2015

Architectures: Rebuilding the Traditional University for the 21st Century

Sarah E. Shearer
Claremont McKenna College

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I am grateful to the following people for their support of and interest in this thesis. This body of work could not have been completed without their input, guidance and encouragement. First, to Professor Pamela Gann whose Leadership and Policy in Higher Education course sparked my intrigue in online learning. It has been an honor and a true pleasure to receive her insight and support. Second, to Professor Ronald Riggio, who not only graciously agreed to (still) be my reader after a scheduling “snafu,” but also has given me much freedom to delve into my personal interests in this vast field. To my friends, who have put up with my continual discussion about this paper and supported my mania. And finally, to my lovely parents: you have instilled in me not only the internal motivation to always do my best, but have answered every single frantic phone call or stressed email. I could not ask for better mentors: your ability to blend wisdom with humor is remarkable. Hakuna Matata!
“The paradox of education is precisely this – that as one begins to become conscious one begins to examine the society in which he is being educated.” – James A. Baldwin

Introduction

Higher Education Under Fire

It is no secret that Higher Education is facing a war on all fronts. Rising tuition costs and drastic cuts in external funding, compounded by dissatisfied employers and federal pressure to increase both efficiency and productivity has resulted in an intense reevaluation of the prevailing pedagogies and structure of the current system.\(^1\) Amidst a record influx of first-time college-age and returning adult students,\(^2\) demands for reform are loud and unrelenting. Never before has the thirst for innovation been so strong, and the necessity of *practical* applications so pressing. Many hope e-learning is the antidote to the numerous ills plaguing the today’s educational climate.

Paradigms for the status-quo, traditional brick-and-mortar institutions face not only intense scrutiny, but also increasing competition from a wide array of alternatives. On one hand, structured cyber-degree programs offered by Kaplan, University of Phoenix and their contemporary for-profit colleges (where most, if not all, courses are online) have experienced substantial growth over the last decade. At the other end of the spectrum, the onset of the open education movement in 2008 and the subsequent explosion of MOOCs (Massive Open Online Courses) in 2011 afford even more

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unconventional academic routes.\textsuperscript{3} Fueled by extensive public debate, media coverage, and enticing offers to forgo college completely like that recently posed by PayPal co-founder Peter Thiel,\textsuperscript{4} students and their families are now seriously questioning the value of attending a conventional school for postsecondary education. Though discussions about the heightened “competitiveness” of the college admission process may at first seem contradictory, it is important to remember that these anecdotes apply to a relatively small portion of all postsecondary institutions in the U.S. Data confirms that overall, the lack of confidence in traditional schools has generated a very tangible impact: total national college enrollment actually dropped in 2012.\textsuperscript{5} At the same time, those enrolled in at least one online course has reached 7.1 million – an all-time high of 33.5\% of all post-secondary students. While matriculation has slowed in comparison to the preceding years, the current 6.1\% growth rate in online enrollments is still significant.\textsuperscript{6} E-learning cannot be disregarded as a momentary fad.

### Heeding the Call

Colleges and universities of all sizes are responding rapidly, not to fall too far behind their peers. Public or private, many have instituted or “are developing more online

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\textsuperscript{3} Barnaby Grainger, *INTRODUCTION to MOOCs: Avalanche, Illusion or Augmentation?*, issue brief no. 2221-8378 (Moscow, Russian Federation: United Nations Educational, Scientific and Cultural Organization (UNESCO) Institute for Information Technologies in Education, 2013), 2, PDF.


\textsuperscript{5} Beckie Supiano, “College Enrollment Dropped Last Year, Preliminary Data Show”, The Chronicle of Higher Education, October 9, 2012.

\textsuperscript{6} I. Elaine Allen and Jeff Seaman, *Grade Change - Tracking Online Education in the United States* (Babson Survey Research Group, 2014), 3, PDF.
courses to both replace and supplement existing courses.” 7 With prestigious bastions like Stanford, Harvard and MIT actively engaged in education innovation, E-learning has in many ways been legitimized as a worthy, or at the very least a necessary institutional pursuit. As of 2002, “less than one-half of all higher education institutions reported online education was critical to their long-term strategy. Now, that number is nearly seventy percent. 8 Furthermore, “not all institutions that profess to believe online education is critical also include online as a component of their strategic plan. There has been a consistent “gap” between those who profess online to be critical and those that have explicitly included an online component in their strategic plan. This year is no different: just over sixty percent of those institutions with at least one full online program say online significantly represented in their strategic plan. Among those with only online courses, the number is even lower (30.4%).” 9

Whether all such efforts represent genuine pursuits of progress, or are merely charades to appear responsive to the aforementioned pressures and criticism, there are undeniably some common objectives: to remain relevant, sustainable and competitive.

Narrowing the Scope

Before engaging in further analysis, however, it is essential to differentiate between various types of online courses offered by traditional institutions. Specifically, there is a critical need to differentiate between MOOCS and courses offered internally —

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9 Ibid.
that is to say, to degree-seeking students currently enrolled within the institution. Though
the proportion of colleges currently offering or planning to develop MOOCs is minimal
(2.6%, 9.4% respectively)\textsuperscript{10}, the distinction between these types of courses is necessary to
for several reasons.

Though the accessibility impetus is a noble effort to counteract the socioeconomic
and geographical limitations that can hamper academic aspirations, MOOCs are
susceptible to a number of serious complications by definition; the same “open access”
for which it is championed simultaneously undermines attempts to provide quality
education.

Beyond the desire to increase educational accessibility, other institutional motives
for offering MOOCs are suspect for several reasons too. First and foremost, those elite
schools like Stanford, Harvard and MIT initially leading the charge of institution-created
MOOCs\textsuperscript{11} offered set the standard for subsequent followers in offering “educational gain
but no credit.”\textsuperscript{12}This necessitates the consideration of why schools are reluctant to award
credit, and by extension that true quality of the courses themselves.

Because MOOCs were “created as non-credit courses”\textsuperscript{13} – at most rewarding
skills “badges,” if anything, to those (few) who complete the course\textsuperscript{14} – it is highly

\textsuperscript{10}Ibid., 3.
\textsuperscript{11}These school-hosted MOOCs are differentiated from those created by third parties such as Khan
Academy, Udacity etc. Some schools do use these mediums as platforms for their own MOOC course
delivery, however. The difference is the source of the content, design and development of the course itself.
\textsuperscript{12}Scott Jaschik, "MOOCs for Credit," Inside Higher Ed, last modified January 23, 2013, accessed
moocs-credit.
\textsuperscript{13}Jaschik, "MOOCs for Credit," Inside Higher Ed.
\textsuperscript{14}Katy Jorda, "Initial Trends in Enrolment and Completion of Massive Open Online Courses," \textit{The
International Review of Research in Open and Distance Learning} 15, no. 1 (February 2014): 147.
probable that these offerings were never intended to provide equivalent academic quality to that delivered at the host institution itself. In fact, it’s reasonable to assume they were intentionally designed not to, as evidenced by the fact that schools who host MOOCs do not award degree-credits for these courses even to their own students.\textsuperscript{15} This makes logical sense: why would any student pay thousands on tuition to attend college in person if they could receive the same caliber, for at most, a small fee online? Cynics argue students will still be willing to pay for the name that ultimately appears on the diploma; but this is a circular argument. Schools, too, value the reputation and prestige that can only be maintained via selectivity.

But even this rationale can only explain one side of the equation. From the institutional standpoint, the upfront costs of development and implementation of a high-quality online course (as will be discussed later) are no small feat. Online education’s ability to bend the overall cost curve in higher education, as advocates and policymakers alike have hope, is still in contention.\textsuperscript{16} Adding instructor feedback on coursework and other related teaching duties to facilitate learning would be a financial investment far surpassing any revenue generated from the minimal MOOC- student fees. Furthermore, given that “open access” hypothetically enables anyone with computer access to enroll, the sheer number of students in need of support could render adequate instructor communication and assessment virtually impossible.


A few large unselective public universities, however, have recently expressed interest in awarding credit for MOOCs, but this has not ignited a massive movement as policy makers may have hoped. Even for these few institutions, the process of evaluating acceptable MOOCs from outside parties will take both significant time and resources. This is further complicated by the fact that there are no existing uniform standards for MOOC design quality or evaluation, and a vast majority of research to date has focused exclusively on content, with “very little empirical research [devoted to]... their effectiveness for learning.”17 Furthermore, there has been virtually no “systematic analysis of the quality of instruction in MOOCs”18 – the little existing research concluding that while some MOOCs may be “well-packaged,” the “overall instructional design quality is low.”19 Specifically, the majority does not test the achievement of learning outcomes on the (few) students who complete the course. Those that do have been shown to utilize measures that are have not been validated by research, or require that students demonstrate only base-level knowledge rather than higher-level learning or analytic ability.20 But once again, this is relates to the problem of scaling massive “classes” as well as to the two general institutional incentives: to keep operating budgets low, and to not detract from the number of tuition-paying students that would likely diminish were MOOCs of equal caliber as courses offered within a school.

17 Margaryan, Bianco, and Littlejohn, "Instructional quality of Massive," 77.
18 Ibid.
19 Ibid., 82.
20 Margaryan, Bianco, and Littlejohn, "Instructional quality of Massive," 77.
The silver-lining may be that credit-recognition - even from less-selective schools - could increase student persistence rates, placing ambitions for a formal degree within reach. Greater completion rates may feed back into the system, in turn motivating some MOOC providers to elevate the quality of design and instruction. However, considering that since the 2013 announcements of a few schools’ intent to award credit (and a growth in the number of schools offering a MOOC course to 5%) there has been a drop in the percentage of academic leaders who see MOOCs as sustainable and who see them as a useful means for studying online pedagogy. As a result, some have deemed the MOOC explosion past its peak. Whether or not the era of open-access has truly passed, surveys of academics at large show at best a significant skepticism toward MOOCs. Employers too hold reluctance, if not distaste, toward MOOCs as a substitute for traditional post-secondary delivery. However, many enterprises are utilizing this same medium as means for professional development and skills training for their employees. In fact, the current demographic data finds “the overwhelming majority of users on the largest MOOC platform [Coursera] have at least a Bachelor’s degree and a total of 76.7% of users hold an undergraduate or postgraduate degree” suggesting that most users are using it for career development or as a supplemental learning medium, not as degree.

21 I. Elaine Allen and Jeff Seaman, Grade Change - Tracking Online Education in the United States (Babson Survey Research Group, 2014), 27-28, PDF.
replacement. These findings corroborate those documenting that students themselves – the group arguably with the most to gain, at least financially, from greater MOOC acceptance – are also skeptical of MOOCs instructional quality and effectiveness. Perhaps this can explain, at least in part, the dismal retention and completion rates, as well as the “questionable” learning outcomes even for those students who do complete a course.

Numerous studies have focused on the motivations of MOOC consumers, but the inherent flaws in survey research combined with abysmal completion rates (and thus few participant data points) have generated contradictory results creating an inconclusive picture. However, it is not illogical that general disinclination toward MOOCs certainly reduces the likelihood that external motivation drives completion, as some analyses suggest. The only predictor of MOOC persistence researchers seem to agree upon has been the level of behavior engagement. Put more succinctly, the frequency in which a participants actually logs on, watches videos etc. is correlated with the likelihood of completion. But this seems logical and unsurprising.

25 Hagelskamp, Not Yet Sold: What,
26 Laura Perna et al., The Life Cycle of a Million MOOC Users, MOOC Research Initiative Conference (University of Pennsylvania, 2013), PDF.
29 Poellhuber et al., The Relationship between the Motivational.
It would seem that at least at the present moment, institutions with existing MOOCs have little incentive to elevate the quality.\textsuperscript{30} Those who don’t may only enter the fray in the future as an additional source of revenue.\textsuperscript{31} However, given the trends previously discussed, the general instability of the MOOC arena has clearly not hampered online development in higher education overall. Institutions have instead focused on curating exclusive e-learning offerings specifically for their degree-seeking student body. This paper will suspend cynical questions of motive and will assume that at least some institutions are seeking to utilize technology to effectively elevate the quality or efficiency of its educational agenda – if not both.

It is reasonable to infer that the incentives behind these endeavors are different from those motivating MOOC development and are driven by an inherently different definition of “success.” Once again, institutions and their degree-seeking students share similar aspirations for academic recognition, and internally-oriented online development no doubt reflects these goals. Institutions seek to preserve if not elevate their reputation, and the rigor and sustainability of the academic offerings must be translated successfully to do so. From another angle, these students are more likely than their MOOC counterparts to complete the course, but more importantly, are motivated to successfully demonstrate their learning. It is both dangerous and irrelevant to proclaim that these ‘traditional’ students are more motivated to learn than those who enroll in MOOCs.


Rather, differentiating the incentive to prove mastery of the material is logically derived from the ‘contract’ between such student and the school. Students adequately meet predetermined standards and in exchange, are rewarded with a formal degree – the socially accepted indication of academic achievement. From a more pragmatic perspective, students and those funding their education at a specific institution indisputably have more to lose (and to gain, given the widening earnings potential between degree and no-degree holders) financially than MOOC-enrollees. Consequently, it is reasonable to assume these “traditional” students are more incentivized to produce visible learning outcomes.

For these reasons, it is both justified and pragmatic to examine e-learning projects developed exclusively for an institution’s student body. Limiting the scope of inquiry in this way by no means diminishes the difficulty of developing and orchestrating e-learning agendas. Over the course of this paper, it will become abundantly clear that catering solely to degree-seeking students in fact results in a greater degree of complexity.

The E-State of the Union: Current Online offerings at Brick-and-Mortar Institutions

Some schools have been offering online courses of some sort for years, while others are just beginning to test the waters. For example, 70.6% of public institutions, most of which had at least some online courses a decade ago, now have complete online programs. Adoption of e-learning among private non-profit schools, while slower to take off, have seen the most overall growth in e-learning since 2002; nearly 80% now offer some online coursework, and the number with full online programs has doubled from 22.1% in 2002 to 48.4% in 2012. It is not unreasonable that all these figures have
continued to grow in the three years since, though the greatest source of total online enrollments has not been an influx of new schools with online offerings, but rather “from the transition of institutions with only a few online courses moving to offer fully online programs, and from institutions with online programs expanding their offerings.”

A college’ existing offerings, if any, will logically impact how it will approach a new e-learning project. But this logic must also extend to include the “state of the union” of those schools viewed as. As previously discussed, the market for students is competitive and, depending of course on the specific individuals’ needs or objectives, lagging behind similar institutions in the number or scope of online offerings could be problematic, and not only in the distant future, but even the next school year given the rapid growth of technology, and the continued number of students electing to take at least some coursework online.

Underscoring these market pressures, however, are a number of other factors all institutions must at minimum consider, regardless of where they currently are along the online trajectory. The weight given to each element and the immediacy with which it is acted upon will of course, vary by institution. Before further examination of the consideration pertinent to institutional-level development, however, it is critical to first acknowledge a problematic phenomenon obstructing meaningful educational reform at large.

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33 Ibid., 4.
The Research-to Realization Predicament

Even in narrowing the scope to focus on the online courses within traditional institutions, present research on the effectiveness of specific course designs or delivery methods are inconclusive. Not only have experimental case studies been limited to relatively small samples of students or courses, the tools of measurement are inconsistent. Some have assessed the “success” of the program based only on student and/or faculty satisfaction surveys. For those studies that measure actual learning outcomes, a substantial number only compare these figures to these same participants’ understanding prior to the course, not necessarily to the outcomes of students in the corresponding face-to-face format of the course. These complications are further compounded by rapidly changing technology capabilities for online education and the vast array of third party platforms (Blackboard, Moodle, Canvas etc.) available, should a school choose to outsource design, content or both. Research conducted over the course of a semester or entire academic year, while undoubtedly preferable to short-term trials in terms of validity, run the risk of being irrelevant come publication, regardless of the conclusiveness of the results.\footnote{Barbara Means et al., "The Effectiveness of Online and Blended Learning: A Meta-Analysis of the Empirical Literature," Teachers College Board 115 (March 2013): 38, PDF.} As a result, making definitive claims - good or bad - about a specific design is in many cases premature. Furthermore, if generalized without regard to school-specific variables, any such conclusion may in fact impede an institution’s ability to achieve its e-learning objective, whatever that may be.

While this paints a grim picture of experimentation, design research and curriculum transformation are worthwhile endeavors. The quest for high-quality and
effective online teaching and learning is not only honorable, but is a field that is growing exponentially. Furthermore, the advancement of learning analytics offers a bright outlook for the future, as new algorithms and big data allow both researchers and practitioners alike to better understand what works, and to respond to students needs in real-time to better facilitate authentic learning.\textsuperscript{35} Harnessing these new mechanisms effectively, however, necessitates a reevaluation of the dominating model for research and implementation.

More specifically, there is a pressing need to “conceptualize a new relationship between research and practice that is mutually transformative.”\textsuperscript{36} The vast majority of education initiatives to date have been characterized by two procedural precedents, which in many ways delay if not deter the realization of meaningful reform. The first involves a tradition of the “division of labor between those who design innovations and those charged with implementing them.”\textsuperscript{37} Consequently, research on effective design is kept distinctly separate from that focused on implementation. Highlighting the problematic nature of this division is not intended to devalue the merit of each course of study and it’s respective contributions, however; “The potential utility of design research…derives from its commitment to developing theory that guides design decisions and practical tools


\textsuperscript{36} Kristen Hicks, "Improving Student Experience with Big Data: A Look at Civitas Learning [Infographic]," edcetera, last modified April 19, 2013, accessed February 2, 2015, http://Improving Student Experience with Big Data: A Look at Civitas Learning [Infographic].

that can be used to support local innovation and solve practical problems.”38 By contrast, “Implementation research is the systematic study of the implementation of innovations…it encompasses…variation in implementation, as well as analyses of the conditions under which programs can be implemented effectively” and is “often conducted within larger outcome studies.”39 More than prescriptive remedies, the most important contribution made by implementation research, as method of inquiry, has arguably been to confirm the “inevitability of local adaptation and the need to support local actors’ sense-making in shaping and implementation of innovations”40 – to better the odds that the “potential” service of design-research becomes actualized.

It is important to recognize the deep roots of the detachment between research and implementation. This isolation is a byproduct of Taylorism and its considerable influence on organization and managerial practice that, while beneficial for productivity, can simultaneously inhibit innovation. As this consequence extends to educational reform, the result is “[m]any programs that work on a small scale when well-supported by researchers fail when they are tested in effectiveness studies, in part because educators face many challenges in implementing them well.”41

This quote hints at the second norm preventing successful reform, one that is largely a product of the separation between research and implementation projects. In what has been described as the “translation metaphor,” this traditional approach is problematic in that it assumes a fixed sequential order, in which research always precedes

38 Ibid., 138.
39 Ibid., 141.
40 Ibid.
41 Ibid., 138.
implementation.\textsuperscript{42} This pattern augments the problem of separating research from implementation by adding on wasted time and resources when a design or method collapses upon implementation, sending researchers back to the drawing board, practitioners to wait idly by until another empirically supported model is found and relayed.

