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Examining the Potential of Massive Open Online Courses (MOOCs) at Historically Black Colleges and Universities (HBCUs)

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This article reviews the extant literature on distance learning technologies and historically Black colleges and universities (HBCUs). In the context of increased attention to massive open online courses (MOOCs), this article argues that HBCUs' challenges with respect to their technological infrastructure suggests that they may be better suited to serve as advocates for bridging the persistent digital divide in the nation rather than adopters of MOOCs as a new instructional platform. The authors offer some suggestions for further research to ensure that HBCUS leaders can address larger systemic issues affecting the quality of education on their campuses.

INTRODUCTION

The past decade has seen an increased presence of online educational platforms as a widespread mode for mass education evidenced by the growing popularity of Massive Open Online Courses (MOOCs). Unsurprisingly, *The New York Times* deemed 2012 the "year of the MOOC." These online platforms have enlivened a national conversation on innovation and a debate on their effectiveness in achieving the United States' postsecondary education goals. This article examines the extent to which historically Black colleges and universities (HBCUs) can participate in this conversation by reviewing the extant literature on distance learning technologies at HBCUs and the available data on technological infrastructure at HBCUs using the National Center for Education Statistics' Integrated Postsecondary Education Data System. Rather than solely joining the "MOOC bandwagon," these authors suggest that HBCU leaders are in a suitable position to serve as advocates to bridge the persistent (racial) digital divide in the nation; a necessary first step if one is to envision MOOCs as a suitable supplement for education.

As an emerging phenomenon in higher education, MOOCs persist without a stable definition (Baggaley, 2013). For this article, the authors define MOOCs as online courses offered through mediated agreements, and hosted in partnerships with companies such as Coursera (coursera.org), Udacity (udacity.com), edX (edX.org), NovoEd formerly Venture Labs (novoed.com or venture-lab.org), and Udemy (udemy.com; Billington & Fronmueller, 2013). MOOCs, unlike other forms of online education, are free, and aim to enroll thousands of students. Additionally, unlike the traditional models of online education, MOOCs engage with the "flipped classroom" model where instructors opt to "act more like a tutor walking among the students rather than a sage on the stage performing a monologue" (Voss, 2013, p. 23).

Therefore, the question is asked, what is the capacity of HBCUs to integrate MOOCs into their learning models? Also, will MOOCs serve as an enhancement to HBCU campuses, their missions, and their students? In this article, these questions are answered by focusing on two key issues undergirding the assumption of MOOCs potential to innovate the future of higher education. First, the authors forefront the lack of adequate extant data (mis)used to claim that MOOCs can be effective

throughout the varied institutional contexts of higher education. Secondly, attention is drawn to the national digital divide that hinders the potential for MOOCs to effectively succeed. Using these two propositions, the aim is to temper the knee-jerk disposition to believe that MOOCs can serve as a panacea for higher education's challenges.

METHODOLOGY

The basis of this article is a comprehensive literature review pertaining to HBCUs and MOOCs, supplemented with national data. A systematic approach is used to crafting a literature review. This approach is important as this is the first article to examine the topics of MOOCs within the HBCU context. This study is laying the foundation for future research. The literature review is divided into three sections that provide a landscape and delve deeper into the needs and concerns of key constituents on HBCU campuses. Section one focuses on the literature pertaining to MOOCs overall, the rise of technology on college campuses, including the HBCU context. Section two pertains to these general topics but examines the role and needs of faculty with this context. Finally, section three of the literature review considers the student and his or her learning and role in the potential adoption of MOOCs on HBCU campuses. In addition to a focus specifically on HBCUs, the authors also consider the overarching digital divide in the United States as well as the lack of data to make good decisions about the adoption of MOOCs at HBCUs. This comprehensive literature review leads to a set of recommendations for HBCUs to consider when thinking about adopting MOOCs as a part of their curricula or partnering with MOOC platforms. These recommendations are both practical and philosophical in nature.

