that the learning management company would pay a fee to the institution or the institution would co-sponsored it. The institution ended up co-sponsoring

and that worked out well. The vendor provided the expertise in the technology, and the institution provided the necessary personnel, which turned into a long lasting working relationship.

Participant #5 was also approached by a learning management company about offering a MOOC from a course that she originally taught in a face-to-face format. According to Participant #5, "well, they approached me about teaching a course, and so I said yes, this would be a great course. I thought that they would be an audience for the course" (Participant #5). In addition, Participant #5 explained:

> First I talked to my [Vice President of Academic Affairs] (VPAA) and then to my President, and both were very supportive of giving [this opportunity] a try. They [had] actually had approved an additional funding for graders to help with grading (Participant #5).

The above examples are showing that when learning management vendors initiated the conversation about offering a MOOC, that some institutions see it as an innovative way of offering content. Furthermore, institutions have better confidence that the MOOC will work out well for them since learning management companies already have the available technology, and these companies also have the expertise to guide the institutions with offering a quality MOOC.

Sub-Theme 2: Bottom-up.

As far as bottom-up successful implementation model is concerned, Participants #3 and #4 are both very good examples. Participant #3 created a success story by offering MOOC for its intended audience, who, "are new students who haven't scored well on the test, so they are trying to do better" (Participant #3). Because of the strong intention and understanding of the audience, the institution was seeing good success of using MOOC as a means for content

delivery.

Furthermore, this course was offered in the past for several years as face-to-face:

> To help students get more accurate placement test scores because [the administration] felt that students were not prepared for the placement test and they were placing into classes that were lower than they could actually handle (Participant #3).

Participant #3 explained that she had already been teaching the course. When she saw the online demo, she thought, "it would be perfect fit" (Participant #3) for what she and her institution were trying to do. She then approached the division chair, and later the Vice President of Academic Affairs (VPAA) about the possibility of doing a MOOC. Since this course was not formally offered as a credit-bearing course it did not have to go through the curriculum committee for approval (Participant #3). When asked about lessons learned, she expresses that:

> This idea started from our level and we initiate it, then pushed for implementation. If somebody comes to us from the administration saying you must do this, that would have been a little trickier, but because we believe in it and kind of push it forward, I think that made it more powerful! Also we have really supportive division chair and vice president who believe if we think something is good, trust us, and let us move forward with the project (Participant #3).

In the case for Participant #4, even though it was mainly vendor initiated, she thought that it was a great idea to offer the web accessibility content in MOOC format. She took the initiative to her supervisor, which in turn, resulted in getting the approval from the top administration of the institution.

From the above examples, it is determined that there is an advantage if the idea of offering MOOC stems from the bottom-up. There would be less resistance from the faculty.

When faculty are on-board to offer a specific subject matter in a MOOC format, it becomes much easier for the institutions' administrations to support that effort.

Sub-Theme 3: Top-down.

Participants #1 and #2 showed a great example of successful MOOC implementation from the top-down model. Participant #1, who was one of the community college leaders, saw the need for workforce development. There was a need to educate a population for a specific job, in this case, "it was home health aide and the educational model was producing people trained in this field who was not meeting the need and it wasn't that this situation was unique to our region, it was an issue in lots of regions" (Participant #1).

Furthermore, she elaborated that:

> It honestly, it just came out of my head. I was looking at trends that were happening where there was a need that what we can offer. I thought it was kind of innovative way to solve a problem. So I just kept talking about it and managed to get together a group of people who believed in this idea] as well, and [can provide us with] the financial support to do it (Participant #1).

As for Participant #2, who is also community college leader, the idea initially came from his online campus division, in cooperation with the developmental education department. He described it "was the campus leadership, who decided that this would be a good idea in addition to helping with identifying which faculty would be good for assisting with the [MOOC] development" (Participant #2).

Examples from the above two participants are suggesting that if the leadership of an institution has the innovative idea to offer specific content in MOOC format, it can be a successful venture when the content was piloted with the support from subject matter experts.

Community college leaders need to be very careful with this approach and should have convincing data with strong reasons to offer these specific subjects in MOOC. They also need to be able to articulate how the MOOCs benefit their institutions, the surrounding communities and the region.