Reliance on the translational model is unsurprising given the structural mechanisms in place intended to facilitate innovation. The primary culprits are the “evidence standards and the associated sequencing of types of education research promoted by the Institute of Education Sciences (IES)”– a subsidiary of the U. S Department of Education, which have become “deeply ingrained in federal policy for research funding.”\textsuperscript{43} Unfortunately, as evidenced by the inconclusiveness of most research discussed earlier, the complexities of reality are at odds with this “basic assumption that there are clearly defined education programs or interventions that either ‘work’ or ‘don’t work.’”\textsuperscript{44} The dominating precedent has clung to the translation model, despite its flaws; “Policy makers have for decades focused significant attention on addressing breakdowns in the translation process as a means to close the gap between research and practice,”\textsuperscript{45} rather than proposing a new framework. For example, the Institute of Education Sciences created by the Education Sciences Act of 2002, developed grants devoted to support “two basic types of translation activities: designing developing

\textsuperscript{42} William R. Penuel et al., "Conceptualizing Research-Practice Partnerships as Joint Work at Boundaries," \textit{Journal of Education for Students Placed at Risk}, n.s.,3, PEF.


\textsuperscript{44} Ibid.

\textsuperscript{45} Penuel et al., "Conceptualizing Research-Practice Partnerships as Joint," 3.
interventions grounded in basic research and testing interventions under real-world conditions in a wide variety of settings.”46 This is a precise example of the ways in which policy has not only upheld the sequencing of the translational model, but also enabled the separation of controlled research and implementation. Ironically, a recent U.S. Department of Education report on educational productivity and online learning noted that “rigorously researched models are lacking” that policymakers have in many ways facilitated, but also bemoaned the authoring committee’s reliance this available literature as the only means to draw conclusions.47

There is clearly a need to acknowledge variables before supposedly uniform solutions are haphazardly applied, regardless of context. Recognizing these variables can then be used better predict and plan for potential obstacles. This requires a new method/framework for innovation in education that satisfies the need for actualized not theoretical change. Institutions and policy makers alike will benefit from abandoning a flawed research tradition.

Design-Based Implementation Research

The aptly named Design-Based Implementation Research paradigm (DBIR) was developed by education researchers in response to the inefficiencies of the translation standard of practice.48 Evolved from the “design experiments” presented by Brown and

46 Ibid.
Collins in 1992, this framework endorses a joint partnership between researchers and those tasked with implementing innovations. DBIR not only necessarily combines theories of learning and motivation with those of organizational structure and productivity, but recognizes that “each new environment … has distinctive characteristics, constraints, and priorities” and thus “does not specify a particular method or analytic approach, recognizing that a range of different methods is appropriate in different circumstances and in different phases of the innovation research and development lifecycle.” The following are the four key principles guiding DBIR, taken from the 2013 Yearbook of the National Society for the Study of Education edition dedicated to the introduction and discussion of this emerging framework:

- A focus on persistent problems of practice from multiple stakeholders’ perspectives;
- A commitment to iterative, collaborative design;
- A concern with developing theory and knowledge related to both classroom learning and implementation through systematic inquiry;
- A concern with developing capacity for sustaining change in systems.

These principles not only address the problems previously discussed surrounding the precedents of innovation research and implementation, but also expands to specifically emphasize the importance of sustainability. While sustainability is undoubtedly an ultimate objective in most reform projects, this is an assumption that is

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51 Fishman, Chang, and Penuel, "Design-Based Implementation Research," The Center for Innovative Research in Cyberlearning (CIRCL).

52 Fishman et al., "Design-Based Implementation Research: An Emerging," 142-143.
rarely made explicit, least of all during the initial phases of inquiry and experimentation. Much in keeping with the sequential nature of the translational paradigm, sustainability goals are usually tacked after a workable innovation is produced. In DBIR, the sustainability component is included from the onset, as a critical objective guiding development. This is of extreme importance to education innovation, given the numerous problems higher education currently faces and those it is likely to face in the future given increasing numbers of students.

Despite the deeply entrenched/routinized research and funding practices outlined earlier, there is increasing support for new collaborative approaches toward education reform like that advocated by DBIR. For one, the National Research Council’s *Strategic Education Research Partnership* report “laid out a vision for new infrastructure to support more durable partnerships between researchers and practitioners” and “called for the funding of an intermediary organization” to assist in facilitating smooth and productive relationships. Even policy makers may be in the process of reassessing entrenched research-funding practices, and realizing the need for a more comprehensive course of action. That same document in which past models were deemed “lacking,” simultaneously declares that “Studies designed to inform educational decisions should follow rigorous methodologies that account for a full range of costs, describe key implementation characteristics and use valid estimates of student learning,” suggesting an important shift may be on the horizon.

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53 Fishman et al., "Design-Based Implementation Research: An Emerging," 141-142.
In addition, numerous case studies have begun across all educational levels and, based on DBIR’s emphasis on sustainability, include plans to adapt and evolve in response to continued feedback and evaluation.

The momentum for innovation in higher education combined with growing acceptance of DBIR validates the use of this framework as a means to explore institutional endeavors. Grounded in the DBIR principles and informed by case studies and ongoing investigation, this paper will explore the complex factors institutions must address throughout the process of developing, implementing and evaluating an e-learning project.
“An examination of online competency-based education unveils the tectonic shifts to come in higher education. Over time, the industry-validated experiences that emerge from the strong partnerships between online competency-based providers and employers will ultimately have the power to override the importance of college rankings and accreditation.”

Chapter 1: Starting at the Top

It may be too early to make such radical predictions about the total demise of the traditional college, as that above made by authors Michelle R. Weise and Clayton M. Christensen in Hire Education: Mastery, Modularization, and the Workforce Revolution, it no less reflects the pressure and urgency felt by schools and their leaders. Whether to defend the institutional structure from attack and preserve its legitimacy in the future, or to aggressively pursue new educational methods and pedagogies, if not both, administrators must respond to such suppositions. Alternatives have a great deal to prove with respect to not only learning outcomes, but also in their power to influence social mobility if they are to truly eradicate traditional institutions, and the benefits that a majority of Americans still associate with a “college education” — which have been consistently validated by data — despite the current challenges. But as has been proven throughout history, radio silence often provokes, rather than stifles, discontent; so even if notions about complete upheaval in higher education are, in fact, overstated, academic leaders’ inaction may at best come across as sheer ignorance, and at worst, denial of modernity and the plight of today’s student. An explicit denial or outright resistance to

change will yield only the latter. Adapting to the times need not mean concession to these predictions: innovation is a critical way to adapt without surrender. For many, online education is considered a plausible means to do so, but to fully “understand the potential for educational productivity offered by online learning opportunities, it is similarly necessary to look at the pedagogical and practical affordances through which productivity gains might be realized.”  

Deliberations at the Helm: Institutional Leadership’s Role in E-Learning Development

Implementing an innovation of any kind can be a difficult process; one with far-reaching implications that simultaneously challenges traditional philosophies and practices is even more wrought with complexity. Such is the case for higher education institutions, which are called upon to respond “to both internal and external changes influenced by technological advances.” The Economist’s Emma Duncan notes the irony of universities’ resistance, given that the same “institutions have also powered the digital revolution that has improved life in every corner of the planet.” Essentially, progress that has now put intense pressure on traditional institutions is, in part, a cruel by-product of their own excellence.

As technology continues to increasingly permeate academic life at the elementary and secondary levels, incoming generations of college students will be accustomed to using digital mediums for learning. Luckily, the accessibility of physical devices as well as various digital resources devoted to academia has grown in tandem, both for the

57 Bakia et al. “Understanding the Implications.”;15.
individual student and for the institution at large.\textsuperscript{59} “However, the procurement of leading-edge technology is merely the beginning of a journey toward the delivery of online education. Mere access to technology is insufficient in ensuring project success. Faculty and students require appropriate administrative support before, during, and after the implementation of new technology.”\textsuperscript{60} The DBIR framework necessitates that the process of implementation be studied as it actually unfolds in reality, a far greater source of value than mere conjecture about how it should look. Thus, analysis of a comprehensive e-learning project must begin from the start, that is, where the process is set in motion. Though the idea or inspiration for online learning may originate elsewhere, it can only get its legs from mechanisms within organizational structure of the institution. Abundant research supports Abel’s conclusion that “the involvement of key leaders in prioritizing when to focus on online learning development was critical and highly correlated with perceived success.”\textsuperscript{61}

Presidents: Symbolic and Pragmatic Project Allies

Institutions’ presidents are a particularly crucial. Not only do these institutional beacons represent their respective institutions to the external academic community and the public but also they possess both real and symbolic power within the school itself. In the face of the many aforementioned attacks on higher education, the majority of university presidents are surprisingly optimistic about the future of American higher

\textsuperscript{59} Amanda C. Barefield and John D. Meyer, "Leadership's Role in Support of Online Academic Programs: Implementing an Administrative Support Matrix,"\textit{Perspectives in Health Information Management / AHIMA, American Health Information Management Association} 10 (Winter 2013): 1, PDF.

\textsuperscript{60} Ibid.

education according to a recent report by Maguire Associates. However nearly two thirds of those surveyed believe “the system will look very different ten years from now than it does today.”

But this is not to suggest these leaders are resistant to change. Despite the common conception that traditional institutions (and those who run them) are stagnant and stubborn entities, most college leaders welcome change - and substantial change at that. “When given the options of evolutionary change or disruptive change, two-thirds of the presidents favor for massive or moderate disruption,” though they do have a clear and overwhelming preference for “hybrid courses that blend face-to-face learning with online learning, and adaptive learning that uses technology to adjust lessons based on the needs of the student.” This is true for presidents of both public and private institutions.

By contrast, the majority remains skeptical of open courses and MOOCs’ ability to positively impact higher education. Interestingly, given the demographics of the survey respondents, this majority must include many presidents of public schools – those most likely to need to resort to the use of open-courses in the future, if necessary. Public schools by definition are tied to the political system and state funding, and expected to educate a massive number of students, and at a lower cost, compared to their private counterparts.

The poor evaluation of MOOCs not only explains the tendency not to award credit to students who complete these courses – even if the institution itself is the “host.”

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63 Ibid., 10.

64 Ibid., 18.
As previously discussed, however, this could be a circular argument: belief in the inferiority of open-courses could prevent even those institutions offering them to external enrollees. The more cynical argument, again, suggests a chicken-or-the-egg logic: are these courses inherently inferior thus leading to presidents’ (and others) skepticism? Or, are prevailing biases within institutional leadership dictating the low quality of MOOCs, and, as a result, their lack of acceptance as a valid method of instruction? These biases might, theoretically, apply not only to pedagogies of teaching; in fact, given the presidents’ aforementioned openness to innovation and new methods, strict adherence to traditional pedagogy may not be the dominating bias. The various market influences brought by globalization coupled with the increasing number of alternatives to a college degree, warrants consideration of an additional premise. Perhaps at least some of the pessimism surrounding open-courses reflects a bias about who awards academic distinction, and less about how it is achieved. More than any other single actor, presidents represent a long tradition of institutions as the “gatekeepers” of the academic community, and by extension the well-documented benefits a degree procures over lifetime. While their commitment to improving education through innovation may be pure, embracing new methods may also be to Presidents’ advantage if institutions are to remain the primary portal for academic and economic success. Likewise, though the preference for hybrid models may very well be genuinely tied to quality, it may also be strategic. Diverting too many students and or too much coursework to the web could undercut the necessity of the structure of the institution itself.
Suggestions of this nature and the cynical view of the traditional institution are widely touted by the most liberal of education reformers, or those who have market investment in some alternative-to-degree. Regardless of the merit of these claims, institutions *are* adapting for whatever the reason. Whether to compete with the educational marketplace at large or more directly with their brick-and-mortar peers, schools will at some point need to pursue *quality* in their online programs. To begin this quest immediately, rather than wait until e-learning is virtually a standard offering among all institutions, could be advantageous in the long run. Overall, presidents recognize the direction higher education is headed. Motivated by pure devotion to educational progress, the sustainability of the college-model, or by their own legacy as the instigator of innovation for the institution, presidents have a vested interest in the successful evolution of an e-learning program. They wield both real and symbolic influence, and as leaders are in a prime position to ensure an e-learning project is launched with fervor.

**Leadership At Large: The Board**

Presidents possess incredible clout derived from the nature of their post and a high degree of individual visibility, both within the institutional hierarchy and to the outside world. However, they are not the only source of institutional license. Any project, even those with the full weight of the Presidents’ activism, is likely to fail (if ever get off the ground…) without the support of other key institutional leaders. At most institutions, a governing Board of Directors consisting of at least the President, Vice President, Chief Academic Officer and Trustees supervise the operation and performance of the institution at large. Given the governing board’s oversight responsibilities, it must interact to some
extent, with all subsets of the institution. Those at the helm, however, are entrusted with
the greatest organizational jurisdiction and ultimately have the power to green-light any
e-learning project. The motivations\textsuperscript{65} for embarking on this type of endeavor may or may
not arise from the Board itself, but regardless of its origins must be authorized by this
body, assuming, of course that the proposed project constitutes a true institutional pursuit
either due to the degree it deviates from traditional practice and/or the scope of
anticipated impact.

Not only must the Board of Directors authorize most (if not all) institutional
projects – especially those as substantial as an e-learning endeavor – but it is also
additionally emboldened with the power of the purse. The financing of an online project,
as will be expanded upon later, is often correlated with the outcome of the project,
predictive of its future success or failure. Inadequate funds or poor allocation for the
initial development and rollout are only some of the monetary missteps that can hinder
such projects; securing additional funds and/or appropriately earmarking money to
support the continual evaluation and adjustment of the program are critical to a
sustainable e-learning project. The Board of Directors thus have a dual responsibility in
regards to their fiscal oversight for online learning project: (1) to raise or secure the funds
from outside sources (if necessary), and (2) efficiently plan and apportion these funds for
success in the long-term. Awareness of this second facet necessarily plays into the first,
dictating how the Board should approach various stakeholders: it must be made clear in
no-uncertain terms that an e-learning project, regardless of design and scope specifics, is

\textsuperscript{65} The motivations/ catalyst for pursuing an online learning project will be discussed in Chapter 2, which
details the preliminary considerations administrative leaders face.
a financial investment with “returns” that may not be monetary (i.e. learning outcomes, decreased time to graduation etc. depending on the intended purpose and ultimate result, unique to the specific project and school). Furthermore, the Board must make abundantly clear that any type of return must be measured in light of the intention to develop long-term courses or programs: the payoffs that both the Board and the shareholder(s) obviously hope for, will likely be slow to materialize, or at least in an explicitly visible or measurable way. Institutional leaders themselves must not misconstrue a lack of recognizable positive outcomes as necessarily being negative returns - of which there are admittedly apt to be some, especially for a poorly designed or implemented project. The two, however, are not synonymous.

The Model Conundrum

Simply sanctioning an online course or program, leaving of the development and implementation to others, however, is not enough. In his testimony of the project development at Trinity Western University, Philip Laird summarizes the research he and his colleagues conducted on the experiences of other traditional institutions. Their analysis revealed “four categories of models of e-Learning integration” existing in both public and private universities. In keeping with DBIR’s emphasis on situational context and pragmatism, the following paradigms are not prescriptive hypotheticals; despite the misleading use of the word “model,” the following configurations represent the ways implementation has materialized in reality for a vast number of schools and thus may serve as a more legitimate reference source for administrators seeking to pursue an online

Furthermore, a comprehensive review of the literature on online learning implementation, and additional case study analysis finds these models to accurately capture the different strategies and trajectories used to date. Laird defines the following four models:

- **“independence or distance education” model**: the online or distributed learning unit operates on the fringes of the academic enterprise.
- **“lone wolf” model**: individual faculty members are given exclusive control over the online creation and distribution of their educational materials.
- **“silo model”**: each department/school/faculty is given exclusive control over the design, development, and delivery of online learning.
- **“integration model”**: online learning infrastructure is placed at the core of the academic enterprise.

The first two models, by definition, relegate the development and execution of the project to a select few individuals, and are - for better or worse- more likely not subject to the various regulations of a more comprehensive undertaking. The limited scopes of the “independence or distance education” model and “lone wolf” model do not represent a true institutional enterprise, and though perhaps with advantages from specialized management, are nonetheless irrelevant for the focus of this paper. Thus we are left to consider the latter two models.

In expanding on his definition of the “silo model,” Laird highlights a relevant drawback: “In this model, infrastructure costs become redundant and standardization of
online educational materials is poorly controlled.”67 While this is no doubt a potential flaw, Laird treats it as an *inevitable* consequence of the silo model. This is prone to falling into the unfortunate tendency to disregard (or in this case, condemn) a specific approach, as referenced in the discussion of research limitations. The potential success or “fit” of this model is related to an individual institutions’ unique circumstances as well as the intended scope of the initial project; while it may produce unnecessary and “redundant” costs and poor quality for those schools in Laird’s analysis, it should by no means be presumed to yield the same problems for *all* institutions.

A number of variables, or combination there of, may cause a school to purposefully select the silo model: the size of college, the proposed scope or size of project (be it number/variety of courses, total students served etc.), degree of departmental freedom, means of assessment for the course/program, selected revenue strategy etc. These variables, which will be expanded upon later, are all elements warranting administrators’ consideration that may justify the use of the silo model.

However, it is likely that the silo model would only be sufficient for the initial e-learning project, and likely one with a limited scope. Laird’s “observations” about the redundancy and inefficiency of the silo model are, in some cases, a *result* of an expansion upon the initial project. While no doubt some schools’ use of the silo model was problematic to begin with and these defects as unavoidable as Laird’s language suggests, the silo model may have served the organizational variables and needs of other schools sufficiently for the preliminary project. However, if the size and intricacies of online

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67 Laird, "Integrated Solutions to E-Learning,".
learning progress within an institution, these shortcomings are apt to come to fruition. Considering the expected trajectory of e-learning as a critical mechanism in the future for the vast majority of higher education, the silo model would likely only be viable for a very short term.

