

MOOCS and the Digital Divide: Why Mass Online Learning May Not Help Educational Attainment

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Abstract: Many proponents of Massive Open Online Courses (MOOC) have opined that MOOCs represent a revolution for education. They envision a world in which these large, digital classrooms allow anyone to pursue education in any topic they desire, and in so doing believe that MOOCs will knock down traditional barriers to education. Unfortunately, this does not appear to be the case, as research tends to show that MOOCs are mostly beneficial to those who are already educated and at least moderately affluent. Thus, it appears that what was promised to bring equality to education is only poised to further the digital divide. This research seeks to examine the concept of the MOOC from the perspective of social and digital equity, and illustrate the flawed notion of the MOOC as an egalitarian learning platform.

Keywords: Online Learning, Digital Divide, Equity, MOOCs

Introduction

Educational attainment is an important metric in our increasingly information-based society. While educational attainment has improved substantially since 2000, there is still room for improvement. Since its inception, online learning has been promoted by many as a means to increase educational attainment. To be sure, online learning does have the potential to increase educational attainment for some members of society. New and innovative online learning initiatives make it easier than ever for learners to pursue degrees from any number of schools around the world. As a result, the number of students pursuing degrees online has grown continually since 2003 (National Center for Education Statistics, 2015a; 2015b).

Proponents of massive open online courses, or MOOCs as they are commonly called, claim that the MOOC model is the future of education. While the specific arguments in favor of MOOCs vary, conceptually they tend to distill to a single concept: the democratization of education. The idea is that offering high-quality, low-cost courses using online delivery will provide equal access to education that should lead to greater educational attainment. This quest for educational egalitarianism is noble, but there are legitimate questions as to how equal such online learning can be.

The Educational Attainment Problem

Educational attainment has been an issue in America for some time now. In 1990, 75.2% of Americans had a high school diploma or equivalent, and only 20.3% of Americans had a Bachelor's degree or higher. By 2013, those numbers improved to 86.3% of Americans with a high school diploma or equivalent, and 29.1% with a Bachelor's degree or higher (Lounsbury & Cowan, 2015). With 13.7% of the population still without a high school education and 70.9% without a Bachelor's degree, there is room for additional improvement in educational attainment rates.

The educational attainment issue is particularly striking when examining attainment of the working-age population by ethnicity. According to 2013 data, 65.3% of Hispanics and 86.0% of African-Americans had attained a high school diploma or equivalent, versus 93.3% of whites. The trend is similar in postsecondary education, where 14.3% of Hispanics and 19.8% of African-Americans had received Bachelor's degrees, versus 34.9% of whites [³]. Despite improvements

Though increasing educational attainment for the sake of education itself is noble, insufficient education is an issue that has serious societal implications. In a 2002 conference at the Boston Federal Reserve Bank, Kodrzycki (2002) expounded upon the link between educational attainment and national prosperity by showing that poor educational attainment places significant constraint upon national economic growth. Ten years later, the Council of Foreign Relations (2012) released a report noting the national security concerns raised by problems with educational attainment. Among these concerns were difficulty in filling skilled national-security-related jobs, a shortage of individuals both physically fit and well-educated enough to perform adequately on the Armed Services Vocational Aptitude Battery, and critical shortfalls in individuals with language skills required by the Department of State and intelligence agencies.

The Promise of the MOOC

In 2008, Stephen Downes and George Siemens at the University of Manitoba gave life to the concept that would shortly thereafter come to be called a MOOC (Baggaley, 2013). Their course, "Connectivism and Connective Knowledge" invited 2200 people to participate in what would become the first in a line of massive, online courses that would draw praise from many and the ire of others. This was followed by MOOCs launched at Stanford and MIT, with Harvard joining MIT to create edX.

These first few successful MOOCs led many to opine, through strings of articles and opinion pieces, that humanity was on the cusp of a revolution that would eliminate barriers to education, and ultimately provide learning experiences equivalent to that of a traditional university for a fraction of the cost. In 2012, MOOCs were characterized in media with a great deal of hyperbole. They were expected to "knock down campus walls" (Lewin, 2012), were likened to a "tsunami" (Brooks, 2012; Auletta, 2012) that would change the higher education landscape forever. Thurn, envisioning a grand future for Udacity, made the bold prediction in an interview with Wired that "in fifty years ... there will only be 10 institutions in the world delivering higher education" (Leckart, 2012).

As soon as 2013, it was becoming evident that the MOOC had overpromised. Early that year, Markoff (2013) notes in the New York Times what scholars had been observing: that MOOCs were not very effective with respect to completion. This phenomenon has since been explained by some in terms of learner intention (Reich, 2014). While this insight clarifies that a learner's primary objective in a MOOC may not be completion, it does not address the problem of access in MOOCs' promise to bring learning to the masses.