HBCUs are historic institutions with a mission to provide special attention and support for the achievement of Black students. Although they continue to confer 17 percent of baccalaureate degrees to Black students in this country, while making up less than three percent of postsecondary education institutions, pronounced racial disparities in college enrollment and attainment continue to persist (Gasman et al., 2013). Unfairly criticized for their below average retention and graduation rates, unlike their majority counterparts, HBCUs must contend with educating a larger pool of disadvantaged—academically underprepared, Pell grant eligible—students (Gasman et al., 2013). Undermining their performance is the poor financial infrastructure, as a result of small institutional endowments and a lack of competitiveness for government and private grants, leaving little opportunity and increased challenges in supporting their students (Gasman et al., 2010). Because these institutions may represent the singular opportunity for entry to higher education for many Black students in this country, it is important that HBCUs engage in broader discussions of using new and innovative methods and strategies to improve student outcomes.

MOOCS, Technology, and HBCUs

As of Spring 2016, Morgan State and Alcorn University are the only two HBCUs who have come forth with a partnership with Udacity, one of the few organizations charged with making MOOCs such visible educational innovations in the past couple of years. Therefore, the scope of this article is conceptual insofar as HBCUs have yet to fully engage with the potential that MOOCs present in their development. This article cautions against the MOOC hype, and suggests alternative ways through which HBCUs can be leaders in elevating access to technological innovations that can better serve the populations of individuals for whom HBCUs have a long-standing commitment, namely: underrepresented and under-resourced people of color.

Academic literature on HBCUs and technology is sparse; what is available runs the gamut of topics (Davis, 2009, Hill, 2012). The disparity of exposure to emerging digital resources between HBCU graduates and graduates of predominantly White Institutions (PWIs) is a cause for concern (Davis, 2009). Davis finds that the use of technology on HBCU campuses is inconsistent and varies from course to course. There were challenges in the areas of adequate computer workstations, access to high speed Internet and networking both in their residence halls and classrooms. Also faculty members who would like to engage in more technologically mediated teaching strategies find

classrooms lacking the infrastructure necessary to do so (Davis, 2009). It is important to note that this is not unique to the HBCU sector, but common across many institutions with stretched resources. This concern calls for more to be known regarding HBCUs and the use of emerging technologies in their approaches to education for their students; however, the body of literature that does exist, gives insight into the story of technology at HBCUs.

MOOCS, Technology, and HBCUs: Faculty

The way in which technology is used and adopted on HBCU campuses plays a large part in its integration into curriculum. Davis (1989) claimed that perceived usefulness and perceived ease of use were the primary characteristics influencing a person's attitude toward and potential adoption of technology (Keese & Sheppard, 2011). These two things may possibly give insight to challenges of HBCUs adopting new technologies.

Keese and Sheppard (2011) conducted a study on attributes that could predict the adoption of course management technology at HBCUs. They found that despite student perceptions of the benefits of instructional technology, many HBCUs have remained reluctant to offer online courses and programs. While a variety of reasons were found to be factors for different adopter groups, "complexity" was the factor that was found to be significant among all five categories of adopters (Keese & Sheppard, 2011). Although some institutions have adopted the use of technology, its use at HBCUs is inconsistent (Davis, 2009). If much of HBCU faculty has not moved away from basic technology, and this is what students are accustomed to in the classroom (Davis, 2009), how will their learning be affected by a highly technological learning environment such as a MOOC? In asking this question, the authors remain aware that students engage with technology outside of formal education settings, as evidenced below. Furthermore, this is not to say that technology is altogether absent from educational contexts at these institutions. According to Joseph (2008), HBCU faculty members are currently using technology for instruction to the extent of their capability and available resources. As he explained, "the number of HBCUs faculty members who want to use of technology for the delivery of instruction by far exceeds the number of faculty members who are presently using technology" (Joseph, 2008, p. 22). Faculty had limited computer access and outdated equipment (Redd, 2003; Snipes, Ellis, & Thomas, 2006). Campus networking issues and speed are of concern (Davis, 2009), and definitely play a role in whether or not MOOCs would work well for students. This would be especially true at institutions where students primarily live on campus.