Thus, while unfair to discount the silo model on merit, it may be more realistic - and likely cheaper over the long term - to rule it out at the forefront if, while fitting for the short term, this model is nonetheless inconsistent with the implications of future online growth. DBIR inquiry and extensive literature on both organizational change and e-learning in particular, overwhelmingly suggest administrators sacrifice ideal “fit” for the current institutional state, in favor of a forward-facing strategy. An eye toward the future of a sustainable program that can withstand growth and development requires that administrators take on an active role in the project. The tremendous growth of online education thus far has not resulted solely - or even in large part - from internal motivations, nor will it likely in the future. The various external forces, be they market, public, governmental etc., continue to compel institutions to innovate for reasons beyond their control. In other words, administrators’ even faculties’ personal dispositions toward online learning may be all but irrelevant in the future, and yet their roles are increasingly important to the endurance of the institution.

Thus, the “integration model” should not be seen as the “default” as the only the last remaining option by process of elimination. By definition, this model necessitates participation at all levels of the institution, and most aligned with the need for sustainability, and active administrative-led mobilization. The “integration model”
embraces the daunting complexities of a full-scale endeavor, but does so with the commendable goal of searching and perfecting an online program that is not only able to meet the institutional needs - be it academic, financial etc. - but is able to efficiently withstand and adapt the expected trajectory of e-learning. Thus, regardless of the specific decisions made along the journey (be it the subject, design, or scope of the course or program) which will and more importantly should be made in deference to the specifics of the individual school, adopting the integration model - or embodying its’ commitment to an active administrative role is a pragmatically sound decision.

To quickly conclude the experience at Trinity Western: Laird recognized the necessity of adopting the model most conducive to this ambitious goal, and selected the “integration model” to guide the development and implementation from of the e-learning project from the forefront. Combining his own experience (post-facto) with the conclusions drawn by past institutional experiences, Laird reaffirms the necessity and benefits of the integrated model, writing that the “placement of the online learning enterprise at the core of academic administrative processes enables maximum quality and standardization of quality with minimal redundancy and cost. When the unit responsible for online learning is also given the latitude to research and experiment with new and innovative distribution models, the stage is set for a productive and rapidly evolving venture into online learning.”68

The pragmatic benefits of a comprehensive approach are not lost on those directly involved and impacted by online innovations: The APLU-Sloan National Commission on

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68 Laird, "Integrated Solutions to E-Learning."
Online Learning Benchmarking Study, for example, emphasized that all types of institutional participants interviewed – administrators, faculty and students – “commented on the need, perhaps even the imperative, for institutions to engage in broad, inclusive planning processes, given the amount of time and money that must be invested to develop and sustain these programs”69 and the belief that “some form of centralization was a key factor in that success.”70

Once again, this data was gathered from public colleges and universities, but that is not to suggest that private institutions should not heed this advice. These respondents, however, arguably have more experience with the real complexities of implementation, as personal attitude toward e-learning may have been all but irrelevant given the enrollment and budgetary constraints that have pressured if not forced public schools to adopt new methods of instruction. The integration model, it would appear, goes beyond sheer theory or recommendation, and the academic world is, luckily, in the process of catching on.

Exaggerated or not, claims that technology has the power to abolish traditional institutions place in higher education have been posited - and publicly: leaders would be wise to accept, if not embrace the changing tide before it is too late. “Too late” is unlikely to be the altogether dissolution of traditional colleges for even those most critical of these gatekeepers concede that “the vast majority of students will go through traditional institutions for the foreseeable future, and the inefficiencies in those institutions mean

70 Ibid., 21.
that even modest reforms should improve matters.”\textsuperscript{71} But the longevity of the institution that \textit{resisted} while others acclimated and acted will be at risk; that institution will be crippled if not crumble. The role that leadership - both Presidents and the Governing Board - must play, as only they can, in securing institutional durability cannot be overstated.

\textsuperscript{71} Andrew P. Kelley and Frederick M. Hess, \textit{Beyond Retrofitting: Innovation in Higher Education}, Hudson Institute Initiative on Future Innovation (Hudson Institute, 2013), 9, PDF.
Chapter 2: Defining the Purpose, Goals and Scope

Successful leaders are attuned to the overall temperament of the institution, not only by gauging the openness of faculty, but that of the student body, but also the board. While resistance or support from just one of these cohorts may not be sufficient to completely table or instigate an online initiative, the general sentiment and cohesiveness of these bodies is likely to impact the scale of the proposed project. It will also help in anticipating potential obstacles, bypassing them completely when able, or reacting efficiently and purposefully should they occur. Online Implementation researcher Suzanne Levy has documented six overarching considerations institutional and administrative leaders use to guide the early discussions and planning of these projects. Given that these elements have been legitimized by numerous subsequent case studies of a diverse range of institutions, including the following factors before a comprehensive analysis of the preliminary aspects to an e-learning project is helpful for providing a general framework of common considerations.

1. Vision and Plans
2. Curriculum
3. Staff Training and Support
4. Student Services
5. Student Training and Support
6. Copyright and Intellectual Property

These elements reflect “big picture” as well as more “technical” considerations that, though they may not be decided in the exploratory phase, leaders must always be conscious of to some extent. Rather than addressing each in a sequential or fixed order, DBIR methodology, and the complexity of reality itself, suggest that these be used
Motivations or Catalysts behind E-learning Projects

As with the many structural variables across institutions, the origins for an e-learning initiative are likewise diverse: both the internal composition and external pressures create unique circumstances and considerations influencing the pursuit of an online course or program. The gravity and urgency of these variables not only determine where and how innovative ideas originate, but further influence the scope of the endeavor. Finally, before discussing the source and content of these roots, it is necessary to make a distinction on syntax: defining all instigators for change as either a “catalyst” or as a “motivation” is misleading, as the two are not necessarily synonymous. Such is the distinction between being convinced and being compelled: some actors may feel forced based on circumstance, others may possess an internal interest to pursue such a project. There is an array of possibilities even within these divisions. Noting this contrast is not to commend one over the other, but only to underscore a simple reality. Institutional leaders especially must be mindful of this distinction as they approach and interact with the different actors and constituencies involved in or affected by an e-learning project. Substantial literature, both theoretical but more importantly meta-analysis of case studies on implementation, stress that leaders should not attempt to subvert or negate these important differences and risk alienating or angering crucial partners, but instead frame the end goal, an e-learning course or program, in relation to
the greater mission of the institution.\textsuperscript{72} Rarely will this prove a smooth and easy task: the course of the institution may have deviated from the mission statement for sometime, for better or worse, and may need to be realigned if not redefined, a problematic endeavor in itself. But the benefit of appealing to a greater unifying mission is critical for providing a “clear understanding [to] faculty of why the institution is implementing online learnings”\textsuperscript{73} and equally important, in projecting a \textit{continued} commitment to the project. Institutional interviews and faculty responses from the Online Education Benchmark Study showed unequivocally that among schools in which such endeavors had been successfully implemented, “if online initiatives had not been included in these larger strategic planning processes—indeed, had those initiatives not been recognized as an institutional priority both in writing and rhetorically by campus leadership—they would have waned.”\textsuperscript{74}

\textbf{Financial Catalysts}

For many schools, a minor if not predominant motivation for adopting an online program is related to the financial landscape. MOOCs, as previously discussed, are geared toward increased revenue from greater student enrollment (and at a substantially cheaper production cost). It has already been reasonably assumed that online courses or programs for students \textit{within} the institution are fundamentally different - and this distinction extends to the financial reasons for development. Though like MOOCs, some

\begin{itemize}
\item \textsuperscript{72} Abel, ““Implementing Best Practices in Online,” 75; Richard J. Majuka, Min Shi, and Curis J. Bonk, “Critical Design and Administrative Issues in Online Education,” \textit{Online Journal of Distance Learning Administration} 13, no. 9 (Winter 2005); PDF; Anderson and Zawacki-Richter, \textit{Online Distance Education: Towards}.
\item \textsuperscript{73} Ibid., 76.
\item \textsuperscript{74} McCarthy and Samors, \textit{Volume 1: A Resource}, 15.
\end{itemize}
schools may be mobilized toward increasing revenues by educating more students, but these are *degree-seeking* students - another distinction previously discussed.

Though “determining whether online learning is more or less cost-effective than other alternatives does not lend itself to a simple yes or no answer,” the U.S Department of Education’s *Understanding the Implications of Online Learning for Educational Productivity* report outlines four general ways institutions are seeking to use e-learning to reduce costs:

1) Increasing the rate of student learning by increasing motivation and student time on task and helping students grasp concepts and demonstrate competency more efficiently;

2) Reducing salary costs by redesigning processes to allow for more effective use of teacher time, increasing teacher-student ratios or transferring some educational activities to computers;

3) Reducing facilities costs by leveraging home and community spaces in addition to traditional school buildings;

4) Realizing economies of scale by leveraging initial development costs as broadly as possible.

Institutions may seek to educate more students *per course* or program. Others aim primarily to reduce the time-to-degree for a growing student population that would otherwise overwhelm the structural capabilities of offering only face-to-face courses, and thus enable rather than stifle the number of incoming enrollees. While the latter problem is attributed mainly to public universities in discourse, enrollment growth is a worldwide phenomenon. “The global tertiary-enrollment ratio—the share of the student-age population at university—went up from 14% to 32% in the two decades to 2012; in that time, the number of countries with a ratio of more than half rose from five to 54.” To put
that into perspective, “University enrollment is growing faster even than demand for that ultimate consumer good, the car.” The variables in some situations may require that an institution pursue online learning as a means to attack both of these confounds. In these scenarios, the monetary outcomes are one variable in a specific efficiency equation, in which “productivity is a ratio between costs and outcomes that can be improved in one of three ways: by reducing costs while maintaining outcomes, improving outcomes while maintaining costs or transforming processes in a way that both reduces costs and improves outcomes.”

As will be discussed in greater depth later in this analysis, schools must remember that this is a long-term endeavor, and the monetary benefits will accrue over time. The Board must confer the realistic expectations to all financial stakeholders at the very beginning so as to avoid controversy down the line, should unrealistic expectations remain unmet by an equally unrealistic deadline, clarifying that e-learning projects “require initial investments, but successful efforts reduce costs over the long term, even after these initial investments are taken into account.”

Monetary impetus, however, can stem from not one, but two directions. Those discussed above represent examples generated from within the institution itself. Another internal impetus relates to other operational and budgetary aspects: for example, the cost to educate a student born by the school, or cost-per-pupil, is higher than ever before. The

76 Bakia et al., “Understanding the Implications of Online Learning,”:V.
77 Ibid.
cost-per-pupil, though historically higher than listed tuition price, has risen in part
because of technology - which can be expensive to purchase and implement, even more
so for the latest or most “cutting-edge” offering. Furthermore, globalization and the many
luxuries afforded with technologies have yielded a different expectation of what a
“college experience” entails from that held by past generations. The concept encompasses
not only expectations related to academics, but also to the increasingly novel “perks”
offered to lure potential students. Coupled with declines in government funding, this
trend has been especially unkind to public institutions. Private institutions too though
have recently shown some push-back, specifically against the growing cost in the use of
such “perks,” and their potential to detract and distract from students’ academics pursuits
and undermining the educational integrity of the college.

The more infamous concern, given the recent outcry over tuition hikes,
exacerbated by a dramatic increase in out-of-pocket costs over the past two decades, originates from the opposite direction: the consumer. Students and their families are
pleading for institutions, both public and private, to address this trend. Different schools
face varying degrees of financial pressure: public schools are traditionally expected to be
cheaper than private institutions, but as a result of dramatic drop in direct state funding
over the last three decades (true across the vast majority of states), they too have raised
tuition considerably. This trend has been doubly painful at public institutions: state

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78 “The world is going.”
funding directly to students has also taken a substantial hit, increasing the total consumer expenditure on a degree both as a percentage of the total and in real terms.\textsuperscript{79}

In this regard, schools have two options: to do more with each dollar, or to find a way to lower the operating costs of educating students. There are, of course several ways either of these dilemmas can be addressed and e-learning is but one. While by no means the simplest path – cutting perks for example, would be a much quicker fix – e-learning has the unique ability to fulfill one, if not both of these conundrums. Given the established growth in online courses across the higher education spectrum, an online-based “solution” to monetary concerns can simultaneously address the issue of institutional relevancy, and potentially improve student-learning. Scaling back “perks,” by contrast, could harm a school’s relevancy or appeal when compared to the offerings of other institutions. It certainly would not facilitate deeper learning.

Though online-learning has yet to demonstrate as significant impact on the cost-curve of higher education as a whole as many have hoped – including MOOCs in the equation - there is promise as some individual institutions have seen a drop in the cost-per-pupil. Looking at just one minute cost-cutting aspect, “conducting a bulk of learning activities online, costs associated with copying materials (e.g., paper, ink, teacher time) and paperwork can be greatly reduced. According to one estimate, for copying materials alone, online learning can potentially achieve a saving of $2.2 billion per year at the national level, based on an estimate that schools save $40 per student each year.”\textsuperscript{80}

\textsuperscript{79} Sandy Baum and Jennifer Ma, \textit{Trends in College Pricing} (The College Board, 2014), 22-23, PDF.
It will, of course, be some time and require continued online growth and data points, before claims about the effect of online learning on the higher education system at large can profess true validity.81

**Student Demand**

Student-oriented demand, in economic terms, is sure to drive increased innovative measures so that higher education can accommodate the increasing number of enrollees: while attending college is no longer a luxury in the sense of scarcity (though for many a luxury financially) for all the societal benefits of mainstream post secondary education, the influx of students simply too much for the current institutional offerings, both financially as discussed above, but also in terms of other “inputs” like the number of professors, physical space etc. These numbers are only going to continue to grow, especially if federal policy has any say: easing student loans and pressuring schools to lower barrier-to-entries for students’ otherwise unable to attend, while simultaneously increasing the total number of graduates are all elements of the current agenda. Other organizations are on board as well; “The National Association of System Heads, for example, has organized 11 state systems of colleges and universities behind one big goal, and that is to produce 350,000 more graduates by 2025. The University Innovation Alliance, which is a group of 11 public research universities from all over the country, has committed to producing 68,000 more college graduates by 2025.”82 Should even a portion of these ambitious numbers be realized, institutions must innovate and adapt to handle the influx. (See Appendix A) Furthermore, they must seek out reliable ways to do

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81 Bakia et al., “Understanding the Implications of Online Learning,”:30.
that does not sacrifice quality; a highly educated society by numbers is ineffectual if graduates are not truly “educated.”

For some institutions, a more direct type of student demand may be a minimal to significant impetus for incorporating online courses in the academic framework: a recent survey conducted by The Boston Consulting Group revealed that “students across all demographics and backgrounds now want to mix online only, blended, and traditional classroom courses to create a learning experience that combines virtual and traditional settings.”

Furthermore, student demand calling for the development of or expansion of an e-learning project may not be derived solely from the financial catalysts mentioned in the previous section. Surveys and case studies affirm that for students who have taken an online course, the flexibility afforded by many configurations was a substantial and consistent motivation for enrolling. This is a major motivating factor for students have not yet taken a course online (or in blended format) but are considering one in the future. Students overall are “demanding much greater interactivity and connectivity” from their educational experiences. Students additionally appreciate the accessibility of online course materials that are not only more “relevant and dynamic” but are increasingly less expensive and quicker to obtain than purchasing physical books etc.

85 Ibid., 6.
86 Bakia et al., “Understanding the Implications.”;31.
It must be acknowledged, however, that at some institutions - and likely more schools in the future - some variables may limit students’ freedom of “choice” when it comes to class format. These include the school size, GE requirements, or individuals’ chosen major etc. In these scenarios, student demand for online courses, or student-specific motivations may be all but moot. An extensive research project by The Boston Consulting Group entitled *The Five Faces of Online Education* accounts for this scenario, but segmenting the entire student population into five groups reflecting different attitudes toward and motivations for taking online courses:

1. **True Believers:** as the name suggests, these students believe e-learning provides a “great alternative to traditional, in-person education, rather than as an integral part of the full menu of educational offerings… are the most to online education and [see] very few inherent barriers to future adoption.”

2. **Online Rejecters:** these students are critical of the quality of online education, and skeptical of the effect reputation of such programs will have on employment.

3. **Experience Seekers:** while they share many traditional beliefs about the college experience, these students value the “experimental, social and emotional benefits of education.” Furthermore, “it does not matter greatly to them which form their education takes, so long as they achieve their goal of a degree for personal and social advancement.”

4. **Money Mavens:** The defining characteristic of this segment is the view of education as a “transaction” rather than an experience; these students seek a “return on their investment” via post-graduate job and financial stability.

5. **Open Minds:** These students are essentially up-for-grabs when it comes to the future of online education: should e-learning offerings meet their standards of quality while providing “benefits beyond those of traditional classrooms, such as greater interactivity with professors and peers,” these students will become “True Believers.”

Institutions and their leaders must acknowledge the composition of their existing and incoming students, while also anticipating shifts in the future that may influence or

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alter demand. (Refer to Appendix B for further characterization of the *Five Faces*) To some degree, students will always self-select into institutions that meet their needs, and as these “needs” may be academic- or experience-based, as opposed to financial constraints, schools may to some extent be able to control the rate of online-adoption. Nonetheless, predictions regarding growth in the number of students and in the growth of online education as a whole suggest “Traditional models will not reach most of the population in the future.” As numerous case studies and implementation research have well established, there is no uniform solution for all institutions. Those that “thrive, will have both better insights about students, as well as better strategies and responses tailored to those insights.”^{88} Ironically, technology itself has the power to provide the data to inform these insights.^{89}

**Changes In Pedagogy and Reforms of Learning Outcomes**

“American graduates score poorly in international numeracy and literacy rankings, and are slipping. In a recent study of academic achievement, 45% of American students made no gains in their first two years of university.”^{90} This one example of many sobering statistics regarding recent college graduates in our country, casting doubt on current and future students’ outcomes as well. The White House has even addressed this fall from intellectual-grace, with President Obama in 2009 calling for new “standards and assessments that don't simply measure whether students can fill in a bubble on a test, but whether they possess 21st century skills like problem-solving and critical thinking

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90 “The world is going.”.
and entrepreneurship and creativity.”91 Tying achievement in higher education to the health and security of the nation’s economy, the Obama administration’s Higher Education agenda is twofold: as already discussed, the first tenet calls for an increase in the number of degrees (the U.S is currently ranked 12th in four-year degree attainment, compared to 1st in 1990) by emphasizing not only greater access, but greater completion rate: over half, but nowhere near a 100% of college students graduate within 6 years.92

The second focus was to improve outcomes. The 2013 release of the U.S Department of Education’s controversial College Scorecard, though under the guise of “helping students to choose a school that is well-suited to meet their needs” by providing, in essence, a cost-benefit analysis for individual schools, likewise seeks to motivate institutions to improve their “returns” by increasing transparency and holding them accountable for value and quality.93

Some point to documentation of a continual and dramatic decrease in the time current students’ devote to academics compared to previous generations, to explain these dismal outcomes.94 Others believe that traditional institutions are simply lagging behind in providing what the modern tech-centric and globalized world needs from graduates. Some attack the content of the education itself, but this argument is both difficult to

91 Barack Obama, "Remarks by The President to The Hispanic Chamber of Commerce on a Complete and Competitive American Education" (address transcript, The Hispanic Chamber of Commerce, Washington Marriott Metro Center, Washington D.C, March 10, 2009).
define and to measure given the breadth of majors, concentrations etc., offered across higher education: even where some content may not lend itself well to practical application, who has the authority to completely erase an entire field from the academic landscape?

