

# New Digital Education as the Market Solution to the Student Debt Crisis

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## Abstract

New Digital Education is an employer-lead, online, hybrid learning approach. This pattern of learning constitutes a market solution to the student debt crisis. This paper develops an empirical-historical argument to map New Digital Education to a location in the hype cycle. The key finding is that New Digital Education has survived disillusionment and is becoming a sustained institution in the US labor economy. A market solution to the student debt crisis undercuts the need for policy action.

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## 1. Introduction

Van Dusen discusses The Coming Crisis in Student Aid as early as 1979[? ]. Discussion on the issue has proceeded continuously. Forbes[? ] noted that "Student loan debt in 2019 is the highest ever," months before Ryan Craig would announce the Third Age of Online Education had begun[? ]. The fact of increasing debt in part casts doubt on the value proposition of online education. This paper contributes to the literature by mapping online education to the hype cycle, in addition to empirical and qualitative analysis. It turns out that cutting edge digital education is substantively different than the state of the art even a decade ago. This has implications for forecasting, policy, and the use of prior research.

## 2. Historical context

The Institute for Higher Education Policy and Lumina Foundation document the origin of the student debt crisis[? ]. Ryan Craig argues that online learning has proceeded in three ages. I'm generally happy with his temporal markers, but here I review some substantively different, and some complimentary, reasons selecting these dates.

The First Age runs from about 2000 to 2012. Craig argues that this is the age of the for-profit online university. He argues that a second age dominated by quasi-for-profits and online program managers (OPMs) begins in 2012. I note several other reasons that the year 2000 is important. In 2000, 55 percent of two and four year institutions offered distance education[? ]. This is the first year where most institutions offered distanced education. In 1997, 44 percent offered distance education[? ].

Secondly, 2000 begins the dot-com bust, which would last through 2002[? ]. From a hype cycle perspective, the bust is a trough of disillusionment. To survive the bust indicates economic durability, institutional fitness, and a positive continued growth outlook. NCES notes that 8 percent of students took at least one online course in 2000[? ]. This essentially achieves a certain Schelling

30 point of 5 to 10 percent for importance or significance. The figure had increased to 20 percent by 2008. A fourth reason for the date is simply that 2000 is a memorable, rounded number. One might argue for beginning at the founding of Western Governors University in 1997, or after the end of the dot-com bust in 2002, but all of these plausible dates round to 2000. Ferrer gives an interesting  
35 history of what might be called the Zeroth Age of Online Education, exploring the developmental phase of remote learning prior to the turn of the millennium[? ].

Craig argues for 2012 as the beginning of the OPM era, and I now important works were realized roughly contemporaneously. Studying the cases of Khan  
40 Academy and Udacity is illustrative. In 2008, Clayton Christiansen and Michael Horn applied the theory of disruption to digital education[? ]. Khan Academy was founded the same year[? ]. Dan Friedman[? ] notes that Udacity rolled out classes in 2012, with Coursera and edX enrolling their first students the same year. The MOOC revolution began in 2012. That is what makes it a useful  
45 marker in my mind. Massive Online Open Courses (MOOCs) reported outcomes far weaker than expected through 2013 and 2014, but recovery and continued innovation proceeded quickly. Uber was founded in 2009 and Facebook went public in 2012, so this second age also captures a fundamentally different culture where online activity is a basic social skill and entirely new labor models are  
50 being enabled.

In 2013, Udacity began offering some courses for college credit with San Jose State University[? ]. In 2014, Udacity entered into its first full-fledged program partnership with a university. Georgia Institute of Technology and Udacity announced an online Masters Degree in Computer Science for \$7000.  
55 This was 80 percent less than the on-campus equivalent[? ]. The same year, Udacity released its first signature alternative credential, the Nanodegree.

A blended learning solution called Udacity Connect was piloted in 2016 and expanded in 2017. Udacity Connect's pilot achieved a 76 percent completion rate[? ]. As of 2019, Sebastian Thrun reports 4 percent is the MOOC completion  
60 rate, but Nanodegree programs have a 34 percent graduation rate, and using

new personalized mentorship programs, cohorts commonly exceed 60 percent graduation rates.

In 2016, Khan Academy applied for the \$100 million dollar grant by 100&Change in order to create a globally recognized secondary education diploma. 1904 or-  
65 ganizations applied for the grant[? ].

When decisions were rendered in 2017, Khan Academy's proposal earned an honorable mention as one of the top ten in the education category, but it did not earn a financial award[? ].