Summary

In this chapter, three themes and their relevant sub-themes were presented. The three themes are: unanticipated global enrollment in MOOCs designed for local and regional audiences, challenges of designing and implementing MOOCs, and different decision making models these institutions used when deciding to offer a MOOC.

During the research investigation, there was the discovery of two distinct groups of student population and uses of MOOCs in community colleges. Community colleges are offering MOOCs for developmental education for local and regional students. They are also using MOOCs to support workforce development education for local and regional students, which also caught the attention of global students.

The second discovery was the identification of several challenges of MOOC offerings that community colleges need to be aware of. These included the requirement of a vast amount of time and resources necessary for the course development process. There was also a lack of financial support at the initial stage of getting the project funded and the resources needed to continue sustainability of MOOC offering. Lastly, there is a need for facilitation management in a course with rigorous content and activities.

Finally, the third discovery addresses the decision making model these community colleges used that led to successful MOOC development and implementation. Within this decision making theme, some project initiation came from learning management vendors. Other

projects were initiated via a bottom-up model. In those cases, faculty initiated the project. There is also a top-down decision making model where community college leaders saw the opportunity and the need to start a MOOC offering at their institution. Within this theme, all but one community college is continuing with their MOOC offering. The community college that would not continue to offer the MOOC after the pilot cited financial challenges as the major reason for being unable to sustain the effort.

The majority of the MOOCs in this research had been offered for over a year. Four of the five community colleges continue to offer the MOOCs except for Participant #5's college. They only offered that particular MOOC once and determined that this venture "was actually a financial drain" (Participant #5). Therefore, although it was a useful course and students from the local institution benefited from it, it was determined that "funding really was the major obstacle" (Participant #5). As a result they discontinued the MOOC offering after only one try.

Since all but one institution continue to offer a MOOC after their initial pilot, they show promising results that MOOC can be a viable methodology to offer certain subjects for certain community colleges, their surrounding communities and region. Some of these institutions such as institutions where Participants #1 and #2 were offering MOOCs, are not just continuing to offer MOOCs, but have actually put in the extra effort to continue improvements of these MOOCs.

CHAPTER 5

DISCUSSION, RECOMMENDATIONS, and CONCLUSION

This chapter brings together the research to include the discussion of findings and recommendations for implementing and developing MOOCs in community colleges. Even though research studies and reports indicated that there were many higher education institutions that abandoned MOOCs as soon as failures surfaced, there are other leaders and faculty in community colleges who are continuing to offer them. Community colleges offering developmental education and workforce development may be encouraged by findings shared in this research by participating community colleges regarding the use of MOOC methodology as an online course offering option. There are many important lessons learned as well as success stories from these participants. Higher education leaders from community colleges should consider taking advantage of and adapting parts of the MOOC platform moving forward with a new generation of online learning.

This research examined the two major uses of MOOCs in community colleges. The purpose of this study was to explore and to document the planning and implementation process employed by five representatives of community colleges offering a range of MOOCs. Two community colleges offer MOOCs as remedial Mathematics and English courses for students who are preparing to return to college or planning to enroll in an accredited certificate or degree program that these institutions are offering. The other three of these community colleges offer MOOCs as non-credit, not accredited workforce development courses to introduce students to a specific learning or career opportunity. The findings from this case study can be useful to other community colleges considering the planning and implementation of MOOCs for their remedial education programming to help students achieve enrollment into appropriate college level

Mathematics and English courses and for their institutions online workforce development and career enhancement learning opportunity for returning adult students. The research findings shed light on how these community colleges leaders reflect on the intersection of their mission and the expansion of academic planning to include MOOCs as an online learning methodology.

The following critical research questions elicited community college leaders' experiences about the various opportunities and challenges of offering a MOOC at their institutions:

1. At the community colleges in this study, who determines the usefulness of MOOCs as another online learning avenue to fulfill its mission of providing remedial education opportunities and workforce development training targeting the workforce gap?
2. What were the reasons and the decision making model used for developing MOOCs for remedial education and workforce development?
3. What were the implementation processes for offering MOOCs at the community colleges?

The data generated three main findings, which are: the identification of the benefits of having global students enroll in MOOCs in community colleges in addition to developing personalized learning environment to keep students engaged in their learning process; the challenges community colleges face during the planning and implementation of MOOCs; and the various decision making models when community colleges are deciding to offer MOOCs. This section discusses each of these discoveries.