Conversely, others are re-evaluating traditional instruction practices. Lecture formats, for example, have been criticized as making students “passive” learners and call for new methods emphasizing student creation and self-driven learning, with professors playing the role of “guide” rather than lecturer. Others bemoan that most learning is synchronous, meaning education, instruction, and learning occurs at the same time, requiring professors and students to attend “class” - be it in a physical classroom or online - at pre-set structured times that are both inconvenient for the modern student, and also negate individual differences that may result in different paces of learning. Self-paced learning, they argue, allows for students to learn at their own speed and, hopefully, will result in better learning outcomes. By contrast, asynchronous learning is when instruction and activities do not necessarily occur at the same time. Research shows, however, that these different methods are beneficial for different kinds of courses and learning activities: this suggests that these two need not be mutually exclusive - either in the mind of professors and educational reformists nor in the ultimate configuration of a course. Students may in fact benefit from a hybrid. Other suggestions to rectify “problems” of instructions include more personalized learning, project-based learning, community-based learning and more.


Still others call for a reform of the ways in which student learning is assessed: this argument focuses not on content, but how students’ are called upon to, in effect, prove they have truly grasped material beyond base-level concepts. This argument calls for more dynamic approaches to assessment that demonstrate “authentic” or higher-order learning, and or ability to apply concepts and skills to real-world situations.  

Proposals for competency-based programs (CPBs) have becoming increasingly common as a solution to assessing students’ knowledge and practical skills. Instituted CPBs have been successful for many schools, and some argue that they are particularly amenable to online coursework, whereby “students earn credit based on what they can prove they’ve learned rather than how long they’ve sat in class.” Of course, course-configuration, internal school requirements, and general accreditation concerns, which will be discussed in Chapters 5 and 6, will largely determine whether the course, regardless of the validity and practicality of the learning metric, obligates students to fulfill a certain hour requirement.

Employers, too, have bemoaned that students entering the workforce are ill-prepared for it. This puts further pressure on defining the learning and skill development students should acquire from college. Some use this to argue for an overhaul on the actual content of education, others on the means of assessment of the current content, requiring more rigorous assessments of student learning to demonstrate

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true competency of the material and or real world-application ability. Interestingly, employer surveys reveal they are wary of e-learning in higher education.101 This is ironic given that many industries are nonetheless using online mediums to educate and train employees: of course, if these are recently-graduated individuals, perhaps employers view their usage of these programs as remedial learning because of inadequate or ill-suited college education, whereas older individuals who have long-since left college may not be expected to have learned certain skills. In this scenario, e-learning would be viewed as new training or skill development rather than “remedial.”

Institutional leaders anticipate employer hesitancy, which may be in direct opposition to the various other pressures toward online learning: “The proportion of academic leaders who believe a lack of acceptance of online degrees by potential employers is a barrier has remained at just over 40 percent.”102 Though not a majority, this figure is clearly a significant plurality.

Interestingly, despite well-documented faculty resistance and skepticism toward online education and that shown by employers, there is evidence to suggest that rest of the population is not only much more open to e-learning, but may in fact be for it. The Boston Consulting Group survey, for one, revealed a “surprisingly positive view of online education” among students and parents.103 Given “the younger generation’s digital-native status as early and heavy users of multiple forms of technology and devices” it is reasonable to expect a degree of confidence from students, whose comfort

101 Ibid., 27.
102 Allen and Seaman, Changing Course: Ten Years, 6.
103 Bailey, Barton, and Mullen, The Five Faces of Online, 2.
with technology very well cause them to advocate for these tools in the classroom. That an older generation not only views online learning favorably, but actually “advise their children to pursue degrees with at least some online component,” however, marks a significant shift in the perceived legitimacy of e-learning as an academic platform.104

There is plenty of evidence to suggest that growth in e-learning persists even where of changes in pedagogy or reforms of learning outcomes are not motivations for development. Concerns over productivity, as briefly posited in the discussion of monetary catalysts, emphasize the method of instruction over content: how can material be delivered more efficiently? This pragmatic question, of course, encompasses elements of cost as well as the number of students taking the course, ease of delivery, etc. The bottom line is this: even those resistant to e-learning for ideological or pedagogical reasons may adopt it, not to produce new outcomes, but to use it a mechanism to achieve the same outcomes. There is evidence to indicate that more and more individuals believe online courses are meeting this benchmark: 2014 survey data shows that 77% of academic leaders believe online learning to the same or superior to face-to-face courses - up 20% from 2003. This number increases when limited to academic leaders at schools with an e-learning program already implemented.

From this vantage point, online courses have in some ways less to prove, at least in terms of learning outcomes; to be deemed successful academically, e-learning projects must demonstrate that they are at least “as effective as traditional alternatives [if not providing] quality improvements that enhance and improve traditional instruction but as

104 Ibid., 5.
such need to demonstrate gains in learning quality or rate of learning to justify the additional expenses.”105 This passage rightly acknowledges that even where cost is not the primary catalyst for innovation, in the current atmosphere of financial constraint, is will inevitably be a factor at some point. Depending on the monetary flexibility (or lack thereof) of the institution, the outcomes do need to be superior to those of traditional courses, and must be differentiated enough to warrant altering the current system. The degree of necessary difference, or conversely, how much of a financial “hit” a college may be willing or able to take to achieve outcomes unrelated to cost, can only be determined on a school-by-school basis.

Whether the institution is compelled in the name of new pedagogies or discerning more learning outcomes, everyone, including policymakers want to schools to be more liable: “Regardless of whether individual students (or their parents) pay for services or if these services are provided from the public wealth, there is an ever-increasingly call for accountability that online and campus education systems are producing a quality product.”106 If the content in online courses changes, or if e-learning platforms must merely be able to exhibit comparable outcomes on the same material to those of existing courses, data will be crucial to validate not only the worth of the individual online program, but to justify and prove that of the institution itself.

**Funding the Initiative: Outside Sources and Internal Revenue Structures**

Regardless of whether budgetary constraints are a motivation for pursuing an e-learning project or from one (or several) of the other catalysts discussed, the source of

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105 Ibid., 3.
106 Anderson and Zawacki-Richter, *Online Distance Education: Towards*, 25.
funds to cover the initial start up costs (at minimum) will inevitably influence the overall agenda. Many of the schools that have existing online components confess that “securing and distributing financing was the most pressing issue they faced in developing and sustaining online learning programs.”107 The feasibility of the actual project and transition is only part of the monetary equation; assuming that the institution and its leadership are committed to maturing a sustainable online strategy, whether for educational or budgetary reasons, the financial implications of scaling a long-term project must also be considered. Schools must adopt “strategies that take into account the difference between resources needed to start a program and resources needed to sustain and/or grow a program.”108 Many schools have failed to incorporate such measures into their budget, or adequately convey the full extent of need to financial investors. At best, this will likely stall the progress or expansion of the course or program; worst-case scenario, not only would the project be abandoned, but the mere conception of online learning may be tainted, inhibiting future endeavors. The importance of securing sufficient funding from stakeholders, who understand the expectation of slow rate of return, cannot be overemphasized.

So where do institutions receive their funding, or who might they enlist? This in part may depend on the type of school, and by extension, the specific motivations or catalysts for an e-learning project: does the idea stem from within the institution itself? Or are outside factors instigating the innovation? The answers to these inquiries in turn

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108 Ibid.
lead to additional questions about the source of funds. Some institutions, for example, have extremely secure investment revenue that far surpasses that coming in from even the steepest tuition rates and may have sufficient existing funds to institute a program (and some with significant financial “buffer” to allow greater experimental freedom) without foundation or campaign assistance. (Appendix C) These include primarily prestigious schools like Princeton and Yale but also some lesser-known institutions including Agnes Scott College, Cooper Union and College of the Ozarks. Interestingly, a mere 75 institutions in the U.S control over 70% of all collegiate endowment funds, but account for a much smaller percentage of all undergraduates. (Appendix D)

The majority of institutions that educate the greater portion of students, however, are significantly more tuition-dependent. This may or may not be a motivation for online implementation. Tuition-dependent schools are much more likely to resort to outside assistance to help fund the initiative. The degree of financial assistance sought from or provided by outside bodies depends on many of the variables previously discussed: the motivation or catalyst for such projects, as well as the anticipated scope of the endeavor are factors that can impact not only the source of financial support, but the size of the grant or “ask.”

Regarding the “resources that sparked both the development and the sustainability of online programs on their campus, many institutional participants cited external foundation or federal government grants (U.S. Department of Education Title III and V programs), state or system appropriations, and seed money from the chief academic officer’s office,” according to The Online Education Benchmark Study conducted by the
APLU and Babson Survey Group. As this report dealt strictly with state and land-grant universities, private universities or small colleges will likely need to resort to other mechanisms for the bulk of project funding. But given dwindling government sources at both the state and national level, even public institutions likely need additional private funding - either today or in the future. Many of these institutions are state schools, and in a national climate of declining government support, may be minimally able to rely on the state for financial support for program development, a cruel reality given that public and political pressures are often those calling for innovation measures to decrease tuition fees and or enroll more students. In the most dire state higher education systems, like that in Louisiana in which an expected 82% cut to the new budget for public colleges and universities is being dubbed a “doomsday scenario,” institutions may be completely on their own to find the funds, either by trimming the current budget or turning to third parties.

It must be understood by all stakeholders that initial start-up funds must be supplemented by additional funds, with the goal of creating not only a quality program or course, but also a sustainable one. Both the quality and long-term viability of an e-learning project requires continued evaluation and updates, when necessary. Development and initial implementation must be succeeded by continued support for faculty and students, a necessity that must be incorporated to the budget from the beginning, predicting needs and usage as best as possible.

109 Ibid., 25.
110 Ibid., 27.
Here again, institutional leadership can have a tremendous impact: presidents, for example, are the most visible representatives both on and off campus - speaking to students, paying-parents, as well as alumni to articulate the goals and financial need of an online initiative. Boards of directors many times include key alumni - in terms of financial and influential clout, and can be helpful as a direct source of funds, or as a means to appeal to the greater alumni base for support. It should be noted however, that in many cases alumni donations or major gifts from third parties are earmarked for non-academic purposes. Establishing a campaign with a specific goal may be more effective in ensuring that generated funds will actually be directed toward this goal.

Realistically, external funds alone will rarely be sufficient to fully fund the initial development of a large e-learning endeavor, or even to sustain projects of any size, that will also require continued assessment and possible amendments to be truly impactful. Re-evaluating existing revenue streams and institutional budget allocations is a pragmatic and necessary course of action, regardless of whether amendments are ultimately made to create an online program. Should subsequent changes be made, leaders need to add the unfortunate and controversial task of trimming department budgets etc., to the already daunting task of convincing faculty members to teach (or at least support) the project. The accounting and infrastructure needed to understand the financial feasibility are far beyond the scope of this paper, and many variables too school-specific to warrant an in-depth analysis and recommendation, no less a widely applicable conclusion. A summary of the general approaches some schools have adopted that is limited observation rather
than prescription, is sufficient for summarizing models administrative leaders may consider.

Some institutions “have turned to both intra-departmental revenue-sharing plans and stand-alone revenue plans in order to sustain their online learning efforts, especially when technological and instructional design costs are supported by multiple units on campus. These revenue-sharing plans range in complexity.”\textsuperscript{112} In the simplest form, some funds are derived directly from enrollment tuition and given directly to the department offering the course; at the other end of the spectrum, more complex plans “often involve sliding-scale schematics that reward returns on risk and complexity of delivery supported by academic departments, online learning units, or both….With these models, academic units usually negotiate with technical support and/or distance learning units for revenue proportionality as a part of the program development, and they review revenue-sharing agreements on an annual basis.”\textsuperscript{113} Some schools may additionally adjust fees for all students “to support campus-wide technology environments and related technology purchases necessary to support and grow these programs,” which though at first seems to contradict the desire to lower tuition costs, is intended to so by ultimately distributing IT costs across more online and onsite students in the long run.\textsuperscript{114} Other institutions have turned to what are dubbed “e-rates” or “altogether different tuition structures charged to

\textsuperscript{113} Ibid.
\textsuperscript{114} Ibid.
students enrolled in online courses... used exclusively to offset the cost of support for specific online courses and programs.”

While at first glance, these more intricate revenue-sharing plans may seem too intimidating, interviewees at institutions using these models note a number of benefits. “First, participants remarked that these types of plans engage all the players in the decision making process. As a result, everyone is accountable for, and vested in, the success of the program. Second, revenue-sharing plans localize decision making by allowing units and departments to decide how they will reinvest the money. Third, revenue-sharing models provide an empirical undergirding that makes decision making fiscally transparent.” Of course, the precise circumstances and motivation for pursuing an online initiative will affect the type of revenue path most optimal for the institution, and that which is ultimately implemented; given the various pressures, the model that would best serve the school pragmatically and that which its constituents allow may be entirely different.

115 Ibid., 25-26
116 Ibid.
Chapter 3: Practical Components and Faculty Engagement

Getting the Ball Rolling: Initial Administrative Issues to be Addressed

The previous chapters established the crucial need for the institutional governing body to play an active role in the overall project, and the array of possible origins behind such an initiative. But these constitute only the preliminary “higher-order” considerations; a study by the Alliance for Higher Education Competitiveness of 21 institutions who described themselves as having been successful in implementing online learning found that the two factors ranked most important were executive leadership and support and faculty and academic leadership commitment, followed closely by student services and technology infrastructure. Not only must administrators play the part of “cheerleader” by engaging and continually motivating other actors during the process of creation and implementation, they must also provide the tangible infrastructural support necessary to facilitate all aspects of an e-learning project, from beginning to end. Creating an “environment conducive to technology adoption” requires leaders’ full commitment, not only in word, but also in action. Supporting faculty and students with the necessary tools and training allows these cohorts to focus on their respective roles: teaching and learning.

Prior to introducing an online project to Indiana University campus’ Kelley School of Business, Magjuka, Shi, and Bonk conducted a thorough review of case studies of other institutions’ experience to inform the process of implementation. (Shown in the source-format in Appendix E). These findings have been validated by numerous other

implementation-research studies, though they are often articulated differently. Given how minor these differences are - be it the number of “priorities” or the specific synonym chosen for the same idea, the list above is sufficient for clearly articulating the fundamental issues. However, Appendix F provides an additional example list of paramount administrative concerns from The APLU Sloan Commission report for comparison.

Despite the ample research on pragmatic concerns faced during development and implementation of an e-learning project, recommendations are limited largely to articulating the need to address these factors but rarely include tangible tools for facilitating the process. Meyer and Barefield sought to fill this void, developing two useful tools for organizing and characterizing various elements of the process. (Appendix G) The Administrative Support Matrix (ASM) “provides a process that can be followed or modified to meet the needs of university systems that differ in size or objective,” thus adhering to DBIR principles, and segmenting the general administrative duties outlined in past research into an actionable pseudo-checklist for leaders and developers to use not only in guiding the planning stages, but as an ongoing point of reference for providing cross-departmental support.

The consensus reflected across these lists of overarching priorities, the Administrative Support Matrix - which again, gain their validity in being derived from real school experience rather than small-scale experiments - is the need for some degree of centralization. Administrative oversight, as suggested by the integration-model, though

perhaps not *ideal* in the eyes of faculty or IT professionals, is a practical and tactical. “Centralization,” however, does not mean that the primary body tasked with the development of the project agenda be a homogenous or in some way sequestered from the diverse daily college operations. In fact, schools most satisfied with the implementation and, more importantly, the continued development of their e-learning project have found quite the opposite, emphasizing “the benefits of forming a *task force or advisory committee* to prepare their campus for online learning.” Those deemed most productive and useful were those with a diverse composition including “representatives from academic affairs, faculty—particularly those already experienced in online learning, deans and department chairs, representatives from faculty and student support units, information technology specialists, and representatives from other areas of the university that would be directly or indirectly impacted by online learning.”

These experiences, though contrary to organizational theories and practices of specialization, reflect a more realistic approach to the complex process of implementing new innovations within the dynamic academic environment. Furthermore, experiential evidence suggests that maintaining some form of “*task force after online programs have been established and have begun to grow and mature*” can improve the likelihood of project success. These committees can help to “address new or unforeseen issues that arise or examine and advise campus leaders on proposed changes in financial and

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administrative structuring, or policies and procedures,” providing a more effective way and less institutionally-disruptive means of pursuing e-learning.

**Faculty: Fundamental Considerations to Secure Participation**

77% of Academic leaders rated the learning outcomes in online education as the same or superior to those garnered in traditional face-to-face courses. These findings, however, must be made with a few caveats. First of all, “Academic leaders at institutions with online offerings have a much more favorable opinion of the relative learning outcomes for online courses than do institutions with no online offerings,” which is unsurprising, and again underscores the importance of leadership at the highest level in facilitating online adoption. Secondly, the findings of this report focus solely on “online learning” defined as “in which at least 80 percent of the course content is delivered online,” choosing not to survey administrators on the use of “blended” or hybrid courses – which it defines as a course in which 30-80% is delivered online. Given this selective designation, it may be that some academics leaders have a more favorable view of “e-learning,” when it also encompasses blended learning formats.

For the purpose of this analysis, a broader definition of ‘e-learning’ blending these two percentages will be used. However, technology has so permeated even “traditional” courses that the Changing Course report includes courses with up to 30% web-integration into its definition of “face-to-face” courses. It is necessary to differentiate between technology use done on a small-scale – say, in just one class - from

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120 Ibid.
121 Allen and Seaman, *Changing Course: Ten Years*, 5.
122 Ibid.
projects with a greater institutional effect. The stakes are vastly different, and thus larger projects are subject to much greater scrutiny. Thus, the working definition for all subsequent references to “online-learning” or “e-learning” as general concepts will comprise all course configurations with at minimum, 30% of content, delivery or activity administered online. As previously mentioned, a brief overview of various designs will be given later, so far as they relate to institutional considerations of available configurations that may suit the institution’s specific needs or objectives.