Like Udacity, Khan Academy is an online learning provider which went  
70 through a period of immense excitement followed by failure, and also like Udacity, Khan Academy achieved a remarkable success on a different project during the same calander year as their disenchanting loss. In 2017, Khan Academy released the results of a study they conducted with the College Board. It showed that studying for the SAT using Khan Academy is associated with 115-point  
75 average score increase[? ]. Khan Academy became the official practice partner for AP exams in 2017[? ].

Not only do Udacity and Khan Academy share a Jungian hero typology, they have both evolved from traditional learning competitors to traditional learning allies Like Coursera, edX, and others, the best-of-breed alternative learning  
80 providers of today are not substituting for traditional education providers, they are integrating with them. Likewise, the best-of-breed traditional providers are not rejecting new learning approaches, they are partnering with them, awarding credit to students for alternative learning, and even supplying online education providers with content.

85 Summarily, there are three important changes which occur in the Second Age of Online Education, which I date from 2012-2017, in addition to the proliferation of OPMs. First, the MOOC revolution occurs through digitally-native, non-accredited online learning providers. Second, digitally-native learning providers go through a hero's journey. Providers like Coursera and Udacity initially fail  
90 to meet expectations, then improving outcomes significantly in a short period. Third, the education market integrates and equilibrates to some degree. Hy-

bridization becomes a new normal. This hybrid norm is true of the industry leaders, but it will be explored quantitatively in the subsequent section on data. More traditional providers are brought online, and digitally native organizations  
95 begin exploring offline education.

The Third Age of Online Education is characterized by affordable college, driven by employer financing. In 2013, SHRM reported that 61 percent of employers offer tuition assistance[? ]. In 2017, World at Work found that 85 percent of employers offered such a benefit, with another 7 percent offering  
100 non-reimbursement tuition assistance, such as upfront tuition discounts[? ]. In 2019, reimbursement was negligibly higher with an offering at 86 percent of employers[? ]. This increase in tuition assistance is invigorated in part by the emergence of a new kind of employee benefit intermediary, often partnering with online education providers.

105 Guild Education is an example of this new kind of benefits intermediary. Walmart is the largest employer in the United States. Walmart and Guild partnered to provide higher education to Walmart employees, including part-time employees, forming an interesting case study. Walmart's program began in 2018 and provides college education for one dollar per day[? ]. As of January  
110 2020, Walmart's program allows access to around 40 degrees through about half a dozen online providers[? ]. Providers include the University of Florida and Southern New Hampshire University. Walmart's education benefit also provides a high school completion program and free ACT and SAT preparation assistance.

115 Employers are motivated to provide this service because they generate return through such vectors as improved employee retention. Guild clients see 120 to 210 percent return to education spend[? ]. This is consistent with the 129 percent return observed by Accenture and the Lumina Foundation, who published return to education spend informatino for Cigna's education reim-  
120 bursement program[? ].

While online learning has become normal, perception as normal lags slightly behind. Surveys from 2017 and 2018 show that students, employers, and the

general public generally believe an online degree is equal to or better than on-campus[? ]. The general public is the least positive of these three groups. While  
125 most employers support online learning, about 18 percent of students state that employer perception of an online degree is a concern.

Taking advantage of employer-financed education presupposes working while learning. This turns out to also be an established norm in higher education. In 2015, a report from Georgetown University showed that more than 70 percent  
130 of college students worked while learning over the prior 25 years[? ]. For most students the academic effects are not important, but they find an important academic threat to low-income working learners who work more than 15 hours each week. Darolia[? ] introduces additional controls and concludes that working marginally more hours does not negatively affect grades, although it does  
135 slow credit accumulation.

### 3. Data

I demonstrate hype cycles using two kinds of Google search data. The first is ordinary search volume and the second is Google Trends data. Both sources are intended to proxy social attention, or hype. There are several important caveats  
140 when using these sources. First, Google Trends data extends as far back as 2004, but as we will see this appears to be too late to capture some hype around the dot-com boom. Relatedly, Google News Archive Search became available in 2006. While Google retroactively added older news, I will shortly demonstrate serious coverage gaps with this information. As a result, general search data is  
145 used instead of media data in particular.

A final caveat is that these search-based measures of hype ignore sentiment and focuses only on volume. Sentiment analysis of the underlying media coverage is quite feasible, but it is hardly necessary because it has been qualitatively covered in the section on historical context and also because the sustained  
150 growth in the market associated with hype already implies positive sentiment on average.