Research Question 1: Who determines the usefulness of MOOCs in community college?

The research data shows the participation from a variety of student populations and the importance of personalized learning. Community college leaders must understand the

implications of globalization that MOOCs introduced to local and regional students in additional to the need of designing highly innovative interactions with MOOCs where students are encouraged to learn importance concepts and subject matters at their own pace that suits their own learning styles. Two sub-themes show that there is no one specific decision making model that points to the success of MOOCs implementation in community colleges.

Developmental Education

This research shows the critical role of personalized learning to help students master the subject matter in a MOOC environment. Just recently, Mark Zuckerberg the founder of Facebook talked about the need to develop and promote personalized education. The Gates Foundation and RAND Corporation have reported positive results of personalized learning showing a greater increase of mathematics and reading scores by students in personalized settings (Pane, Steiner, Baird & Hamilton, 2015). The NROC EdReady resource is one example of this approach, which was also co-funded by the Gates and Hewlett-Packard foundations. Yet, in an open letter to Mark Zuckerberg by his former classmate, Emily Talmage (formerly Kennedy, Exeter ’03), she notes a few flaws in the design of the personalized learning platform. She elaborates her thoughts about these assumptions by stressing the difference between working class student experiences and those Zuckerberg and she received from Exeter.

> Let me assure you that ‘personalized learning,’ as it is being pushed by the Gates foundation, the American Legislative Exchange Council, the Digital Learning Now Council, as well as countless educational technology companies, start-ups, and venture capitalists who have invested millions into personalized learning experiments (they called them innovations), is a far, far cry from the type of education we got at Exeter. (Talmage, 2015)

Furthermore, Talmage (2015) disagrees with the idea of forcing specific competencies on students prior to allowing them to move on with their learning. She points out that:

> Our teachers had ways of guiding us toward particular insights, but they never held us hostage to specific outcomes, or 'competencies' as they are called now, before allowing us to move on. (Talmage, 2015)

Participant #3 clearly stressed the need for mentorship with students in the developmental mathematics MOOC. A mentor spent two weeks in face-to-face meeting with students to guide them with the use of personalized learning identified via the initial assessment of using the NROC EdReady resource.

Hollands and Tirthali (2014) further identify with the challenge of designing personalized MOOC in that:

> Development of MOOCs was deemed to be more time-consuming compared to traditional online courses due to MOOC-specific components such as high quality video, quizzes to substitute instructor-graded assignments, and peer-to peer learning technologies. Several interviewees noted that the level of 'polish' required for content and delivery was far greater than for traditional on-campus or online courses because of the more public nature of the MOOC. (p. 119)

Lastly, Talmage (2015) suggests that there should be personal mentors besides the online personalized learning environment to help guide students through their learning experience:

> These are the constraints under which 'personalized' learning models operate. Standards, competencies, learning targets and progressions, all of which must be tracked and monitored, and controlled in order to work, are the ingredients of 'personalized learning.' Students may be in control of their 'learning trajectory,' in such a model, but

not of their own minds, as we were at Exeter.

Talmage (2015) further states the need to challenge students' minds in the personalized learning environment instead of just following the path created as students need to learn about creative problem solving and to develop critical thinking skills. (Talmage, 2015)

The strong voice presented above parallels the research participants in this study. The participants point out the need to provide more funding necessary to increase mentorship opportunities for students who uses MOOCs, especially for developmental education purpose. Higher education leaders and faculty should collaborate to determine the level of effective personalized learning for students in developmental education. They also need to determine the necessary investments to include human, individualized support so students achieve maximum learning.

In addition, Hollands and Tirthali (2014) articulate concerns about higher education institutions ability to support students with disabilities in a MOOC environment. They state that, "compliance with disability regulations in MOOCs must be regularly audited and enforced, and accommodations made, for example, extra time on quizzes and exams for students with learning disabilities" (p. 119). Again, in addition to providing personalized learning, there is a call to support students with special needs, which results in requiring funding for the mentoring of this student population.