These figures, however, reflect the opinions of academic leaders, not faculty. Appealing to the institution’s faculty is a complex and delicate dance, however, and will be examined in greater detail further on. Interestingly, “academic leaders with greater exposure to online teaching are more likely to report it takes more time and effort to teach students,” accurately reflecting the views held by many faculty who are reluctant to support, let alone teach an online course.123 This may seem to contradict the finding that academic leaders at institutions with such offerings are overall more favorable to online learning that those at schools without. However, it represents a more holistic understanding of the possible hindrances to, and true demands of online instruction.

There has been a perhaps overblown proposition and subsequent debate over the notion that the growth of online learning will drastically reduce, if not erase the need for professors. Extensive research show that students, for one, continue to believe that quality teachers and academic mentorship are the most important and the most valued elements of their post-secondary educational experience. Furthermore, students likewise

123 Ibid., 23.
believe these same factors are critical for creating the ideal online or blending learning experiences in the future.\textsuperscript{124} This provides just one example suggesting that concerns about faculty displacement are severely exaggerated, and that teachers still very much have a vital place in the academic arena - including online.

This is not to completely disregard professors’ concerns about job stability; there are discussions surrounding personnel changes. The vast majority of such proposals are not the result of online learning initiatives however, but from cost pressures from both within and outside of higher education and the budget cuts or reconfigurations that have followed. While faculty are still considered essential to the academic experience, their roles are changing at many schools: many institutions, for example, are increasing the proportion of part-time faculty or associate professors, who receive lower salaries than their full-time counterparts. (See Appendix H for data on faculty roles, salaries etc.) Others are considering essentially “freezing” the tenure-track procedure, to the dismay of many professors, as a means not only to save money long term but also to ensure that all faculty remain highly active and engaged in the institution, either in teaching activities, research if not both.

Thus it is fair to acknowledge a degree of truth in faculty career concerns.

“Although somewhat controversial, some higher education programs are reported to have successfully reduced personnel costs without needing to cut full-time positions,”\textsuperscript{125} it is

\begin{flushleft}
\textsuperscript{124} Bailey, Barton, and Mullen, \textit{The Five Faces of Online}, 9.
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logical to suggest that faculty can better ensure their job security by being amenable to changing institutional circumstances that calls for a different form of “teaching.”

But it is not solely on the part of faculty to ensure a smooth transition: institutional leaders, too, need to seek ways to steer faculty in the direction of a changing educational landscape that, for many, may contradict or threaten their beliefs, engage them in the process of planning and development and most importantly, encourage professors to actually teach an online (or partially online course).

First and foremost, institutional leaders must be strategic in how they choose professors to assist in on-boarding faculty at large. Those who are most amenable to online learning and those best situated to successfully appeal to the faculty body are not necessarily one and the same. Those who garner respect - whether via seniority, achievement or even simply personal likability, are best equipped to leverage peer relationships and get faculty “buy-in.” It is thus imperative for institutional leaders to co-opt academic representatives with the greatest influence to support the e-learning initiative. It may be impossible to succeed, let alone generate a new initiative, if leaders rely only on those already favorable toward online education. Choosing wisely is critical.

These faculty liaisons will be imperative in assisting with determining what will motivate active faculty participation. Yet, administrators are often too hasty in pushing an agenda; failing to attend to motivations and concerns from those tasked with actually teaching students can breed resentment among faculty and impede the process of creating a successful and sustainable program. In many cases, faculty is surprisingly

126 John Bruner, "Factors Motivating and Inhibiting Faculty in Offering Their Courses via Distance Education," *Online Journal of Distance Learning Administration* 10, no. 2 (Summer 2007): 2, PDF.
uninvolved in the initial stages of program development. Despite ample focus on their resistance to e-learning,\textsuperscript{127} survey data suggests that faculty’s absence in planning is typically not a result of their own doing. The sequence of the cause-and-effect relationship between faculty skepticism and lack of participation may in some cases be an unfounded assumption that should be revisited to secure greater acceptance and a smoother transition.

To assuage these concerns and garner faculty support, leadership needs to affirm that they value professors and recognize their vital contribution to student body learning. That this even \textit{appears} to be up for contention reflects a clear disconnect between faculty and the leaders of the institution: presidents on both public and private campuses “believe strongly that faculty should be the number one drivers of change.”\textsuperscript{128} But faculty are not alone is feeling they are being surpassed; presidents too see other actors as steering the boat. “As presidents view the matter, politicians are driving change, but should in fact have little say, if any. They also maintain that business people have too much influence”\textsuperscript{129} and strongly feel that those currently pushing innovation “pay too much attention to cutting costs and not enough to changing the model of teaching and learning.”\textsuperscript{130}

\textsuperscript{127} Scott Jaschik and Doug Lederman, eds., \textit{2014 Survey of Faculty Attitudes on Technology} (Washington, DC.: Insider Higher Ed, 2014), 7-9, PDF.
\textsuperscript{129} Ibid., 14
\textsuperscript{130} Ibid., 5
However, most presidents simultaneously feel faculties are “failing to step up to the plate.” This can partially be explained by faculty reluctance because they feel, and often are, being largely undermined in the process. This is an unfortunate feedback loop that further underscores the need to reassert that faculty is valued. But once again, recognition will fall on deaf ears if not reinforced with action: leaders will be far more successful in gaining support if faculty are used as a partner throughout the process.

Numerous studies on faculty motivation for adopting online education over the course of two decades show an overwhelming tendency to emphasize intrinsic rewards over external incentives such as increased compensation or stipends. Surprisingly, these “generally parallel the same reasons why faculty teach traditional courses.” The top “personal and socially derived benefits [for teaching a distance course] are: a) the ability to reach new audiences that cannot attend class on campus; b) the opportunity to develop new ideas; c) a personal motivation to use technology; d) an intellectual challenge; and e) overall job satisfaction.” Two notable intrinsic motivations more unique to e-learning specifically, are the scheduling flexibility provided by teaching an online course, and the “opportunity to carve out professional niche.” Were faculty motivations tied exclusively to extrinsic motivations, institutional leaders might have an easier time getting them on board. Offering a tangible incentive – such as throwing

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131 Ibid., 14
134 Bruner, "Factors Motivating and Inhibiting," 2; Wolcott. “What’s in it for me?”
135 Ibid.
money at those willing to teach online would, in theory, be a much easier “fix” than tying e-learning to internal motivation, especially if the traditional face-to-face course already fulfills those same desires. Nonetheless, highlighting the connection between the old and the new for faculty - the desire to teach - is useful in that it can establish a sort of “constant” amidst a substantial change, much in the same way appealing to the institution’s mission statement can help “validate” an e-learning project.

However, targeting any type of reward-paradigm (intrinsic or extrinsic) is futile if disincentives for teaching online are too strong or too numerous. Some faculty concerns can be avoided at the onset with a smart strategy. For example, the perceived “threat” posed by an online program as an encroachment on one’s teaching domain, can be avoided if faculty are engaged early on in the development process. This may seem self-evident, and yet faculty members are in reality rarely consulted in the initial stages, often brought in once major decisions have already been made. Imposing pre-set agendas on faculty understandably results in resentment, as does seeking their input later in the process as if an afterthought. This tendency is compounded by the fact that for most e-learning projects, third party consultants and designers are recruited facilitate the transition of a traditional course to one online, seeming to validate faculty concerns over loss of discretion over the course’s content and instruction – if not their job in general. Leaders would do well to point out that the “recent arrival of blending learning contexts, in which parts of a learning sequence are facilitated online and parts in face-to-face classrooms, demonstrate that all teachers - even those who don’t see themselves as
distance educators - are compelled to acquire many, if not most of the skills of a dedicated distance educator.”

Another related means of demonstrating that professors are valued, and addressing a major faculty barrier to online adoption, is providing exceptional infrastructural support. Here too presidents feel that “faculty don’t get enough support in rethinking how to teach their courses in hybrid formats,” so providing not only some form of initial training, and more importantly, establishing mechanisms to afford continued support for those teaching such courses – be it technical skills or otherwise - is essential. These concerns will be addressed in the subsequent chapter on IT capability and technology support.

Related is the potential, even likely, need for some form of technical development prior to the course for a professor making the “switch” to a virtual classroom, is the belief that teaching an online course will, while offering some greater flexibility nonetheless require a greater time commitment than teaching a traditional face-to-face course. Interestingly, this holds true regardless of whether the instructing professor actually designed the course: even if the course and content was developed by someone else, be it another faculty member, department committee, or outsourced to a private education platform, the majority of professors still believe they will need to devote more time when teaching an online course than a traditional course. Considering that ongoing technical

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136 Anderson and Zawacki-Richter, *Online Distance Education: Towards*, 22.
training via workshops, seminars or IT “office hours” for professors has proved beneficial to the success of new online programs, this perception may be valid.

Should a particular online course or program in fact require an additional time commitment - which may be partially related to the topic or selected course format - the effect can be equally diverse. Both institutional and professor-specific variables can influence how the additional time “input” for an online course may lead to reorganization of policy or reprioritization of academic activities. Some institutions, for example, require faculty to teach a minimum number of courses per quarter/semester. Administrators should consider whether or not to adjust this condition for professors who elect to teach an online course139 especially if it is a new one and likely to require a heightened degree of monitoring and adjustment. “For example, teachers’ time may be covered by their contracts and therefore not entail an additional cost incurred by the online learning program. However, if teachers spend time providing online instruction, the system incurs an ‘opportunity cost’ for other possible uses of those hours that are lost.”140

The “opportunity cost” may not always be at the expense of instructing another course. “An additional issue concerns engaging faculty in online learning in the early stages of their careers. Time preparing for online teaching may translate into time away from preparing grant proposals and securing external research funding, which is especially critical for tenure-track faculty in a climate of constrained state resources and endowment losses.”141 The disincentives wrought by external climate are further

139 McCarthy and Samors, Volume 1: A Resource, 32.
141 McCarthy and Samors, Volume 1: A Resource, 33.
exacerbated by internal precedents: “some campus promotion and tenure policies lag behind the teaching and curricular innovations represented by online learning. As a result, campus policies that do not expressly acknowledge these efforts may in fact discourage or serve as a barrier to entry for junior faculty on a tenure track” who might otherwise be inclined or at least open to teaching an online course.142

There are, however, several ways that faculty may benefit from teaching an online course: “Visualizations of learning progressions and student development made possible through learning management systems and other online data systems may offer an opportunity to make the educator’s workload lighter by providing targeted input to lesson planning and attempting to address individual student needs,” which clearly aligns with professors’ interest in providing quality and efficient education to their students. “In addition, some online learning models are designed to transfer certain routine activities, such as skills practice and test preparation, from teacher-based whole- or small-group instruction to activities that students can conduct independently on a computer. Proponents of these models claim that this use of online learning allows class time to focus on activities and discussions that take greater advantage of teacher skills and real-time interaction with students.”143

In conclusion, administrators should consider a range of incentives to encourage faculty to develop and or teach online courses. While overall faculty may be less motivated by financial benefits and more by student-centered factors or personal opportunities for growth, monetary compensation may seem a fair remuneration for

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142 Ibid.,
increased time commitments that teaching (if not developing) a new online course may
require. A different or supplementary approach may include nonfinancial incentives such
as “training, course release time, or provision of hardware or software” for faculty
interested or willing to take on the responsibility of a new online course. Reevaluating
existing faculty-advancement policies - whether to disband them completely, or to adjust
them in order to encourage participation from faculty at all levels, may be a difficult but
necessary step given the degree and immediacy of the need for online courses some
schools face, if not to otherwise or also reflect the long term commitment to these
innovative measures.

144 McCarthy and Samors, Volume 1: A Resource, 32.
Chapter 4: Technical Concerns

IT Structure and Capability

Many schools may be relieved to learn, contrary to much public discussion, that the feasibility of an online project does not necessarily require the creation of an entirely new or independent Information Technology department, or outsourcing to a private party. “Rather, it often has meant the reformation, reorganization, or reclassification of an existing unit,” according the administration and faculty responses gathered in the Online Learning Benchmark study. Furthermore, institutional evidence suggests that “costs of Internet-based distribution seem to be relatively low in settings where an adequate technical infrastructure is already installed” Distribution costs, though, are categorically different from development costs, which will likely be high. However, reliable infrastructure channels can further capitalize on the benefits of leveraging the startup costs “across many students by reusing digital course materials” by ensuring it is the most efficient and reliable.

Ensuring IT capability is “adequate,” of course, is related to the scope and complexity of the online project: what course, or how many courses? How many students served? How many faculty? These are just a few of the components that administrators need to consider during the development process, and furthermore, need to closely monitor during the roll-out of the premier course. While in some ways these first courses are “experimental” to some degree - subject to evaluation and adjustment - they are nonetheless inherently different from the experimental research studies discussed in the

145 Ibid., 21-22.
introduction. The students enrolled in these courses, regardless of the type of requirement it fulfills, be it GE, elective or major, are unlikely to view their education as an “experiment.” Institutions, likewise, must match the seriousness with which students approach these courses with tenacity and diligence. Anticipating not only the minimal IT needs to support the endeavor, but planning ahead for potential obstacles signals respect for students’ education as well as a commitment to pursuing a successful and quality e-learning initiative.

Faculty Tech Support

In some cases, getting faculty “on board” may actually be the easier endeavor: the more delicate (and perhaps more important) step may be ensuring that professors teaching online courses have the necessary technological aptitude. The specific skill-set will, of course, depend on a number of course- and design-specific variables and thus will vary to some degree for each instructor. Before any of these elements are confronted, however, administrators must establish a more general agenda for “the range of resources and support that most effectively encourage and sustain faculty engagement in online learning.” These can be grouped into three primary areas: “professional support for course design and delivery, faculty incentives for development and delivery of online content, and institutional policies concerning intellectual property.”  

Developing a comprehensive and feasible plan for providing faculty support will not only be useful for preparing the budget for the initiative, but it will furthermore reflect an acknowledgement

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147 McCarthy and Samors, *Volume 1: A Resource*, 27.
of the new responsibilities of online instruction, and a commitment to supporting faculty throughout.

Faculty training workshops held prior to the course, and at many schools, routinely throughout the course duration, has been doubly useful. Not only do these workshops empower faculty with relevant skills, but can also serve to alleviate some of the disincentives, “including removing the sense of isolation that teaching online might create... and building a sense of community among online faculty.”

The Online Benchmark Study revealed that workshops however, only offer a limited amount of useful support if not supplemented by ongoing technological support. Much like students, faculty need to be able to seek out additional help in between scheduled general workshops. These “office hours” must be readily available to provide support for more specific topics, or additional individual instruction, and of course any unforeseen snags in the online delivery of lectures, tests etc. Unfortunately in the experiences at most public schools and likely the case at private as well, these crucial support units are often “only able to maintain small staffs to provide both training for course design and delivery support—and this is a source of concern if demand for those services grows in the future.” Thus, “any potential deficiency in or diminution of support services could have direct implications on faculty engagement and overall course and program quality.” In this sense, the comfort afforded by the distribution capabilities of existing IT departments, may be eroded by the need to expand other aspect of technology

148 Ibid., 28.
149 Ibid., 30.
support, either today or in the future should an institutions online offerings continue to grow.

Based off the Administrative Support Matrix previously discussed, Meyer and Barefield developed the Online Teaching Infrastructure Matrix. (Appendix I) This tool provides a means for those who actually perform the online-instruction to evaluate the support, both structural and technical, they receive from their administration. Detailed descriptions of each “factor” offer clarification and explanation of the item so that the faculty can clearly understand what measure they are evaluating, and its intended level of support. Furthermore, the matrix offers validation for each factors’ inclusion, by including the study(s) documenting its importance in the successful administrative and technical orchestration of an online course. In this assessment, the importance of the technical component cannot be understated.

**Student Tech Support**

Students in online courses or program need two types of support: academic and technical. The quality and accessibility of academic support must at be at the very least equal to that afforded in a face-to-face course. Not only is this necessary for the benefit of the individual student, but also as a means for the institution to fairly/adequately assess the learning outcomes from an online course compared to the traditional face-to-face format, especially during initial offering. Whether offering in-person opportunities or “virtual office hours,” instructors must be available for additional out of-class interaction, just as they would be expected for any course. Interviews regarding “Virtual office hours” as a means for this support were actually quite positive: in general students not
only felt comfortable interacting with their professors this way (likely related to increasing comfort with technology) but have appreciated the additional flexibility resulting from either simply not having to commute to a physical location or an increase in the total number of hours’ faculty are available, if not both. These sentiments reflect two of the same motivations and demands some students’ have expressed for the implementation of online courses; likewise, flexibility for students is one of the primary motivations 80% faculty cite for teaching an online course. Some faculty also express flexibility for themselves as well, though this contradicts the vastly held belief that an online course requires more time to even to teach - regardless of whether or not that professor develops the course.

Teachers Assistants (TAs) may be another valuable means of providing academic support to online students, especially if the course is designed and intended to service a large number of students (a General Education requirement, or Introductory level course, for example). TAs are already standard facilitators for traditional classes at many public institutions and commonly found for large courses at private schools as well. Using these resources for e-learning courses as well may help to allay some of the concerns surrounding decreased student learning as a result of reduced face-to-face time, especially during the first one or two semesters of the new online version of the course). It may also help to assuage faculty concerns about the additional time demand for teaching an online course, allowing some of the work to be delegated out to TAs, either in the form of grading assignments, or in by taking on some of the student consultation hours. TAs

150 McCarthy and Samors, Volume 1: A Resource, 39.
would of course need to be factored into the budget, and potentially provided technical training much like faculty depending on the scope and nature of their duties.

But academic support is only part of the equation for students enrolled in an online (or partially online) course. The quality of the course is moot and value of the academic support mediums compromised if the e-platform is unreliable or un-navigable for students. Currently, most of this support comes via “help desks” run by the central IT department of the institution. While most students surveyed in the Online Benchmark Study were satisfied with the overall technical support offerings, there are a number of caveats that must be addressed. For one, these students attend public institutions, some of which have substantially larger IT departments than those at private or even smaller public schools. Thus, the latter schools may need to assess the feasibility of providing adequate support to online students with the existing IT infrastructure and may consider expanding or reorganizing the department, if not establishing a stand-alone department solely devoted to facilitating smooth online-courses. Again, this depends on the scope of the project itself; one course versus an entire program would naturally require different degrees of support. The institutions’ future intentions too may dictate the shape of technical support: a large-scale transition to online courses in the foreseeable future may warrant establishing a large IT department at the forefront, even if the initial offerings are limited to a few courses.