Google Trends provides an index of search volume, called interest, over time. The interest index is not an exact search frequency. Interest takes a value between 0 and 100, inclusive, and is normalized across each concurrently measured series. The key result is the establishment of a hype cycle in the trend of a series  
155 in relation to itself over time. Google Trends data is available using Google-defined topics as well as keyword matching. Google-defined topics are generally preferred as more precise, and that is the form of data which I use. Keyword matching is less precise because there is a boolean or statement used by the  
160 querying engine, resulting in many false positive results and significant noise in the data. With Google-defined topics, Google utilizes machine intelligence to ensure relevant, apples-to-apples results are contained in a trend signal. Western Governors University is a great example of why this distinction is important. As a keywords search, search volume would be reported for any search using  
165 any of those words. Irrelevant results for Western Union, Best Western, and University of Texas would all be included.

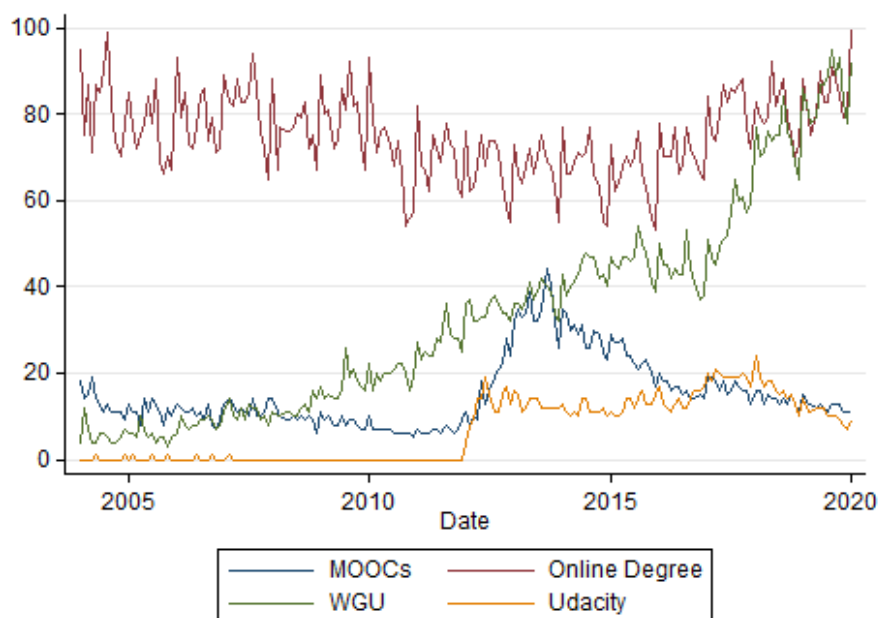
Western Governors University was founded in 1997. Launching a well-funded organization like WGU is expected to generate some hype. This provides an edge case which helps validate the quality of Google News data. Google News  
170 data is revealed to be problematic immediately when a search from January 1990 through December 2001 yields zero results. This concern is bolstered when it is revealed that a search for the word "water" results in only 81 results over the same time period. Further inspection shows that about 23 of the 81 results were actually published during the specified time period.

175 In contrast with Google News data, an ordinary Google search for water, filtered to the dates 1990 through 2001, yield hundreds of results. A cursory look indicates that these web pages were in fact published during the specified date range. Searching for Western Governors University in the ordinary way presents with more than zero results. While ordinary Google search data has  
180 plenty of peculiarities, it seems preferred due to this preliminary validation. Google Trends data is preferred to ordinary search results, but the founding of WGU precedes available Google Trends data.

## 4. Results

The first main result is depicted in Figure 1. In this graph we can see  
185 that online degrees have sustained high interest for as long as Google data has  
been available. That is, from 2004 to 2020, the present year. While general  
interest has remained high, there is a clear downturn in 2010, and a recovery of  
interest in 2017. MOOCs, in contrast, see a clear uptick in interest in 2012, and  
the beginning of decline the next year. The general interest in MOOCs never  
190 recovers.

Figure 1: Annualized Interest



The particular case of Udacity is slightly different compared to the general  
data on MOOCs, and the particular case of Western Governors University is  
different than the general trend in online degrees. Udacity sees a local max-  
imum in June 2012, followed by decline. Udacity recovers to an even higher  
195 local maximum in January 2018. Interest in Udacity is presently declining,  
but Udacity has declined and recovered before, in contrast to the concave-down



trend for MOOCs generally. This empirical data lines up well with the Three Ages conceptualization.