Concerns about faculty members' engagement with MOOCs are not restricted to HBCUs. In a report by Jaschik and Lederman (2013), a survey of faculty (n = 2,251) and administrators (n = 248) across public and private institutions found that 28% of all faculty (whether they had taught an online course or not) strongly disagreed with the claim that online courses could achieve student learning outcomes at least equivalent to those of in-person courses. Furthermore, 47% of the survey respondents claimed that institutions should not offer MOOCS for which they themselves would not award credit. Indeed, the major finding from this report indicates that the majority of the faculty members (76%) believe that "recent news coverage about MOOCs overstates the value of these courses" (Jaschik & Lederman, 2013, p. 20). These concerns are worthy of discussion as faculty investment in MOOCs is critical to their success, yet the general wariness to fully endorse them is an important part of the current perceptions about MOOCs and the potential for online education in higher education. For HBCUs, however, the concern is not solely on the ideological opposition to online-mediated courses that limit face-time interactions with students. Rather, faculty's concern is also rooted in a lack of infrastructure to successfully implement courses that necessitate reliable and updated technological equipment.

MOOCS, Technology, and HBCUs: Students

Buzzetto-Moore & Sweat-Guy (2007) found that students are online frequently, but most are not using the Internet to take classes. Students have used the computer as part of classwork or to help with courses but a low percentage have participated in a computer simulation in school (Buzzetto-

Moore & Sweat-Guy, 2007). This is important to note when discussing the possibility of HBCUs integrating online courses or MOOCs into their class offerings. Students not only have to be familiar with computer usage, but specifically computer usage as it pertains to coursework.

Another important finding was the computer access of students. Buzzetto-Moore and Sweat-Guy (2007) found that much of computer usage for the students happened in computer labs, not at home. The researchers found that 61% of participants responded that they regularly use the computer labs on campus. While Buzzetto-Moore's findings are based on two HBCUs, it is important to note that many students of color lack sufficient exposure and access to computers because they come from low-income neighborhoods with underfunded schools or do not own computers (Evans, 2012; Redd, 2003). Studies have shown that in the past years the amount of Black students owning a computer or having a computer at home in high school has increased. Home Internet access has risen among this group as well with approximately 86% having access, which is an increase from 39.8% (Buzzetto-Moore & Sweat-Guy, 2007). However, 75% of HBCU students at the two HBCU campuses studied did not own laptops at the time of the study; yet another reason why the digital divide is increasing (Buzzetto-Moore & Sweat-Guy, 2007). This is an interesting statistic that should be considered when approaching the feasibility of MOOCs at HBCUs. Most students in Buzzetto-Moore and Sweat-Guy's (2007) study saw themselves as intermediate users. Although Buzzetto-Moore and Sweat-Guy (2007) present these findings, they do not go into detail about the causes. There is an allusion to the students' socioeconomic status playing a role, but it is not clear. Also, the universities' capacity to effectively deal with the demand is not nuanced. Since HBCUs are not a monolithic group, an institution's ability to adapt to this demand may differ based on characteristics such as resources or size. When considering introducing MOOCs to an institution, its ability to provide adequate computer access to students by way of computer labs is important. HBCUs have to consider overcoming more than infrastructure issues when introducing new technology to students.

Attitudes toward online learning could prove challenging. Students want to see traditional learning supported by e-learning strategies; however, face-to-face instruction is preferred over fully online learning (Buzzetto-Moore & Sweat-Guy, 2007). These students are averse to complete online learning. They would prefer a hybrid or face-to-face instruction (Buzzetto-Moore & Sweat-Guy, 2007). What is unclear in this finding is if this is an overall preference of students across institutional type or trait unique to HBCU student culture. What these researchers suggest is that responses to this study have shown that technology access and ownership are less prevalent than what has been reported out of majority institutions, but more importantly, that HBCU freshmen are less prepared to use the Internet and libraries for scholarly pursuits (Buzzetto-Moore & Sweat-Guy, 2007).