Furthermore, though currently able to provide sufficient technical support via their centralized IT departments, even large public schools with existing online programs may need to reevaluate as the number of courses and/or students taking courses online
grows. The current infrastructure at the vast majority of these schools is responsible for the technical support of students enrolled in online courses as well as those in traditional face-to-face classes. While able to handle the existing demands and varied needs of these different cohorts, growth in the number of online courses and or students may complicate and overtax these units, to the detriment of both types of students. Similarly, scaling the technical support in tandem with online growth, and recalibrating as needed will be crucial to meeting the needs of both groups.

Schools may also need to consider providing designated computers in campus labs for online students. Though the majority of students today have a personal computer, a technological “emergency” will have a different if not substantially more adverse impact on students taking an online course in comparison to their peers. In a traditional courses a broken or malfunctioning computer is undeniably problematic, but in most cases the damage would be limited to lost or delayed assignments; rarely will class learning be completely inhibited (though many students will no doubt be frustrated by resorting to the archaic means of pen and paper note taking…) Conversely, an online student - especially one enrolled in a course with a scheduled web lecture or activity - will be at a severe learning disadvantage if their personal computer breaks. Administrators may need to plan for these scenarios, for though not liable for the actual hardware, the institution is responsible for ensuring that (paying) students are, to the best of their ability, able to learn and access class
Finally, students themselves may need some sort of training or online “orientation.”\textsuperscript{151} Computer “self-efficacy” has been found to be strongly correlated with both anticipated course success, and may influence actual learning outcomes.\textsuperscript{152} Institutions implementing online courses likely to affect many students, regardless of the students’ personal proclivity to take an online course, should consider a mandatory orientation or assessment prior to ensure that enrolled students have the minimum technological skills to take the course: no students’ learning should be inhibited solely due to individual technical savvy (or lack thereof).

Should the online course or program be hinged more upon student self-selection into the course, however, it may be reasonable (and cost-efficient) to forego such an assessment and assume students’ possess adequate tech-proficiency. Concerns over students’ personal abilities with online mediums may not be needed in the future as individuals become increasingly comfortable with technology, and as e-learning becomes increasingly common in elementary and secondary education. Future generations of incoming students’ self-efficacy with technology may make “online orientations” unnecessary and furthermore, may lessen the amount of academic oriented support institutional IT departments provide, and thus be replaced by a greater emphasis on hardware repair and distribution operations.

\textsuperscript{151} Leah A. Geiger et al., "Effect of Student Readiness on Student Success in Online Courses," \textit{Internet Learning} 3, no. 1 (Spring 2014): 73-84, PDF.
\textsuperscript{152} Maura Ignazia Cascio, Valentina Concetta Botta, and Vanda Esmeralda Anzaldi, "The role of self efficacy and internal locus of control in online learning," \textit{Journal of e-learning and Knowledge Society} 9, no. 3 (September 2013): 103-104.
"True genius resides in the capacity for evaluation of uncertain, hazardous, and conflicting information." Winston Churchill

Ch.5: Accreditation and Project Evaluation

Internal institution and department-specific requirements are not the only benchmarks administrators and faculty will need to consider and negotiate during the development of an online course: though by no means unimportant, these are much more flexible than those imposed by the greater accreditation bodies governing higher education as whole.

These external organizations are entrenched and historically revered bodies within the traditional higher education environment and exert their influence in establishing requirements and benchmark standards for degrees and certificates across almost all fields. These organizations are a powerful force for determining the “legitimacy” of virtually any program - traditional or online - offered by an institution. The general reluctance towards MOOCs is, in part, a reflection of the skepticism shown by existing accrediting bodies, or the lack of formally acknowledged body to oversee the quality of instruction and achieve some degree of standardization for desired learning outcomes. “It’s evident in the process of accreditation, whereby the credentials of each institution are certified or renewed by a panel of academics that represent entrenched institutional interests. (Not surprisingly, accreditation agencies are often skeptical of new approaches to instruction and credentialing.)”

But this final observation reflects an academic tradition that is no longer protected behind the sanctity of precedence; freedom and

liberalization of accreditations may change over time not only as online learning continues to change the landscape of higher education, both in and outside of the traditional institution. Accreditation reform is especially likely given the huge push towards competency-based education, which is gaining traction not only among employers, cost-conscious students, but increasingly so among educators in support of reform.

Nonetheless, the precedent and tradition of adherence to these institutions necessitates that schools at least bear certain standards in mind during course creation. To completely disregard these established standards risks alienating or hindering the future career or academic advancement of students and faculty who pursue these courses anyway. Furthermore, doing so adds a disincentive to those who might otherwise be inclined, but who fairly choose to prioritize the pursuit of a program or degree recognized as “legitimate” outside the college boundaries.

The standard means of amassing course credit “and other measures of educational attainment have been tied to “seat - time,” that is how many hours the student spend in a classroom with a certified teacher” not necessarily on mastery of the material - in some cases based very little on proven learning or application. Additionally, in this tradition “it does not matter if the student could master the required material more quickly or not.”

Many online courses - whether in blended format or completely online - are likely to require some sort of credit-hour standard for the foreseeable future given those maintained for accreditation of “legitimate” degrees, even with potential improvements in

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154 Bakia et al., “Understanding the Implications of Online Learning,”:27
155 Ibid.
assessment measures. But perhaps this is a good thing, until online courses are closer to “perfection.” Data enables professors and administrators to monitor if certain materials were opened at all, or if and how long a student watched a pre-recorded lecture or video, for example, and comparing these to student learning outcomes may help them not only pinpoint content or activity areas in which students are struggling, but to ascertain why: at the individual level, “immediate feedback loops established in online learning environments can also support the customization of learning content for individual students.”\textsuperscript{156} In this sense, some sort of “attendance” requirement may be helpful, if not for a specific student who may very well have been able to demonstrate his or her skills more quickly, but for the continued development of the course itself and the success of future students. Once a course or program has sufficient time to bloom, more advanced versions will support “diagnostic assessments and frequent and individualized feedback, which may in turn suggest a move toward competency-based systems. In this model, once students demonstrate a desired level of mastery they can move on to new topics and new skills” and productivity in terms of diminished “filler” time for the individual student, and perhaps greater institutional efficiency in that more students can be educated overall, without sacrificing the quality of content.\textsuperscript{157}

But this represents a long-term benefit, for which it is still too early to profess that online education will ensure given how recent the medium is compared to face-to-face education, and even more so when narrowed to the experience of a particular institution. There is still plenty to learn: for example, “the available research does not speak to

\textsuperscript{156} Ibid., 22.
\textsuperscript{157} Bakia et al., “Understanding the Implications of Online Learning,”:34.
guidelines for practitioners regarding how and under what circumstances teachers, mentors or facilitators can best be deployed through online interactions rather than face to face. The issue of appropriate teacher credentials and teacher-student ratios is far from resolved, and more research is needed regarding appropriate roles for teachers given particular students and content.\textsuperscript{158} However, in pursuit of some of these unanswered questions, it is important to reiterate the cautions warranted by DBIR: establishing such “guidelines” may not be unwise, and potentially dangerous to the success if done prematurely: each school possesses unique attributes and addresses factors differently, such that a standard set of guidelines or practices may be ineffective or in some cases counterproductive if mis-applied to an institution that has vastly different traits.

Compared to primary and secondary education, higher education does possess a greater degree of flexibility and discretion when it comes to instructional practices - less “uniform” (though still in many ways bound by accreditation requirements); still there is far greater freedom across higher education. This extends to faculty, who while perhaps limited in part by institutional or departmental guidelines, have significantly more personal discretion than primary or secondary school teachers who must adhere to more federal and state laws regarding education.

In sum, institutions seeking to develop and maintain accredited programs need to consult standards in multiple areas: (1) establishing learning outcomes, and thus the chosen means of student assessment and (2) instructional configuration including “credit” hours both in class and the lab when applicable (both of which will be readdressed in the

\textsuperscript{158} Ibid.
discussion of course design), but potentially also in the way in which the e-learning “intervention” project is evaluated overall. Thus, while acknowledging the influence of accrediting bodies may seem more directly relevant to the forthcoming discussion on course design, given the overarching presence external standards play in the overall development and implementation process, it seems pertinent to include it here preceding the discussion of project evaluation considerations.

Evaluation Methods and Scale

The assessment and analysis of the new online program as an institutional endeavor is distinct from the means of evaluating individual students in the course, though undeniably related. The chosen means of measuring student learning - tests, exams, activities etc. - are elements more directly relevant to the development of the course itself, and thus will be discussed in greater detail in the subsequent chapter on design.

Selecting the appropriate means evaluating an innovation is an important aspect of the planning process: the validity of any conclusions regarding the success of an e-learning project necessitates that the means of evaluation are established before implementation. Too often measurements are chosen post-facto after results have been gathered. This can lead to erroneous or unfounded conclusions as a result of bias and or a mismatch between the gathered data or observations and the selected measurement tool. Regardless of how favorable the outcome, it is critical for all involved to adhere to all tenets of rigorous and valid research practice. For these reasons, administrators must practice due diligence and determine the type of outcomes they wish to measure and the
appropriate assessment tool: to cut corners in this regard jeopardizes not only financial investment, but faculty time and effort, and most importantly students’ education.

“Any given program is likely to have a range of possible outcomes. Selecting the most salient outcome or outcomes to measure is a case-by-case decision,”\(^\text{159}\) related to the interaction of multiple variables discussed throughout this paper. Whereas predetermining the measure and method that will be used to assess the innovation, the validity of conclusions is equally hinged upon post-facto comparison to the outcomes documented from existing face-to-face course; this is true regardless of the chosen “outcome” so long as they are identical between the two versions of the course. This may seem an unnecessarily obvious observation, but given a startling amount of published research relying solely on the outcomes of the “experimental” online group to draw conclusions, it seems important to assert. Furthermore, there is an overwhelming reliance on student satisfaction surveys, undeniably valuable and interesting data in some respects, as the only measure of “success” in a vast amount of experimental and design research. The use of surveys and student attitude measures as the only means of evaluation are insufficient on their own. Administrators, students, and all involved or impacted will benefit in choosing additional learning-related measures, in keeping with DBIR, to better understand the true learning capabilities and cost-ratios of online programs instituted in a real institutional environment as a part of a student’s true academic experience.

\(^{159}\)Bakia et al., “Understanding the Implications.”; 10.
Regardless of whether financial incentives initially spurred the development of the project, monetary cost-benefit analysis will always be included in the post-implementation evaluation. “With respect to costs specifically, institutions need to consider both total costs and per-student costs of online learning relative to conventional instruction...Moreover, cost drivers in an online environment differ from those in face-to-face environments, suggesting a crossover point for student enrollment numbers at which one format becomes more cost-effective than the other.”\(^\text{160}\)

Whether the results of the financial analysis definitively dictates the future of the program, depends both on the degree of the ratio and the financial stability and flexibility of the institution. However, if the project is \textit{substantially} more expensive than the existing method without yielding at least comparable outcomes (or comparable with feasible adjustments in the next offering), even the most endowed schools will likely postpone if not scrap continued development and resource allocation for the course or program. For example, “an online course that requires teachers to replicate traditional lecture formats and deliver the bulk of instructional content verbally to passive listeners at the same teacher-student ratios—but does so online—will incur ongoing costs per student that may exceed the cost of instructional materials per se.”\(^\text{161}\)

Likewise, whether or not changing pedagogies or improving/redefining learning outcomes acted as an impetus for the e-learning project, should results suggest a dramatic and severe decline in student learning when compared to those of students of traditional course, serious considerations about the quality and perhaps the worth of the project as a

\(^{160}\) Bakia et al., \textit{Understanding the Implications}; 31.  
\(^{161}\) Bakia et al., \textit{Understanding the Implications}; 31.
whole must be made. Administrators must consider these realities, but even more so by those designing and delivering the course and the task committee overseeing the actual implementation and initial rollout.

In addition, it is critical to acknowledge certain realities and limitations while establishing what measures will ultimately be used for evaluating the success of the e-learning project: for one, “Technology infrastructure costs may decrease with emerging information technology solutions such as cloud computing, but development and management costs constitute non-trivial expenses that are expected to persist.”162 These inherent long-term costs must be appropriately built into evaluation benchmarks and expectation in the planning stage, and perhaps more importantly, remembered come time to actually assess the financial outcomes.

Learning outcomes will inherently be more complex, as they will vary based on institution and project-specifics. Furthermore, as evidenced by the movement for different forms or measures of student achievement, the chosen method for evaluating the online programs’ students and its academic value as a whole may be additionally complicated by competing or opposing ideologies.

One suggestion given in The Economist offers an interesting example of this predicament, by suggesting that “Common tests, which students would sit alongside their final exams, could provide a comparable measure of universities’ educational performance. Students would have a better idea of what was taught well where, and employers of how much job candidates had learned. Resources would flow towards

162 Ibid., 29.
universities that were providing value for money and away from those that were not.”163 While this method of assessment very well may afford these benefits, it is only “beneficial” so far as the test truly measures student learning: this would no doubt incite opposition from both teachers, students, and employers who decry either the reduction of students to “numbers” or find fault with the content of the material itself - a criticism that continues to plague even long-held traditional measures like the SAT.

From an administrative standpoint, institutions would no doubt cringe at the added distribution responsibility, faculty at the imposition of yet another standardized test, and students at an additional exam - one with content or emphasis that may not mirror that learned in class. Such a means of assessment would need not only unprecedented planning and coordination across universities and accrediting bodies, but flawless and easy execution within the institution to be able to assuage these concerns, and provide meaningful feedback.

On the other hand, given the concern over the quality of higher education overall, online mechanisms would surely be the most pragmatic and efficient means of conducting such cross-institutional measures of learning outcomes.164 Furthermore, given that research has consistently supported the notion that students perform best in the conditions or environment in which the material was learned, students who have been educated even partially online may actually outperform their peers on tests administered this way.

163 "The world is going,.”.
164 "The world is going,.”.
Depending on the motivation for implementation the course, as well as the chosen design/configuration, administrators may also choose to measure also by less-visible outcomes in conjunction with those gauging student material understanding: such as better time student and/or instructor time usage. For example, and partially online course (i.e. blended/hybrid) may allow students to cut down time otherwise used as “lecture” time and use resulting allocated in-class time bringing up clarification items and/or demonstrating applying the knowledge. Conversely, in response to data, instructors may be able to gauge how should use the lecture time: what items are students ‘getting’ or what may they need further instruction on? This will, hopefully, also improve learning outcomes for the course\textsuperscript{165} but at the least will cut down on time “reviewing” unnecessary material- that which students already understand and/or reducing the amount of time spent clarifying material on one’s own or in office hours (often done on an individual basis) done outside, and transferring these activities to the in-class time. The goal is, for both student and professor, more productive use of designated class time in hope that the learning and teaching will be more efficient.

“If education is always to be conceived along the same antiquated lines of a mere transmission of knowledge, there is little to be hoped from it in the bettering of man's future…” -Maria Montessori

Chapter 6: The Course

Determining Which Course or Program is Best-suited for Online Development

Determining which course, courses or program to transfer to an online format, depends, again, on several institutional variables. Should a motivation for creating an online program have been to decrease-time-to-degree, for example, administrators and faculty (presuming they are working in tandem given the previous discussion of multifaceted committees and collaborative partnerships) may elect the first classes offered online to be General Education requirements that all, or a large majority of the student body must take to graduate. Depending on the design format and other logistical particulars, transferring a GE to the web may allow for more students to take the course at any given time, free up the availability of physical classroom for other courses etc. Student demand, by contrast, may channel online development toward a particular major or field for example. Faculty willingness, too, may dictate which courses are offered.

Administrators likely will refer to research and the experiences at other institutions: some fields, or even courses within these fields may be more conducive to a virtual classroom. Many studies, for example, cite increased learning outcomes for courses like statistics or physics, suggesting that perhaps numerical studies or those benefiting from virtual conceptual models, can actually benefit from the transition to e-learning. Of course, given the various limitations previously discussed, some studies must be reviewed with an air of caution. However, these benefits have been replicated across
many different designs and for various cohorts, so there is reason to believe these areas have potential.

From a different vantage point, courses of this nature may be easier for faculty at large to accept; some may see math and science courses as being more conducive to online learning, in comparison to writing or philosophy, for example. But even these inferences are merely conjecture: not only will some individuals, regardless of field, inherently believe in the necessity and value of face-to-face classroom environments, but in the opposite direction, technology has yielded new ways for online collaboration and creation that are arguably just as conducive to the humanities if not more convenient for students. These considerations provide yet another example of the need for increased DBIR-style research in which online courses are used across the academic spectrum.

What courses are transformed into online courses - and who will teach these courses - is only half the equation, however: there can be contention over who actually designs the course, though it appears to be a case-by-case issue, the Online Education Benchmark study finding that at “some institutions, the role of the technology division in course design raised some concerns around staffing and expertise, while at other institutions it did not appear to be an issue.”¹⁶⁶ This is interesting because of the overwhelming perception that developing an online course is significantly more time-consuming than that for traditional course, as previously discussed in the chapter on faculty engagement. Given that control over design becomes problematic at some but not all schools suggests a number of possible explanations: (1) regardless of the expectation

¹⁶⁶ McCarthy and Samors, Volume 1: A Resource, 23.
of additional time commitment needed to develop material for an online, some professors are willing to make the commitment in order to retain control over the curriculum, (2) there are some professors who are willing to relinquish control over course design and content: whether because they genuinely trust the academic “expertise” of the technology staff, or if they do not, may be willing to concede control over design because it is time consuming and (3) the way that schools and professors negotiate property rights for developing online courses, which have the potential for both market value and academic distinction awards etc., varies from school to school; some institutions insist upon retaining full patent or copyright over the design, which can be a disincentive for faculty to devote additional time to course development when, at the majority of schools regardless of stance on development, faculty are not currently given accolades for teaching an online course.

Any of these premises are further compounded in light of the perception that teaching an online course - regardless of the role in development - is more time consuming than providing instruction via the traditional class format. Further analysis is needed to discern whether conflict over design is related to specific variables: i.e., certain fields or courses, the selected format (i.e. do professors of classes in which the course is only partially online relinquish control because they will have the opportunity to interact with students in person?)

Thus while the overall project development and implementation benefits from collaboration in promoting engagement and legitimacy throughout the institution\textsuperscript{167},

\textsuperscript{167} McCarthy and Samors, \textit{Volume 1: A Resource}, 15.
“whether IT or academic affairs should have primary responsibility for instructional design and support in the course development phase appears to be a question open to further consideration.”

Course Design: An Overview of Models

Per the principles laid out by DBIR theory, design and implementation must be united in the cohesive and collaborative agenda. An overview of several models, however, will provide a general summary of the paradigms institutions may consider in during the design process. Ultimately though, each school must consider certain course models for itself, to the extent that it meets specific objectives and functions within given limitations. So long as due diligence is done to identify differences and anticipate potential complications, there is no reason past research and experiences at other schools cannot be used to inform discussions of design.