Besides costs for funding mentors, there are also other expenditures for offering a MOOC, such as in the course design and production process. As Hollands and Tirthali (2014) notes:

> The major cost drivers we identified in MOOC production and delivery were: the number of faculty members, administrators, and instructional support personnel

> participating in the process; the quality of videography; the nature of the delivery platform; programming for special features such as computer code auto-graders, virtual labs, simulations, or gamification; analysis of platform data; and technical support for participants. MOOC production teams that were described to us seldom included fewer than five professionals and, in at least one instance, over 30 people were involved. (p. 118)

Again, Participant #3 was offering developmental mathematics in a MOOC in conjunction with the face-to-face class three hours a day for two weeks. This participant recognized that students in developmental education need mentorship to help them work through the material and to guide them to success. Furthermore, Participant #2 stressed the importance of having facilitators in MOOCs offered for developmental education. This participant touted the importance of having instructor's presence in the MOOC to continue encouraging students to better performance.

Workforce development

It is very important for local and regional students to understand globalization and to get the exposure to different cultures and processes of other countries and learn to work in different societies. Friedman (2006) writes about the flat world of globalization in many aspects of the current economy. What about education? With advanced technology, are we not seeing the flatness of information sharing across all nations and all culture? Many examples from this study have proven the fact that the world is quite flat based on the recent development of online education, specifically with the introduction of MOOC as a method to deliver content for the purpose of workforce development.

In the book review by Petrilli (2006), he notes that:

> Overwhelmingly, Friedman (2006) finds this to be a positive development, opening up opportunities for billions more people to tap their full potential, boost their prosperity, and live their dreams, while creating an explosion of inventions and innovations that will benefit us all. Americans with the knowledge, skills, and adaptability to compete in this newly flattened world can look forward to a utopian future, full of interesting work and a rising standard of living. (p. 72)

Education is the key for the new generation of students to compete and to be successful in this new flat world. Furthermore, community college should also be made affordable for everyone and to fund the much needed science and engineering education (Friedman, 2006; Petrilli, 2006).

In addition, Rasi, Hautakangas and Vavrynen (2015) further contribute to this idea of globalization and say that, "As university teaching faculties aim to educate graduates with global perspectives, cross-cultural communication skills and intercultural competence, they have to be able to deal with the different cultural perspectives of the increasingly multicultural student populations" (p. 131).

Both researchers stress the importance of global sharing of education to promote the broadening of student's worldwide horizon, and they also add to that, "one challenging, yet important aspect in planning intercultural education is the need to bring the students with very different educational backgrounds and prior knowledge to common ground with one another" (Rasi, Hautakangas & Vavrynen, 2015, p. 140). Furthermore, they agree that globalization allows students to learn from others outside of their comfort zone in a classroom environment and accept the challenge of collaborating and working with others of different cultural and personal perspectives:

This conceptualization broadens the perspective from the institutional settings, such as the classroom, into a larger ecosystem that students are invited to participate in. In terms of cultural inclusion, the ecosystem encourages and enables, for example, certain kinds of social relationships and networks – who will students contact, meet, talk to, collaborate with, work for and listen to, both inside and outside of the university? (Rasi, Hautakangas & Vavrynen, 2015, p. 132)

The importance of globalization plays out in the world of higher education, specifically when it comes to online education and most importantly, the idea of MOOCs where contents are available to all audiences, not just local or regional students (Friedman, 2006; Rasi, Hautakangas & Vavrynen, 2015). Mulligan and Littlejohn (2014) talk about MOOCs as a form of learning where they attract learners from various stages of experience, therefore it is expected that students will encounter learning from global learners when taking a MOOC for workforce development. Community college students who are preparing to enter the rapidly evolving and challenging workforce can greatly benefit from exposure to vast cultural and educational backgrounds of participants outside of their local community, such as in the case with the MOOCs that participant #1 and #5 were offering. Participant #5 particularly offered the example of local and regional students learning about the effective use of tablet with WiFi from a learner in India who also took the same MOOC. These students are better prepared to enter the global workforce and be successful in their ability to utilize global knowledge learned via MOOCs and to exercise their creative ideas for effective problem solving when collaborating with colleagues from different countries and cultures.