Evans (2012) builds on Buzzetto-Moore & Sweat-Guy's (2007) findings by looking more in depth at students' relationships with technology and technological tools in the classroom at a small, private HBCU. While the increased use of technology was found to be beneficial for non-traditional and off-campus students on this campus, there were concerns from students who engaged in this increased availability of technology. At this particular HBCU, students enjoyed the level of access to the online portion of classes provided but this enjoyment came with its own level of distrust (Evans, 2012). Overall, Evans' findings suggest that students have a distrust of technology when it comes to work and assignments. Given the case study approach in Evans, however, it is important to not presume that these findings apply to diverse student body found across HBCUs. In order for full adoption to take place, students must know more about and fully understand the technology with which they are engaging. Knowing how to use technology is as important as having it, and awareness and knowledge of use are important for adoption (Evans, 2012; Miah & Omar, 2011).

In order for students to adopt and benefit from technology, it must be integrated into the campus, in particular, the curriculum (Davis, 2009). Institutions that must be financially frugal, such as HBCUs, need sources of funding to be successful in this integration. Funding provides challenges for HBCUs, who—due to small endowments and limited numbers of affluent alumni—have lacked funds to heavily invest in technology (Gasman et al., 2010; Redd, 2003). However, funding is not the only challenge. There is also difficulty with being able to recruit and retain technology staff, gaining support from decision makers, and operating within a subpar campus infrastructure (Davis, 2009). Due to strained resources and the rising cost of technology, technological ventures must be

adequately and strategically planned for at HBCUs (Davis, 2009). While Davis (2009) suggested HBCUs gain funding for technological endeavors from federal funds, this seems a daunting task given the limited data available on the topic.

THE NEED FOR BETTER DATA

Federal data pertaining to the use of technology for postsecondary instruction is currently under reaching the capacity for adequate assessment for the potential success of MOOCs at HBCUs. Current data are limiting in both breadth and depth, making it particularly challenging to measure the reach and evaluate the influence of new technological platforms, such as MOOCS, on student access, retention, and completion. Despite the growth in evidence focused on technology's integration in individuals' daily lives, the National Center for Educational Statistics (NCES)—our nation's repository for educational data—has yet to catch up. In this section, the authors discuss the extent of NCES's data to illuminate the national role of technology at HBCUs, and identify areas of weakness for future improvement.

According to the IPEDS Data Center (2011), the use of technology is measured by a single category, "distance learning opportunities," These alternative course opportunities include "an option for earning course credit at off-campus locations via cable television, Internet, satellite classes, videotapes, correspondence courses, or other means" (p. 19). Institutions respond to a questionnaire that queries whether these opportunities exist by selecting the following options: Yes, or Implied No (i.e., A binary variable). In 2011, 99 HBCUs responded to this question. 65% of HBCUs offer "distance learning opportunities." Of those institutions, 56% are public-4 year, 28% are private-4 year, and 16% are public-2 year. Most notably, almost one-half of the public-4 year HBCUs are also land grant institutions. Although the authors cannot disaggregate how and which of these opportunities are used to teach for specific subjects or grade levels, it is known that of all the HBCUs that offer distance learning opportunities, 90% and 25% of them provide remedial education or occupational education, respectively. Additionally, 28% of these institutions also provide continuing professional education. Although these facts are suggestive, therein lies the issue. A single measure of possible usage of technology in instruction is clearly insufficient.

A shallow categorization, such as "distance learning opportunities," hampers the ability to understand what aspects of technology are used most frequently and effectively for instruction. Technology encompasses a variety of instruments, software, and ideas to disseminate knowledge. In order to examine the nuances of the influence of technology, and more specifically, MOOCs, NCES must offer the opportunity for institutions to identify what and how technology is used to broaden access to higher education and opportunity to those who learn best through alternative modes of instruction. This singular, broad category must be disaggregated to capture the varieties of technology and their purposes on these campuses. Currently, there is little knowledge of what technology is most prevalent for instruction at HBCUs, or how it contributes to several measures of student achievement: grades, retention, and graduation. Equally important, universities and colleges have looked to MOOCs to broaden access to higher education amidst a climate of severe economic austerity. Future data collection must also capture the return on investment in technology in order to ensure that each dollar is used efficiently and effectively for each student.