Those tasked with designing the new course have several models to choose from. The plethora of working “definitions” for these various models results in more general concepts, devoid of hard-nosed specifics. The designer - be it primarily a faculty member or academic IT designer - is given a great deal discretion about the exact configurations of instruction, and the measures and location of assessments, a controversial issue even in traditional classes (see Chapter 3). Including certain features or activities (e.g. chatrooms, wikis, simulations, etc.) is rarely prescribed by a model, and more so reflects the learning pedagogies of the institutional or designer. The one consistent element, according to surveys, is that that regardless of who ultimately designs the course, all agree the final

168 Ibid., 23.
169 Means et al., "The Effectiveness of Online," 38.
“product” must adhere to the institutional and department academic standards to emphasize a non-negotiable prioritization on education amidst potential institutional “politics” when it comes to course design. In fact, “Faculty members and academic technology administrators view many of the same factors as important in judging the quality of an online education.”

The following definitions’ language reflect models in-line with the many offered in the research, both case studies and experimental, conducted for this thesis. The sources of these selected definitions rightly differentiate from terms often (mistakenly) used synonymously in public discourse on e-learning, while still reflecting the general flexibility of these various designs.

**Online learning**: “sometimes referred to as e-learning, is a form of distance education. Online courses are delivered over the Internet and can be accessed from a computer with a Web browser (ex. Internet Explorer).”

**Blended learning**: “applied to the practice of using both online and in-person learning experiences when teaching students....Also called hybrid learning and mixed-mode learning, blended-learning experiences may vary widely in design and execution from school to school.”

Configurations of blended learning take many forms, incorporating online technology into the classroom experience along a spectrum best described as Supplemental to Replacement. The following definitions, sourced directly from Christensen Institute, summarize the various configurations most blending-learning

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1. **Rotation model** — a course or subject in which students rotate on a fixed schedule or at the teacher’s discretion between learning modalities, at least one of which is online learning. Other modalities might include activities such as small-group or full-class instruction, group projects, individual tutoring, and pencil-and-paper assignments. The students learn mostly on the brick-and-mortar campus, except for any homework assignments.
   a. **Station Rotation** — a course or subject in which students experience the Rotation model within a contained classroom or group of classrooms. The Station Rotation model differs from the Individual Rotation model because students rotate through all of the stations, not only those on their custom schedules.
   b. **Lab Rotation** — a course or subject in which students rotate to a computer lab for the online-learning station.
   c. **Flipped Classroom** — a course or subject in which students participate in online learning off-site in place of traditional homework and then attend the brick-and-mortar school for face-to-face, teacher-guided practice or projects. The primary delivery of content and instruction is online, which differentiates a Flipped Classroom from students who are merely doing homework practice online at night.
   d. **Individual Rotation** — a course or subject in which each student has an individualized playlist and does not necessarily rotate to each available station or modality. An algorithm or teacher(s) sets individual student schedules.

2. **Flex model** — a course or subject in which online learning is the backbone of student learning, even if it directs students to offline activities at times. Students move on an individually customized, fluid schedule among learning modalities. The teacher of record is on-site, and students learn mostly on the brick-and-mortar campus, except for any homework assignments. The teacher of record or other adults provide face-to-face support on a flexible and adaptive as-needed basis through activities such as small-group instruction, group projects, and individual tutoring. Some implementations have substantial face-to-face support, whereas others have minimal support.

3. **A La Carte model** — a course that a student takes entirely online to accompany other experiences that the student is having at a brick-and-mortar school or learning center. The teacher of record for the A La Carte course is the online teacher. Students may take the A La Carte course either on the brick-and-mortar campus or off-site. This differs from full-time online learning because it is not a whole-school experience. Students take some courses A La Carte and others face-to-face at a brick-and-mortar campus.

4. **Enriched Virtual model** — a course or subject in which students have required face-to-face learning sessions with their teacher of record and then are free to complete their
remaining coursework remote from the face-to-face teacher. Online learning is the backbone of student learning when the students are located remotely. The same person generally serves as both the online and face-to-face teacher. Many Enriched Virtual programs began as full-time online schools and then developed blended programs to provide students with brick-and-mortar school experiences. The Enriched Virtual model differs from the Flipped Classroom because in Enriched Virtual programs, students seldom meet face-to-face with their teachers every weekday. It differs from a fully online course because face-to-face learning sessions are more than optional office hours or social events; they are required.173

Even within these subsets is substantial variation across institutions, further exemplifying the ways changing pedagogies and technology innovations are coming to fruition, sometimes in radical ways, based on case-specific variables. For example, the “Emporium Model” developed at Virginia Tech is based on the idea that the best time for learning is “when the student wants to do so, rather than when the instructor wants to teach…[thereby eliminating] all class meetings and replaces them with a learning resource center featuring online materials and on-demand personalized assistance.”174 The “Buffet Model” has been used at Ohio State to “offer students an assortment of interchangeable paths that match their individual learning styles, abilities, and tastes” for an Introductory Statistics course.175

That all the models discussed have seen success at some schools (and for some courses) and failed at others, underscores the need for greater use of DBIR methodology so that future endeavors can learn from the experience of other-like schools. Furthermore,

the rapid pace of technological advancement combined with urgent calls for educational reform and innovation will likely produce more models and configurations in the future.
“Learning is not attained by chance, it must be sought for with ardor and diligence.”
– Abigail Adams

Conclusion

E-learning is spanning the globe, expanding opportunity and accessibility to more students than ever before - both for future generations and the “new normal” adult learner. Technological innovation has created an entirely new market niche for education, and likewise put direct pressure on traditional institutions to keep pace. Higher Education especially, has been expected to match the general public’s fervor for modernity, if not lead the charge into the future by producing the next groundbreaking technologies, and grooming the next generation to fulfill the needs of the modern world.

Colleges and Universities today are not merely called to “educate” - but to do so amidst a plethora of external factors that are complicating this admirable mission: schools themselves are being directly impacted by a host of economic factors, as are their incoming students, who crave not only a quality education and the forthcoming benefits they expect a degree to bring, but one that is affordable - both now and in the future, in light of sobering loan statistics. Simultaneously, both state and federal funding continues the decade long trend of decline. Though this unequally disadvantages public institutions, private institutions are not immune to public and policy pressures to curb steep tuition increases. The matrix provided in Appendix J, though created to address the University of California system’s predicament, clearly depicts the two options


177 Boeckenstedt, "Four Ways to Look," Higher Ed Data Stories (blog).

a plethora of institutions, both public and private, are being forced to confront have to combat financial pressures, affirming once again that innovating is the only sustainable solution.

Amidst these whirling financial pressures, schools’ ability to “educate” has been called into question: some see the methods of instruction and assessment and fundamentally flawed, others criticize the content and requirements as outdated for the modern age, calling for educators to embrace new teaching paradigms and more relevant outcome measures. These criticisms are embodied by policymakers, employers and increasingly by students, who have seen and digested the public debate, and want to make sure that their investment - of both time and money - will still yield the desirable benefits that have come to be so dependent upon advanced education. Though a greater proportion of the American population holds at least a bachelors degree than a decade ago (nearly a third of 24 and older adults up from 28%, according to 2014 Census Bureau data), the rest of the world has caught up - if not surpassed the U.S. American resurgence in higher education has become a focal point of the national political agenda,

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181 The 2013 Lumina Study; Weise and Christensen, Hire Education: Mastery, Modularization.
not only because education has become in many ways an indisputable “right,” but tied to our continued economic stability and security in the globalized world.

Reclaiming the throne not only necessitates educating more Americans, an increasing number of whom are going abroad to earn their degree, but in reaffirming that our institutions are of the highest caliber so that students and educators around the world once again turn first to the United States. Caliber, in the modern day, not only amounts to the quality and content, but also is constantly judged in regards to relevancy and modernity. Online education, a sweeping trend with no signs of slowing, has been deemed the “solution” to many if not all of these qualms - a substantial burden and expectation for a relatively new medium for instruction and learning. Regardless of its fledgling state in the long and historic practice of education, the gravity and urgency facing traditional brick-and-mortar institutions makes some sort of innovative action inevitable: the appeal of increased e-learning offerings - be they MOOCs, for-profit online colleges etc. - though questionable in quality, are continuing to attract students of all types who, for a variety of reasons, find these to be alternatives preferable to enrolling at a traditional college or university, and thus putting further pressure on “traditional” institutions to adapt.

There is a clear and fundamental need to find a balance between implementing technology in order to ‘keep up,’ and maintaining if not elevating the quality of education.

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offered. The “recommendations” stemming from a great deal of research on e-learning, however, is insufficient to adequately inform an institutional project: results are too often limited by design, size, length etc., and thus conclusions about specific and crucial aspects of certain models, overall are inconclusive by nature of inconsistency. Facilitated by entrenched funding practices, standard research practices are no longer suitable given the immediacy (not to mention financial constraints) facing today’s college, as precious time and resources are inefficiently wasted when research-recommendations are implemented without taking into account critical unique institutional variables. While the vast majority of schools feel the pressure to initiate changes by adopting technology (or will soon), the course of best adoption is not nearly uniform.  

The emerging field of Design-Based Implementation Research was “developed by education researchers in response to evidence that research-based innovations are often difficult to sustain or use at scale in real-world classrooms and schools” by accepting that “No single innovation works for all stakeholders in all settings.” This methodology, which is gaining increased recognition among not only researchers, but among educationally-focused foundations and policymakers, emphasizes pragmatism and efficiency, bypassing the translational model of experimentation to implementation, and focusing on the actual experience within the institution.

DBIR and the focus on real-world implementations has yielded a number of important administrative concerns that every institution, regardless of size, type etc., must address in the process of developing an e-learning project, but refrains from prescribing a

186 Anderson and Zawacki-Richter, Online Distance Education: Towards;  
“solution” or best course of action, which will vary based on the aforementioned unique-attributes. These critical development areas have been the focus of this analysis.

Administrative leadership is of paramount importance, regardless of institution. The president and governing body are vital to the process, from beginning to end, possessing the necessary esteem and authority to both initiate and propel the initiative. It is critical, first and foremost, for these actors to determine the motivations and catalysts for the online course or program specific to their institution. This will greatly impact all subsequent considerations, from funding, to faculty engagement, and project scope and design. While transitioning a traditional course or program to the web will require change at virtually any institution, the degree and area of change will vary. These areas may include faculty incentivization practices, intellectual property policies, re-routing of reporting lines and even alternative tuition plans, further underscoring the importance of an active administrative leadership needed to both authorize and enforce these changes in the face of any faculty, student or stakeholder pushback.

Given that few schools have the financial stability or “safety net” to develop, let alone sustain an online program without outside assistance, leaders first tasks in this process is likely to include securing funding. Federal and state funding is scant for public and private schools alike, so private foundations or alumni campaigns, for example, can be an important source of monetary support. Regardless of the source of finance, it is paramount to clearly articulate to any stakeholder, financial or otherwise, that the project

188 Garrison and Vaughan, "Institution change and leadership,.
has long-term goals and implications, and thus an initial investment will likely need to be supplemented, and further, that the project be allowed ample time to develop before certain “returns” can be expected.

Some degree of centralization seems to be equally as critical, though the size and composition of the advisory and development committee may vary across institutions based again on the motivations, degree of faculty willingness, and scope of the premier online offering etc. Faculty engagement and adherence to academic quality standards, however, is an undisputed necessity, requiring careful consideration of all disincentives and barriers that may prevent professors’ interest or willingness to participate in any phase of planning or development, let alone teaching a new course. Those institutions that feel they’ve seen the most success emphasize the importance of a strong faculty role from the very beginning. Many further add that continual guidance via a “task-committee” or advisory board may help in adapting to unforeseen snags as well as projecting a commitment to the endeavor and to preserving academic quality.

Providing ongoing technical support to both faculty and students is equally imperative in demonstrating the administration and school’s pledge to producing a high-caliber and sustainable program. Training workshop and “office hours” for faculty acknowledge the potential “burdens” of instructing a course via technology. Likewise, offering an “orientation,” expanding the availability and access of tech support and even supplying emergency computer stations are peremptory measures schools may consider to try to ensure as smooth an implementation as possible.

\[190\] Abel, "‘Implementing Best Practices in Online,'"
Establishing the appropriate measures for the post-facto evaluation of the course or program is another vital responsibility of those overseeing the implementation of an e-learning initiative. In light of the plethora of lofty expectation and hopes for online learning at large, administrative leaders must do due diligence in selecting those measures most pertinent to their specific institutional endeavor. While this will vary to some degree based on the motivations and catalysts for an online programs’ development at each schools, financial analysis and learning outcomes will likely be at least a sub-component to any program evaluation.

When it comes to course design, however, the issue of who retains the greatest course-creation control - IT or faculty representatives - is a still a matter in contention; even those institutions with smooth administrative planning have occasionally found this aspect problematic. Accounting for school-specific factors like providing incentives for development and teaching, and property rights for new e-learning designs and courses that, in the current age, may possess significant commercial value.

The variety of available designs and platforms for offering an online course are numerous, and the models fairly unrestrictive. Refer to Appendix K for an interesting snapshot of just a portion of third-party providers; regardless of whether an institution employs an outside facilitator to assist in the design or delivery, this map adequately reflects just how extensive and competitive this field has become. Specifics of course design - both format, composition of online-in-person ratios, assessment measures etc. - are largely at the discretion of the designer and/or instructor of the course. Of course,

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limitations within the institution as well as accreditation organizations are apt to be consulted, at least in the foreseeable future. Despite the aforementioned movement for educational reforms, new pedagogies and assessment measures, in order to retain degree and institutional legitimacy - a designation schools and students both value highly-designers, instructors and schools leaders must heed external standards to some degree, at least for now.

In conclusion, the continued growth of online learning combined with a variety of external pressures necessitates that higher education, and traditional institutions specifically, must respond. To delay by virtue of denial or because of “unanswered questions” regarding what makes a successful online course or program is not only naive in sheer variety and complexity of real-world elements, but will only put schools at a competitive disadvantage - to the detriment of not only the institution’s own esteem but more importantly, to the education and future achievement of their current and future students. Apprehension is no excuse, and will be harmful in the long-run. Conversely, to assume that even with the acknowledgement of and planning for the elements discussed in this paper will definitely guarantee a smooth and straightforward transition is equally incredulous, and all claims must be approached with appropriate caution. But forethought and preparation for the inevitable glitches will surely ease the action in response when they arise.

While technology has in some ways contributed to the crisis faced by traditional institutions, more importantly the pressure generated by increased accessibility and

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192 Leonhardt, "Is College Worth It? Clearly,"
opportunity has increased competition and accountability: as a result the educational-bar has been raised. We have not met it yet, and there are certainly many strides to be made, methods explored, and innovations still to be made: but with active pursuit, the country, no less the world, will benefit from higher quality and more dynamic education.\textsuperscript{193}

Mankind was once convinced the world was flat, but today even the youngest know this to be false: what we “know” is always changing, growing and education follows suit. Our institutions, too, must not be stagnant. Entrusted to “educate,” this not only means disseminating knowledge but to empower students with the curiosity and the skills to push the boundaries into new knowledge: how can they impart these abilities if they are not equally open to and engaged in the process of change?

\textsuperscript{193} Kristen Hicks, “Improving Student Experience with Big Data: A Look at Civitas Learning [Infographic],” edcetera, last modified April 19, 2013, accessed February 2, 2015, http://Improving Student Experience with Big Data: A Look at Civitas Learning [Infographic].
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"The Center for Innovative Research in Cyberlearning (CIRCL), located at SRI International in partnership with Education Development Center, Inc. (EDC) and NORC at the University of Chicago, works to support, synergize, and amplify the efforts of projects in the emerging field of cyberlearning..." and is funded in part by grants from the National Science Foundation (NSF)


HUMANS AND MACHINES The role of people in technology-driven organisations. Economist Intelligence Unit, Ltd., 2013. PDF.


Joint research initiative between The New Media Consortium (NMC) and EDUCAUSE Learning Initiative (ELI), and EDUCAUSE Program.


Kelley, Andrew P., Daniel Lautzenheiser, Michael Q. McShane, Frederick M. Hess, and Katherine B. Stevens. *Education in America—and How to Improve It*. Washington D.C: American Enterprise Institute, 2015. PDF. "This collection of recent research and key commentary from AEI’s education team focuses on the importance of education, problems with the current system, and ways to improve it. It is part of AEI’s “Future in Focus” series, which features compilations of leading work from AEI scholars on pressing public policy topics. Together, the essays in this volume illustrate a critical point: while education is a primary driver of social mobility, our existing system is failing to help those who need it most. The good news is that a handful of sensible reforms could help create an education marketplace that will improve opportunity for all."

policymakers about the progress of education in the United States. This year’s report presents 42 indicators on important topics and trends in U.S. education. These indicators focus on population characteristics, participation in education, elementary and secondary education, and postsecondary education."


Limbu, Lekha, and Lina Markauskaite. "How do learners experience joint writing: University students' conceptions of online collaborative writing tasks and


With a grant from the, Alfred P. Sloan Foundation, the A-P-L-U formed a National Commission on Online Learning to conduct The Online Education Benchmark Study. The final two-volume report "contains the results of 231 interviews conducted with administrators, faculty, and students at 45 public institutions across the country and more than 10,700 responses from faculty across the spectrum of teaching positions – tenure/non-tenure track; full- and part-time; and both those who have and those who have not taught online" conducted over 15 months. Research was conducted in conjunction with Babson Survey Research Group.


The research reported was supported in part by the:
MOOC Research Initiative funded by the Gates Foundation through Athabasca University, and Institute of Education Sciences, U.S. Department of Education, through Grant R305B90015 to the University of Pennsylvania


An interview with the investigators of NSF-funded project entitled "DIP: Developing Frameworks, Tools and Social Practices to Support Effective Instructor use of Online Social Learning Networks in Blended Learning Models."


An EDUCAUSE review publication, part of "Higher Education in the Connected Age" series.


Education Data System (IPEDS), "Fall Enrollment Survey" (IPEDS-EF:86-99); and IPEDS Spring 2001 through Spring 2013, Enrollment component.


Appendices
Table A.1.A. Total NA enrollment in higher education postsecondary institutions, by control of school, institution, and region: 1950 through 2012.