Findings

The main findings from this theme is that community colleges interested in adopting

MOOCs as remedial education need to understand the support resource implications of adopting effective strategies to handle the volume necessary to provide the personalization needed to help challenged students successfully master the remedial education content. This may be the equal to the amount of resources necessary as offering a standard face-to-face remedial course.

Furthermore, for those interested in offering MOOCs for workforce development must consider the subjects and level of content appropriate for integrating global students into the course to allow local students to expand on their global view and learning experience.

Research Question 2: Reasons and decision making models for developing MOOCs.

The literature review and research results showed the importance and the need to collaborate and create partnerships between community colleges, non-profit foundations, and learning management system vendors that offer the necessary technologies to overcome a lot of the challenges mentioned. When making decisions to offer a course as a MOOC, collaborations between leadership team and faculty are essential. A good example is the collaborative efforts between community college leadership, faculty, and local economies to create a MOOC in home health aide preparation as described by Participant #1.

Good working relationships with vendors are also very important in this equation of collaborations. Two examples are learning management system vendors approaching community college subject matter experts to join forces and offer professional development MOOCs as described by Participants #4 and #5.

Furthermore, Pane, Steiner, Baird, and Hamilton's (2015) the *Continued progress report: Promising evidence on personalized learning* funded by the Bill and Melinda Gates Foundation describes success stories regarding implementation of "personalized learning" experience of 32 schools administered by the Northwest Evaluation Association (NWEA) Measures of Academic

Progress (MAP) mathematics and reading assessments for the 2014-15 school year. This report describes the importance of the faculty's role in the successful development and implementation of "personalized learning" experience for students. This report points out that:

> Systems and approaches that accelerate and deepen student learning by tailoring instruction to each student's individual needs, skills, and interests; (2) a variety of rich learning experiences that collectively prepare students for success in college and their career choices; and (3) teacher's integral role in student learning: designing and managing the learning environment, leading instruction, and providing students with expert guidance and support to help take increasing ownership of their learning. (Pane, et. al., pp. 2-3)

The above statement reminds higher education leaders about the importance of encouraging faculty involvement and supporting them in the endeavor when putting together a learning environment to provide students with the best experience to achieve the necessary learning outcomes.

According to Hollands and Tirthali (2014), the production and delivery of a MOOC can be costly when compared to developing a regular online course due to the need for active and mentoring support of students taking the MOOC:

> It therefore appears that while MOOC production is often more costly than the development of regular online courses, the ability to scale MOOCs and the absence of associated student supports results in a dramatically lower cost per completer. Considering that MOOCs can help achieve other objectives not generally addressed by regular online courses, including branding, global reach, and large-scale research, MOOCs would appear to be a wise use of resources, if only the costs could be recovered

through tuition or other fees. (p. 127)

What Hollands and Tirthali (2014) describe in the quote above is that higher education leaders need to look at the big picture of offering MOOCs, not just from the immediate investment into the project, but the long-term return of investment. When leaders collaborate with teaching faculty and make decisions involving the institution's governance structure, leaders will have better vision of understanding resources necessary to support the life cycle of offering MOOCs and the long-term sustainability need. Furthermore, faculty can have better understanding of the vision of the leaders and come together to determine how the mission of the community college will benefit from offering MOOCs despite the price tag and to assist the leaders to determine the long term return of investments.

Moreover, Hollands and Tirthali (2014) caution that the cost of MOOC production will continue yet institutions will not see an immediate return-of-investment in the short term:

> Given the highly labor-intensive nature of the process, we do not expect the costs of new MOOC production to fall significantly over time. When it appears that revenue streams for MOOCs are now slowly building, we expect that unless MOOC producers can offer credentials of economic value in order to attract fee-paying participants, or can use MOOCs to replace traditional offerings more efficiently, most likely by reducing expensive personnel, they will not be able to afford ongoing participation in the current MOOC experimentation. (p. 128)

Therefore, faculty and administrators need to collaborate to develop a long-term strategic plan with well- documented process during the experimentation stage. This will include offering MOOCs to attract fee-paying learners, whom may be able to provide a cost reduction solution.

Literature and participants in this research project are offering strong suggestions for

effective collaboration between community colleges' leaders and faculty, along with a strong governance structure when planning to offer a MOOC as another online content delivery strategy. Offering MOOCs is an expensive proposition, but when there is good communication between administrators and faculty, MOOCs can be an effective and sustainable online education offering methodology with potential to be a good marketing tool for the community colleges in addition to offering students the opportunity to learn from the global community.