The Digital Divide

The notion of a gap in technology access and skills between upper and lower socioeconomic groups has been documented extensively in literature. Support for this gap is offered by data from the United States Census Bureau, where there is a relationship between educational attainment, income, and computer ownership (File & Ryan, 2014). Data, as seen in Figure 1, shows that, while computer ownership is common in households with high educational attainment (a bachelor's degree or higher or at least some college), it drops off considerably for households with lower educational attainment (high school degree or less). Similarly, computer ownership is more common in higher income brackets than lower ones. This phenomenon remains with respect to Internet access, can be seen in Figure 2 to follow a nearly identical trend.

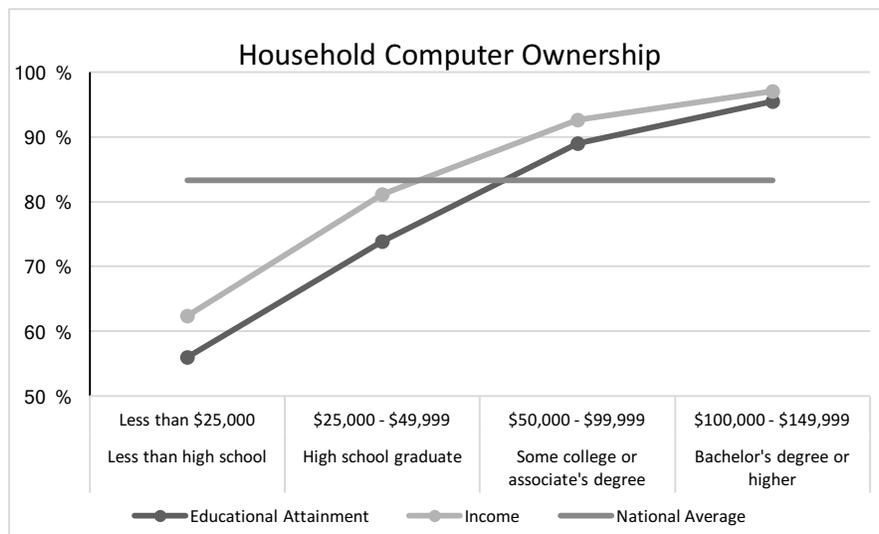


Figure 1. Household computer ownership by educational attainment and income.

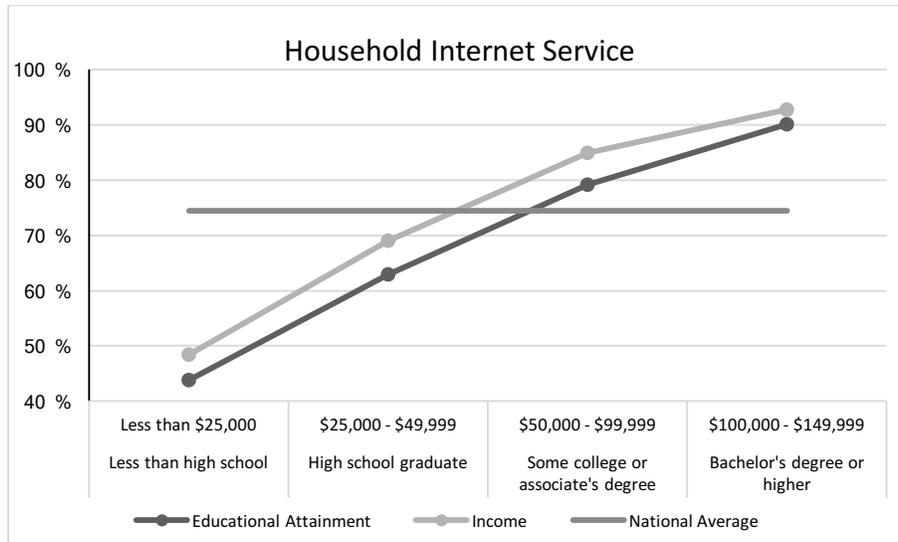


Figure 2. Household internet service by educational attainment and income.

Assumptions of Online Learning

While there have been articles about assumptions about online education, these typically concern issues such as quality of online instruction or the superiority of one pedagogical model versus another. Absent from discussion are the assumptions made internal to the practice of online learning itself, particularly regarding delivery infrastructure and the ability to consume the instructional product. When an institution offers online learning, there are two fundamental elements presumed about the target audience. The first is that potential learners have access to the technical infrastructure necessary to participate in online learning, and second is that they have the necessary technology and metacognitive skills to engage in online learning.

Conclusion

Due to the digital divide, the assumptions that underlie online learning regarding access and technical skill levels should generally be expected to bias online learning in favor of those from households with higher educational attainment and income. While online learning certainly has its place as an educational strategy, the bias created by the digital divide makes it unlikely the individuals targeted by efforts to increase educational attainment will benefit from it. This is also true of MOOCs, which have been posited by many as able to make education more accessible. Educators should, therefore temper expectations of online learning in being able to improve educational attainment. This is particularly true of MOOCs which, despite their promise of educational egalitarianism, are limited, by access, in their ability to deliver assistance to those who need it most.

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