Initiatives geared at collecting the limited data available on the use of technologies within HBCUs is led by grassroots efforts from its own members, rather than a systematic approach. For example, Roy Beasley, the former director of the Digital Learning Lab and affiliated with Howard University has tracked the online offerings of HBCU programs, particularly online or blended-degree programs. In 2012, 21 of the 51 public HBCUs offered online or blended degree programs, almost triple the number of institutions making these offerings just a year before (Beasley, 2012). This report on the status of online education at HBCUs provides a compelling account of the increased reliance on online and blended education for bachelor's programs at HBCUs given that almost one-half (49%) of the 120 online programs offered at both private and public HBCUs are bachelor's degrees. This is an opportunity for HBCU leaders to leverage their collective potential by elevating their institutional efforts.

CONSIDERING THE DIGITAL DIVIDE

As part of this article, the authors will draw attention to the current shortcomings of national data that can provide an accurate landscape of institutional capabilities enabling the successful adoption of MOOCs. Additionally, a critique is provided of the primary assumption in the success of MOOCs within the United States: the presumed connectivity throughout the country. Connectivity is understood as the ability to access information and communication technologies (ICTs) by a given individual. The digital divide, in contrast, refers to the perceived disparities in access to ICTs by different members of society, particularly when stratified by demographic and socioeconomic data.

In 2011, the Department of Commerce's Economics and Statistics Administration (ESA) and National Telecommunications and Information Administration (NTIA) published a joint report on the "digital nation," which analyzed the broadband Internet adoption in the United States (Blank & Strickling, 2011). While the overall data suggest that the majority of households in the U.S. are wired to some type of broadband service (70%) the report also noted that there is a strong correlation between access to broadband services and a household's level of income and education. There are also, of note, evident disparities along racial and geographic lines. For example, even when accounting for variables such as education levels in the household and geography there is still an 11% disparity in broadband adoption between White non-Hispanic and Black households, favoring the former group (Blank & Strickling, 2001).

These latter observations are of particular interest when considering the relevance of MOOCs at HBCUs. Despite only representing less than three percent of the universities and colleges in the United States, HBCUs educate 11 percent of Black students in the country, with a large proportion of Black students coming from low-income households. In drawing attention to these disparities to access, the intent is to give pause to the assumption that investing in the implementation of MOOCs is the course of action that HBCUs can take to remain competitive within the national landscape of postsecondary institutions. Rather, it is suggested that HBCU leaders might be better suited to serve as vocal advocates on the need to examine the inequitable provision to sustained Internet access. This is the first step to truly democratizing MOOCs for the nation.

MOOCS AND THE FUTURE

The reality is that not all HBCUs have the same distribution of resources and some of them, like Howard University, are well under way in implementing these platforms. HBCUs have made many improvements in advancing their technological infrastructures, but each institution still needs to implement methods to appropriately assess their technical needs and find ways to support and continuously increase campus technology. (Hill, 2012). Hill brings up the importance of understanding that all HBCUs are not the same. "School size is a particularly important attribute to consider because enrollment size likely impacts the institution's culture, finances, and structure" (Hill, 2012, p. 7). Therefore, in integrating technology into curriculum, each institution will need to consider their own unique characteristics during planning and implementation.

For some smaller institutions, with a focus on serving the local community, MOOCs may not be "as effective as other delivery methods" (Bell & Federman, 2013, p. 37). According to an op-ed in *Inside Higher Ed* (King & Nanfito, 2012), institutions should consider how MOOCs can "address other, very real, strategic needs" (p. 22). For example, MOOCs might be used on smaller scales to develop pipeline programs and enliven relationships with local high school students or cultivate greater alumni giving. The deliverables of global reach and brand recognition, promised through the use of MOOCs, may not be relevant to the 105 HBCUs that may have more pressing issues to address. Furthermore, tying technology into the idea of increased overall university operating efficiency may increase buy-in from administrators and leadership (Miah & Omar, 2011). If institutions can connect specific technology ventures to aiding students in securing jobs or partnerships with companies they may find it easier to get leadership buy-in (Vohra, 2008).