Findings

The main finding was that the critical need for collaborations between community colleges leaders, faculty, vendors that are providing the technology and offering the help to support MOOCs, non-profit agencies, and local community with specific workforce development needs. Several research participants expressed enthusiasms when vendors approached the subject of providing hosting solutions for MOOCs, which led to some interesting experiences and discoveries. This finding also shows that the stronger the collaborative efforts, the better the project sustains.

Research Question 3: What were the implementation processes and challenges?

This study identified specific challenges described by the participants as financial challenge of having adequate resources to support the production and the implementation of MOOC activities. Additionally there is the challenge of gathering the production team and identified critical subject matter experts to support this endeavor. The production cost of developing a MOOC also varies depending on several factors. Hollands and Tirthali (2014) identify the following factors that can have different financial impacts on putting together a MOOC:

Costs depend heavily on the number of people involved in the MOOC production process

> and to what extent is the executed "in-house" as opposed to by external professionals. Additionally, platform programming costs to facilitate the extensive auto-grading or peer-grading functionalities necessary to accommodate the huge enrollments, or to provide simulated lab experiences can be high. Course design and delivery has shifted from a solo endeavor to a team effort, often including administrators in office of digital technology, instructional designers, instructional technologists, videographers, and project managers (pp. 125 – 126).

Furthermore, it is also very important to work in a good collaborative team environment when developing and delivering MOOCs. For the developmental education offering in MOOCs format, there is always the added cost of having tutors or mentoring instructors to help motivate these students and guide them with a personalized learning process.

Likewise, there should be a process in place to determine the effectiveness and the return-of-investments when an institution decides to offer a MOOC:

> Longitudinal studies tracking post-MOOC outcomes such as sequences of courses taken, professional certifications obtained, or job opportunities received would help assess the longer term economic value of participating in these courses and allow for cost-benefit analyses to estimate the overall returns to society of investing in MOOC creation (Hollands and Tirthali, 2014, p. 129).

Much of the literature and research results show the need to invest adequate resources into mentoring and creating active personalized learning environment in MOOC for students to be successful and to sustain enrollment. For students taking developmental education in MOOCs, there is the additional need for mentorship to guide them through the personalized learning environment and to keep them on target to master each subject area in these courses. It

is up to the institution and the faculty to determine if they should offer a MOOC. They need to examine how sustainable and effective it is to offer content via MOOC by factoring in all the components and the cost of developing and delivering the content in this methodology.

Findings

The main findings were the financial and production challenges of adopting MOOCs as content offering strategies. Research participants shared their experiences of difficulties securing the necessary funds to offer MOOCs and to continue to offer content using this methodology. Part of the implementation difficulties also involved the challenge of gathering appropriate production teams with skills necessary to complete the projects. Individual community colleges are encouraged to determine what is the appropriate measurement to determine the return-of-investments in offering course content using MOOCs methodology, whether it be financially motivated or for the convenience of allowing students to learn at their own time and pace.

Recommendations

Based on the findings, it is obvious that all education is entering a new era of information sharing and offering more diverse learning opportunities due to the availability of advanced technology. Community colleges missions are to provide professional development foundation or for remedial education programs an accredited degree program for students who are interested in enrollment into a certificate or degree programs. Below are several recommendations for higher education leaders, especially those in the community colleges, as they consider whether to initiate MOOC development or invest in those already in place.

Recommendation 1: Decide on what subject matter is suitable to be offered as a MOOC.

Research has shown that health care and vocational-technical preparation are two of the

major returning enrollment adult education in the community college (Belfield, et. al., p. 4). The first and far most important recommendation is to understand and to embrace the new world of electronic communication and information sharing. Higher education leaders are encouraged to welcome this opportunity to expand on educational offerings to those of diverse cultures and geographic location. These diverse cultures provide the enriching experience students would only have minimal exposure through learning from textbooks and with local colleagues.

Recommendation 2: Decide on the appropriate level of funding to support the offering a MOOC.