200 In the Third Age, learning online is growing in interest, but it is being fueled by providers like WGU, rather than providers like Udacity. WGU presents an odd case here, because there is no substantive hype cycle. One might argue for a minor cycle from August 2015 to May 2017, but this pales in comparison to accelerating adoption across the whole period. On Google Trends data alone, it appears plausible that WGU's growth is manic and ripe for correction.

205 The WGU mania theory has two issues. First, in the section on historical context, we uncovered fundamental changes in the economy which would stimulate growth in WGU interest in the Third Age. Namely, growth in employer tuition assistance, growing social desire for online learning, and the decline of for-profit providers like University of Phoenix. Secondly, the truncation of data in 2004 creates a bit of an illusion. As we see in Figure 2, 2004 was near a low point in WGU's history. The dot-com boom and bust is clearly depicted with WGU as a participant. Figure 2 is constructed utilizing Google's Advanced Search to filter results by year <sup>1</sup>.

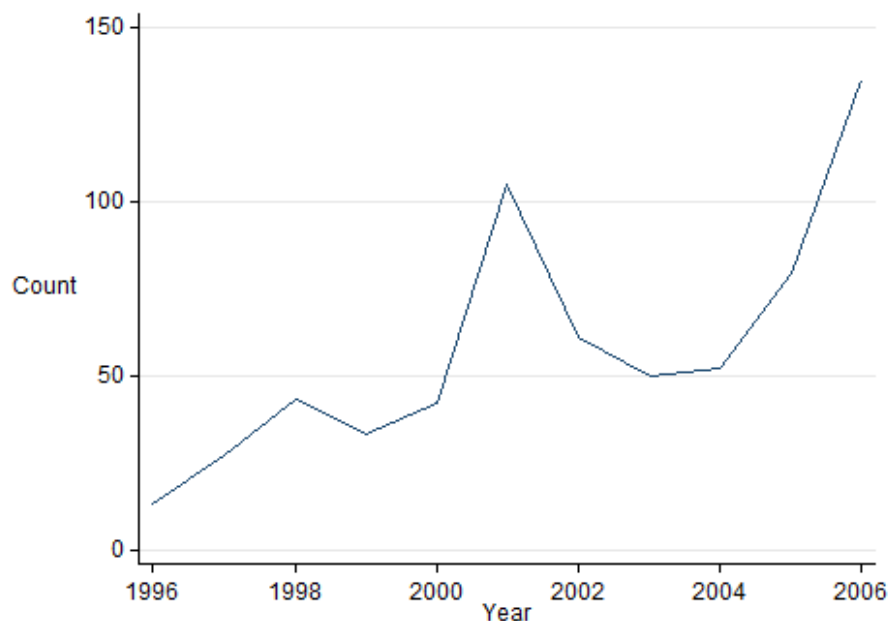
## 5. Conclusions

215 This paper demonstrates that interest in online degrees has survived the trough of disillusionment and is becoming a normal part of higher education. Renewed interest in online education has coevolved with changes in society and the character of online learning. Evidence supports a Three Ages description of the character of online education. Online enrollments increased in 2017, 220 even while general postsecondary enrollment declined[? ]. This indicates that

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<sup>1</sup>Result count obtained using the boolean query "Western Governor's University" OR "Western Governors University" was used. Plenty of online discussion on WGU involves this typo. The count used excludes articles which Google excludes by default. Google excludes some web results by default, generally because the excluded results seem to be copies of results already shown.

Figure 2: WGU Search Results by Year



not only is online education trending up, but it is substituting for traditional education.

These findings have several implications. For policy, an implication is that existing policies including the write off for tuition reimbursement are sufficient. Because employers are financing employee education, the need for further education subsidy is undercut. For students, a strategy of learning while working is recommended, although questions remain about the best strategy for full-time workers with low income.

For students, Third Age learning means a higher private return to education. Because this lifestyle is provisioned by an employer, the distinction between continuous professional education and undergraduate education blurs.

For academics, the Three Ages characterization means that much prior research is now obsolete. In turn, demand for new research is stimulated. Hype cycle dynamics, aggregate market growth, and the research presented in this

235 paper result in an expectation of continued growth in online education in the  
future. Continued social normalization and financial improvements are also  
expected, but many questions remain.

The growth rate of student debt is expected to decrease, but the rate and  
schedule of this decrease isn't clear. Whether the growth rate will move close to  
240 zero or past zero into substantially negative territory isn't clear. It's clear that  
learners and employers generally support online education, but it's not clear  
why this general support is resisted by some. Microanalysis which accounts for  
employer and learner heterogeneity in the Third Age of online learning is needed  
to create insights which are optimally actionable for particular individuals.

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