CONCLUSION AND AREAS FOR FUTURE RESEARCH

MOOCs are made up of a variety of pieces and include multiple avenues for interaction among instructors and students. New areas of research would examine which pieces and avenues contribute significantly to improving student outcomes. To speak of MOOCs as a singular entity misconstrues the ideas of technology as malleable forms of interventions tailored to address student needs. Improving our understanding of MOOCs—how they operate and how their outcomes vary under different conditions—will widen the possibility of their applicability to less resourced colleges and universities. Proponents of MOOCs, such as Coursera, draw attention to meta-analyses conducted by the U.S. Department of Education proclaiming that evidence-based online learning can be as effective as face-to-face forms of education (Means et al., 2010). However, these studies have yet to examine the efficacy of these strategies specifically for MOOCs. A study by Forsey, Glance, and Low (2013) outlines the pedagogical foundations guiding the development of MOOCs, yet further research is necessary to examine whether their impact accounts for increased student success, noting that only 5% to 15% of MOOC enrollees take their course through completion. More troubling still, the presumption that MOOCs are the disruptive game-changers in the future of our field fails to consider how the overwhelming majority of the students enrolling in these courses already have two- or four-year degrees (Emanuel, 2014).

In effect, there is a need for greater transparency about the students who would benefit from pursuing MOOCs as an educational innovation at institutions such as those at HBCUs. For example, Coursera's new strategy to provide its students with "verified certificates" in recognition that they have completed a course has the potential to serve as the precursor for institutional validation of MOOCs as counting for course credit. However, from the students who have made use of this service, 70% of them already have a bachelor's degree (Coursera, 2013). Therefore, this service is not reaching the potential masses of students who could make use of these platforms to enhance their collegiate experiences. Similar to the concerns outlined about the presumed connectivity and democratized access to broadband connections needed to effectively engage with MOOCs as an educational platform, questions still linger regarding their effectiveness at reaching unprecedented groups of underserviced individuals.

Researchers must also further explore how MOOCs would allow opportunities for HBCUs to empower and expand their reach as opposed to merely becoming hubs for better-resourced institutions to benefit from enrollment of students they would more than likely not enroll at their own institutions. More must be known about the relationship HBCUs would have with MOOC providers to ensure exploitation and financial burden will not fall on often already financially strapped institutions and students.

There is an opportunity for MOOCS to open up doors of communication and partnerships between HBCUs and other institutional types. HBCUs that have strong departments which may not have the resources to be highly visible will have the opportunity to do so through MOOCs. MOOCs may also allow community building and partnership with other minority serving institutions. Further research into the institutional benefits and partnership opportunities of MOOCs will provide insight into ways in which they can also aid in attracting resources to the institution as opposed to using resources. Another area open for further exploration is how HBCUs, particularly public four year HBCUs can use MOOCs to aid in tightening the pipeline between two-year institutions and four year HBCUs.

Snipes and colleagues (2006) provided further recommendations for HBCUs concerning technology on their campuses. These recommendations include

- creating a technology needs assessment tool for the university,
- using and constantly improving the school's technology strategic plan,
- establishing a financial plan to support current technology on campus,
- maintaining adequate technology technical support, and
- increasing student computer ownership through package deals with computer dealers (Snipes, Ellis, & Thomas, 2006).

HBCUs have much to consider when embarking on the increased use and integration of technology on their campuses. MOOCs might be taking the national conversation on education by storm, yet as unique institutions within the national landscape of higher education institutions, HBCUs could benefit from remaining attentive to their own institutional needs rather than venturing into a pursuit for which there is no comprehensive data of its positive impact on the populations their missions aim to serve. Beasley (2012) described how HBCUs have the potential to become either aggregators (institutions that adopt MOOC courses from other institutions) or producers (institutions that develop their own high-quality courses for others to adopt). We agree with Beasley's suggestions that the future of MOOCs at HBCUs rests in their ability to produce "a series of MOOCs on topics of particular relevance to black students everywhere, not just their own students." (2012, p. 19). In doing so, HBCUs can continue to nurture their mission to support Black students throughout the nation.

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