Researchers are pointing out the potential high cost of MOOC production due to the need to gather a necessary team to build a successful and engaging MOOC (Hollan & Tirthali, 2014; Firmin, et. al., 2015). Higher education leaders, especially those in community colleges are encouraged to secure and maintain appropriate funding to improve the support and the continuation of this new venture. Political and industrial leaders are encouraging this new form of open learning to better help students succeed in securing employment through enroll in appropriate workforce development courses. Additionally, participation in developmental education program that can help students enhance their foundation in Mathematics and English skills to secure college level credits and while not wasting their valuable time and resources.

Recommendation 3: Determine the best decision making model for the current governance structure of the community college in support of offering a MOOC.

This research examined institution governance and discovered several decision making models with MOOCs offerings. Researchers describe the importance of shared governance in community colleges (Freire, 2002; Johnston, 2003; Tierney & Minor, 2004; Crelin, 2010; Schoorman & Acker-Hocevar, 2010). This research further affirms the importance of higher

education leaders working directly with faculty throughout the development of MOOC. Higher education leaders need to completely engage faculty throughout the MOOC development process and provide the necessary financial support and additional resources that faculty need. On the other hand, faculty will also need to make sure that higher education leaders have all the necessary information to understand their role in offering the needed support to faculty to develop relevant curriculum. Offering a MOOC is actually a joint venture between higher education leaders, faculty, and local economic community leaders. "The programs created are targeted to specific populations or career fields that states identified are in need of greater higher education to workforce alignment" (Anderson, 2015, p. 3).

Conclusions

Based on the literature review, research data, and findings, it has been demonstrated that collaborative efforts between community college leaders and faculty are essential. Collaboration allows determination of the usefulness of MOOCs as another online learning avenue to fulfill the mission of providing remedial education opportunities and workforce development targeting the workforce gap.

Research data shows a various mix of reasons and decision making models for developing MOOCs for remedial education and workforce development to include the top-down, bottom-up and vendor initiation. However, there is no specific discovery of which model is more effective. Data shows that the effectiveness of each model is based on individual community college culture and funding models.

Some important considerations were brought up by research participants in regards to the implementation processes for offering MOOCs in the community colleges. By far, the most important process is the determination of budget and funding sources necessary for the project.

The second most important implementation factor is the assembly of an effective working team during the production process to include all the necessary technical skills, instructional designers, subject matter experts, and actors for specific workforce development video.

Another important step in the implementation process includes determining the level of support and encouragements to global participants in the MOOCs offerings for workforce development. Lastly, participants in the implementation process also need to consider the importance of providing adequate student support necessary to mentor students to guide them through the remedial education process.

Recommendations for future research

The purpose of this study was to explore the planning and implementation process employed by five higher community colleges affirming the use of MOOCs as professional development foundation and for remedial education programs for students who are interested in enrollment into a certificate or an accredited degree programs offered by these institutions.

The literature review uncovers the historical background of higher education to include the definition and funding of higher education, especially in the community college environment. "Zusman (2005) argues that the overall trend towards greater reliance on tuition revenue (and current trends towards decreased direct governmental financial support) is best understood as privatization – or marketization – of public higher education" (cited by Fowles, 2014, p. 275). The value of a college degree is also examined which leads to the progression of using technology and innovative methodology to offer content to more diverse student populations. "Aslanian and Clinefelter (2013) believe the overall reputation of the college or the university is a major factor for students' selection of the online program" (cited by Koper, 2015, p. 310). Furthermore, the literature review reveals that, "online enrollment in the U.S. has grown at rate

between 6.1% and 36.5% in each year since 2002" (Allen & Seaman, 2014, 2015) and "over the past two years MOOCs have begun to play a noticeable role in this growth" (Holland & Tirthali, 2014, p. 115). There are two directions where MOOCs are being embraced in community colleges. One of these directions is using MOOCs as remedial education for students who intend to return to higher education, whether they are recent high school graduates or returning working adults. Another direction is using MOOCs as a professional development avenue for those who would like to explore other career opportunities, continue to develop their current skills, or continue to improve their knowledge of current practices in their professional career. According to Holland and Tirthali (2014), "MOOCs can only attract massive audiences if they are sufficiently marketed" (p. 119). In addition, literature review studying higher education program implementation and planning process, specifically in the community colleges is also considered.

Based on the findings from this study, there is a need for further research to track MOOC success. Research data shows that there are good uses of MOOCs in community colleges for the purpose of providing personalized learning experience for students in developmental education to be successful in mastering the basic Mathematics and English foundation. The second common use is workforce development for both local and regional students and global students. Community college leaders need to find out in more details about what works in MOOC development processes. In addition, community college leaders must also collaborate with faculty to determine best strategies and practices for instructional design and to provide personnel necessary to ensure a successful venture. They also need to examine the total resource requirements, to include total production costs, amount of time for production, and total cost for personnel. According to Khan and Law (2015), "developing an integrative curriculum has become a globally discussed issue and challenging for all institutions of higher education" (p.

67). All of these opinions are important for higher education leaders to determine if they should be jumping onto the MOOC bandwagon, especially for those in the community college settings. Joseph (2015) strongly urges, "at the heart of this quality culture is the need for higher education institutions to continuously improve their curriculum to ensure that all programs meet high quality standards of fitness for purpose and value for money" (Joseph, 2015, p. 18).

Summary

MOOCs are in use for developmental education and workforce development in community colleges. Like any innovation, they have assets and challenges. This research identified some of the assets and challenges of MOOCs and made recommendations on what community colleges leaders can do to build successful MOOC offering at their own institutions. Some of the benefits of offering content in MOOCs format include: introducing local and regional students to global learners where they can learn valuable cultural and be aware of different workforce practices from students in the global economies; allowing higher education leaders to form closer collaboration with faculty and learning management vendors to help students who need the assistance to be successful in higher education environment by creating personalized learning experience in MOOCs; and helping higher education leaders to understand the different governance models that work best for the institutional culture that they are in.

One major challenge of offering MOOCs is providing adequate funding to support faculty and instructional support team to build a sustainable and successful curriculum that benefits many student population in developmental education and workforce development. Another challenge discovered from this research is the need to assemble the right talents on the MOOCs production team to build a personalized environment where students are allowed to master each section of the subjects at their own pace with appropriate guidance from subject

matter experts so they are being encouraged to stay with the program to completion.

Recommendations in support of continuation to offer subjects in MOOCs include determination of: what subject matter is best suited to offer using this form of online learning methodology; what level of funding and support are necessary for building a sustainable MOOC; and what decision making model is best suited for the particular governance structure of the individual community college.

In addition, recommendations for future research is also critical to continue tracking the success of MOOC implementation in the community college environment to maintain and encourage community colleges to adapt this form of online learning methodology to benefit local, regional, and global students.

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APPENDIX A

1. What work is already underway separately?

Organization/Group or Stakeholders	***Initiatives – Theories/Methods***	***Unique vocabulary/difference in perspective***	***Value to your Common Interest***
Higher education administration	Hiring of outside consultant to study the current state and to propose needs for MOOCs implementation	Understanding of current challenges and future potential challenges with MOOCs	To better implement a successful MOOCs environment for higher education environment
Faculty	Preparation and study of pros and cons of MOOCs for higher education	Study the benefit and trade offs of MOOCs for higher and continuing education	To better prepare for the future of MOOCs implementation

2. What shared work could unite this common interest to your research project?

Activities that might have value	***For the individual researcher***	***For Higher Education Administrators and Faculty***
Collaboration between higher education and professional communities	Cohort member's topic closely related	All groups
Strategically plan for necessary and needed resources to support program, instructional and curriculum development	*Collaboration between faculty and higher education administrators*	All groups
Peer review and online learning communities program development	Faculty and higher education administrators working together to define necessary and needed resources to better support student retention	All groups
Development of effective program assessments tools	Higher education administrators and professional communities collaboration	All groups

3. How can we deepen our connections? Who are you thinking of inviting to your research party?

Group or individuals – stakeholders	***How can we support and connect?***	***How can they support and connect the work on this issue and research?***
Higher education administration	Case studies	To help understand the need to strategically provide necessary program and curriculum support resources to make this a successful venture
Professional community members	Case studies	To provide feedback on program and curriculum development to include hands-on training assessments plan
Faculty	Provide program and curriculum development plans	Collaborating with all stakeholders to come up with necessary plans for successful programs and curriculum

FIGURE

Mind Map of Themes and Sub-topics