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<td>11,732.766</td>
</tr>
<tr>
<td>2004</td>
<td>6,578.386</td>
</tr>
<tr>
<td>2005</td>
<td>6,077.456</td>
</tr>
<tr>
<td>2006</td>
<td>5,707.597</td>
</tr>
<tr>
<td>2007</td>
<td>2,025.542</td>
</tr>
<tr>
<td>2008</td>
<td>2,312.133</td>
</tr>
<tr>
<td>2009</td>
<td>2,058.696</td>
</tr>
<tr>
<td>2010</td>
<td>2,099.431</td>
</tr>
<tr>
<td>2011</td>
<td>2,109.418</td>
</tr>
<tr>
<td>2012</td>
<td>2,331.323</td>
</tr>
<tr>
<td>2013</td>
<td>2,362.345</td>
</tr>
</tbody>
</table>

1. Large increases are due to the addition of schools accredited by the Accrediting Commission of Career Schools and Colleges of Technology.
2. Because of updating techniques, data are not consistent with figures for other years.

NOTE: Data through 1985 are for institutions of higher education, while later data are for degree-granting institutions. Degree-granting institutions grant associate's or higher degrees and participate in Title IV Federal financial aid programs. The degree-granting institution is very similar to the earlier higher education institution, but it includes more 2-year colleges and excludes a few higher education institutions that did not grant degrees.
## Appendix B

### Exhibit 1 | The Online Education Population Comprises Five Segments

<table>
<thead>
<tr>
<th>Segment</th>
<th>True Believers</th>
<th>Online Rejects</th>
<th>Experience Seekers</th>
<th>Money Mavens</th>
<th>Open Minds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent Students</td>
<td>15</td>
<td>18</td>
<td>25</td>
<td>17</td>
<td>30</td>
</tr>
<tr>
<td>Percent Parents</td>
<td>19</td>
<td>18</td>
<td>12</td>
<td>11</td>
<td>40</td>
</tr>
</tbody>
</table>

#### True Believers
- About:
  - More likely to be female, Caucasian, living in rural areas, or at a for-profit institution
  - Less likely to be employed, a Millennial, pursuing a STEM degree, or graduating on time
- Adoption:
  - Take 79% of current classes as online or blended courses

#### Online Rejects
- About:
  - More likely to be Caucasian, living in suburbs, studying the social sciences, enrolled in a nonprofit graduate program, or getting good grades
  - More likely to graduate with a job
  - Less likely to be a Gen-Xer
- Adoption:
  - Take only 15% of their current courses online
  - Take the highest number of traditional classes among the online student population

#### Experience Seekers
- About:
  - More likely to be male, African-American or Hispanic, living in urban areas, in college, or using career services
  - Less likely to report making good grades
- Adoption:
  - 88% have taken an online course
  - Take 19% of their current courses in a traditional classroom

#### Money Mavens
- About:
  - More likely to be male, a Millennial, enrolled in an associate’s degree program at a nonprofit institution, or enrolled in a STEM or liberal arts degree or course
  - More likely to use career services
  - Less likely to report making good grades
- Adoption:
  - About 60% have taken a blended course
  - Blended courses account for nearly one-third of their current classes

#### Open Minds
- About:
  - More likely to be parents
  - No other significant demographic traits
  - Less likely to be enrolled in a for-profit institution
  - Less likely to find a job before graduation
- Adoption:
  - 73% have taken an online course

### Sources
- Millennials are aged 18 to 34.
- STEM stands for science, technology, engineering, and mathematics.
- Gen-Xers are aged 35 to 49.

---

Allison Bailey, Christine Barton, and Katie Mullen, *The Five Faces of Online Education What Students and Parents Want* (The Boston Consulting Group, Inc., 2014), 7, PDF. Table used with permission of the authors.
Appendix C

Higher Education and Money

| Colleges with more investment revenue than tuition are orange | These 75 institutions control 75% of all endowment funds | But enroll a much smaller fraction of full time undergraduates | Largest endowment growth at the least tuition dependent | Investment reliance = lower net price to low income students | But these colleges enroll fewer Pell students on average | Large portfolios appear to be |

Overview

These visualizations show up to 745 private, four-year colleges and universities from selected Carnegie Classification groups, with at least $2,000,000 in core revenues in 2013, and a full-time undergraduate enrollment of 1,000. Not every institution is shown on every chart due to missing data.

All charts/tables provided in Appendices C and D are have been sourced directly with the permission from the creator from:
For a more interactive/expanded view of this data, please visit the cite referenced in Appendix C above.
### Higher Education and Money

#### Enrollment Tree

| Western Governors University, 43387 | George Washington University, 194661 | These 75 institutions control 70% of all endowment funds |
| Western Governors University, 43387 | George Washington University, 194661 | But enroll a much smaller fraction of full time undergraduates |
| Western Governors University, 43387 | George Washington University, 194661 | Largest endowment growth at the least tuition dependent |
| Western Governors University, 43387 | George Washington University, 194661 | Investment reliance lower net price to low income students |
| Western Governors University, 43387 | George Washington University, 194661 | But these colleges enroll fewer Pell students on average |
| Western Governors University, 43387 | George Washington University, 194661 | Large portfolios appear to be... |

---

**Enrollment Tree**

- [Western Governors University](#) (43387)
- [George Washington University](#) (194661)
- [Eastern Michigan University](#) (177665)
- [Western Oregon University](#) (177665)
- [Southern New Hampshire University](#)
- [New York University](#) (195580)
- [University of Southern California](#) (123961)
- [Boston University](#) (190445)
- [Binghamton University](#) (145022)
- [DePaul University](#) (144740)
- [Rochester Institute of Technology](#) (195003)
- [Florida Atlantic University](#) (135011)
- [St. John's University-New York](#)
- [University of Miami](#) (133726)

- [Emory University](#)
- [Harvard University](#)
- [Duke University](#)
- [Yale University](#)
- [Rice University](#)

---

**Legend**

- **Orange**: Colleges with more investment revenue than tuition are orange.
- **Blue**: These 75 institutions control 70% of all endowment funds.
- **Green**: But enroll a much smaller fraction of full time undergraduates.
- **Dark Green**: Largest endowment growth at the least tuition dependent.
- **Yellow**: Investment reliance lower net price to low income students.
- **Red**: But these colleges enroll fewer Pell students on average.
- **Purple**: Large portfolios appear to be...
## Appendix E

Critical Design and Administrative Concerns in Developing an Online Program

1. Which student group (current, new, distant, campus, etc.) will be served by the online program?

2. Will the online program be organized differently than current program(s)? Will online programs run parallel to existing programs or be treated separately from each other?

3. Will the online program have a residential requirement?

4. How will instructional needs be addressed, such as by using existing faculty, hiring adjunct faculty, or using a mix of part-time and full-time faculty?

5. Should the program focus the design effort and funding on developing standardized course templates or provide training for existing faculty on the finer aspects of online pedagogy?

6. Should any type of common course template (i.e., a common “look and feel”) be used to streamline or standardize the online instruction?

7. How much interactivity should be designed into online courses, and how much of the interactivity should be left to the judgment of the individual faculty?

8. Should the program use commercial off-the-shelf online technology, use open-source technology, or develop its own proprietary teaching tools?

9. How should the program select a course management system that will best fit the goals and design of the curriculum to be placed online?

10. What role will corporate partners and university alliances play in the design and implementation of an online teaching program?


Appendix F

The A♦P♦L♦U-Sloan National Commission on Online Learning Benchmarking Study: List of Critical Administrative Concerns:

1. Online learning programs may work most effectively as a core component of institutional strategic planning and implementation.
2. Online learning initiatives benefit from ongoing institutional assessment and review due to their evolving and dynamic nature.
3. Online learning activities are strengthened by the centralization of some organizational structures and administrative functions that support and sustain the programs.
4. Online learning programs overseen by academic affairs units may be more readily accepted and may be more easily integrated into the fabric of the institution.
5. Online learning programs need reliable financing mechanisms for sustainability and growth.
6. Online learning programs succeed with consistent and adequate academic, administrative, and technological resources for faculty and students.
7. Online learning programs have the capacity to change campus culture and become fully integrated if presidents, chancellors, chief academic officers, and other senior campus leaders are fully engaged in the delivery of “messages” that tie online education to fundamental institutional missions and priorities.

Appendix G2

Table 1
Administrative Support Matrix

<table>
<thead>
<tr>
<th>Foundation Stage</th>
<th>Development Stage</th>
<th>Maintenance Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Administration's ability to listen and respond to faculty needs</td>
<td>1. Online program policies</td>
<td>1. Continuously evaluate new technology</td>
</tr>
<tr>
<td>2. A supporting and responsive information technology (IT) team</td>
<td>2. Staff development program</td>
<td>2. Update technology only when new technology adds value</td>
</tr>
<tr>
<td>3. Effective and well-supported campus network</td>
<td>3. Faculty incentives</td>
<td>3. Periodically assess and update content</td>
</tr>
<tr>
<td>4. Effective server support</td>
<td>4. Teamwork approach</td>
<td>4. Set limits on intrusion of technology on online faculty personal time</td>
</tr>
<tr>
<td>5. Online student registration, billing, and payment systems</td>
<td>5. Faculty development program</td>
<td>5. Survey faculty semiannually</td>
</tr>
<tr>
<td>6. Online bookstore services</td>
<td>6. Faculty mentoring program</td>
<td>6. Survey students at end of every semester</td>
</tr>
<tr>
<td>7. Online library services</td>
<td>7. Course management system</td>
<td>7. Make changes to programs based on faculty and student input</td>
</tr>
<tr>
<td>8. Lecture capture or course online delivery system</td>
<td>8. Lecture capture or course online delivery system</td>
<td></td>
</tr>
</tbody>
</table>


2 Table used with the permission of the authors.
## Appendix H

Table 315.10. Number of instructional faculty in degree-granting postsecondary institutions, by employment status, sex, control, and level of institution: Selected years, fall 1970 through fall 2011

| Year | Full-time | Part-time | Percent Full-time | Male | Female | Formal Male | Formal Female | Total Male | Total Female | Total Private | Total Nonprofit | Total Profit | Private 4-year | Private 2-year |
|------|-----------|-----------|------------------|------|--------|------------|-------------|------------|-------------|-------------|--------------|---------------|-------------|-------------|--------------|
| 1970 |         | 474,000   | 399,000          | 77.8 | -      | -          | -           | 354,000    | 160,000     | -           | -            | -            | 302,000     | 52,000      |
| 1971 |         | 490,000   | 379,000          | 77.0 | -      | -          | -           | 330,000    | 159,000     | -           | -            | -            | 307,000     | 56,000      |
| 1972 |         | 500,000   | 350,000          | 75.0 | -      | -          | -           | 340,000    | 157,000     | -           | -            | -            | 324,000     | 56,000      |
| 1973 |         | 527,000   | 369,000          | 73.0 | -      | -          | -           | 365,000    | 162,000     | -           | -            | -            | 425,000     | 56,000      |
| 1974 |         | 507,000   | 456,000          | 71.6 | -      | -          | -           | 365,000    | 162,000     | -           | -            | -            | 425,000     | 54,000      |
| 1975 |         | 639,000   | 440,000          | 78.0 | -      | -          | -           | 445,000    | 185,000     | -           | -            | -            | 477,000     | 56,000      |
| 1976 |         | 639,000   | 434,000          | 78.0 | -      | -          | -           | 449,000    | 184,000     | -           | -            | -            | 477,000     | 56,000      |
| 1977 |         | 679,000   | 448,000          | 76.6 | -      | -          | -           | 492,000    | 184,000     | -           | -            | -            | 485,000     | 56,000      |
| 1978 |         | 679,000   | 415,000          | 76.6 | -      | -          | -           | 488,000    | 177,000     | -           | -            | -            | 484,000     | 56,000      |
| 1979 |         | 699,000   | 420,000          | 65.6 | -      | -          | -           | 495,000    | 171,000     | -           | -            | -            | 494,000     | 56,000      |
| 1980 |         | 705,000   | 461,000          | 65.0 | -      | -          | -           | 509,000    | 190,000     | -           | -            | -            | 492,000     | 56,000      |
| 1981 |         | 712,000   | 459,000          | 65.0 | -      | -          | -           | 512,000    | 192,000     | -           | -            | -            | 492,000     | 56,000      |
| 1982 |         | 717,000   | 462,000          | 66.4 | -      | -          | -           | 510,000    | 191,000     | -           | -            | -            | 490,000     | 56,000      |
| 1983 |         | 715,000   | 459,000          | 66.2 | -      | -          | -           | 509,000    | 188,000     | -           | -            | -            | 492,000     | 56,000      |
| 1984 |         | 720,000   | 459,000          | 65.6 | -      | -          | -           | 510,000    | 189,000     | -           | -            | -            | 493,000     | 56,000      |
| 1985 |         | 735,000   | 465,000          | 65.6 | -      | -          | -           | 518,000    | 190,000     | -           | -            | -            | 496,000     | 56,000      |
| 1986 |         | 739,000   | 473,000          | 66.6 | -      | -          | -           | 530,000    | 192,000     | -           | -            | -            | 499,000     | 56,000      |
| 1987 |         | 741,000   | 475,000          | 66.3 | -      | -          | -           | 531,000    | 191,000     | -           | -            | -            | 501,000     | 56,000      |

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Not available.

*Estimated on the basis of enrollment. For methodological details on estimates, see National Center for Education Statistics, Projections of Education Statistics to 2020.

*The data are not intended to be comparable with figures for years prior to 1977.

**Includes faculty members with the title of professor, associate professor, assistant professor, instructor, lecturer, or other title in the same rank category. Data through 1985 are for institutions of higher education, while data after 1985 are for degree-granting institutions. Degree-granting institutions grant associate’s or higher degrees and participate in Title IV federal financial aid programs. The degree-granting classification is very similar to the earlier higher education classification, but it includes more 2-year colleges and excludes 2-year institutions that did not grant degrees. Beginning in 2007, includes institutions with fewer than 15 full-time employees. These institutions did not report staff data prior to 2007. Detail may not sum to totals because of rounding.
Table 316.10. Average salary of full-time instructional faculty on 9-month contracts in degree-granting postsecondary institutions, by academic rank, control level of institution, and sex: Selected years, 1970-71 through 2012-13

<table>
<thead>
<tr>
<th>Sex and academic year</th>
<th>All faculty</th>
<th>Professor rank</th>
<th>Associate professor rank</th>
<th>Assistant professor rank</th>
<th>Instructor/lecturer rank</th>
<th>Total</th>
<th>4-year</th>
<th>2-year</th>
<th>4-year</th>
<th>2-year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>1970-71</td>
<td>$122,710</td>
<td>$17,058</td>
<td>$23,503</td>
<td>$111,176</td>
<td>$59,630</td>
<td>$31,509</td>
<td>$36,359</td>
<td>$112,121</td>
<td>$124,464</td>
</tr>
<tr>
<td>1975-76</td>
<td>16,659</td>
<td>22,649</td>
<td>17,055</td>
<td>13,886</td>
<td>15,672</td>
<td>12,906</td>
<td>15,198</td>
<td>16,942</td>
<td>17,400</td>
<td>15,620</td>
</tr>
<tr>
<td>1980-81</td>
<td>23,303</td>
<td>30,753</td>
<td>23,144</td>
<td>18,601</td>
<td>15,176</td>
<td>17,301</td>
<td>22,334</td>
<td>23,745</td>
<td>24,373</td>
<td>22,177</td>
</tr>
<tr>
<td>1985-86</td>
<td>27,195</td>
<td>38,540</td>
<td>26,922</td>
<td>22,051</td>
<td>17,601</td>
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<td>28,557</td>
<td>27,468</td>
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</tr>
<tr>
<td>1995-96</td>
<td>32,204</td>
<td>42,310</td>
<td>31,760</td>
<td>26,277</td>
<td>20,636</td>
<td>23,770</td>
<td>29,098</td>
<td>27,725</td>
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<td>46,000</td>
<td>33,690</td>
<td>27,430</td>
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<td>28,379</td>
<td>22,256</td>
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<td>29,075</td>
<td>20,825</td>
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<td>2007-08</td>
<td>37,347</td>
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<td>36,752</td>
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<td>23,825</td>
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<td>32,273</td>
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<td>36,811</td>
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<td>22,986</td>
<td>19,883</td>
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</table>

continued
<table>
<thead>
<tr>
<th>Females</th>
<th>Males</th>
<th>Age Group</th>
<th>Average Value</th>
<th>Standard Deviation</th>
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<tr>
<td>1992-93</td>
<td>47,668</td>
<td>59,972</td>
<td>44,355</td>
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<td>61,857</td>
<td>46,220</td>
<td>37,794</td>
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<td>47,705</td>
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<td>65,949</td>
<td>49,037</td>
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<td>52,041</td>
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<td>83,256</td>
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<td>66,176</td>
<td>86,151</td>
<td>62,225</td>
<td>43,891</td>
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<td>63,466</td>
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<td>74,713</td>
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<td>43,600</td>
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<td>76,933</td>
<td>82,355</td>
<td>62,342</td>
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<td>2007-08</td>
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<td>86,755</td>
<td>65,336</td>
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<td>88,237</td>
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<td>82,061</td>
<td>90,656</td>
<td>69,422</td>
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<td>2010-11</td>
<td>83,154</td>
<td>92,000</td>
<td>71,359</td>
<td>47,700</td>
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<td>2011-12</td>
<td>84,026</td>
<td>93,999</td>
<td>73,909</td>
<td>48,800</td>
</tr>
<tr>
<td>2012-13</td>
<td>14,009</td>
<td>20,808</td>
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<td>33,024</td>
<td>28,517</td>
<td>23,759</td>
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<tr>
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<td>30,300</td>
<td>24,891</td>
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<td>42,371</td>
<td>33,528</td>
<td>26,700</td>
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<td>2018-19</td>
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<td>70,600</td>
<td>57,469</td>
<td>31,050</td>
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<th>Year</th>
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<td>1970-71</td>
<td>60.0</td>
<td>U.S. Department of Education, National Center for Education Statistics, Higher Education General Information Survey (HEGIS), &quot;Faculty Salaries, Tenure, and Fringe Benefits&quot; surveys, 1970-71 through 1985-86; Integrated Postsecondary Education Data System (IPEDS), &quot;Salaries, Tenure, and Fringe Benefits of Full-Time Instructional Faculty Survey&quot; (IPEDS-SA:87-99); and IPEDS Winter 2001-02 through Winter 2011-12 and Spring 2013, Human Resources component, Salaries section. (This table was prepared March 2014.)</td>
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### Appendix I

**Online Teaching Infrastructure Matrix Description**

**Foundation Stage:** Defines the infrastructure and procedural groundwork that should be in place before beginning an online teaching program

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<th>Factor</th>
<th>Description</th>
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<tr>
<td>1. Administration in tune with faculty needs</td>
<td>Far too often administration may take action based on outside recommendations or market influences without first taking time to determine faculty needs and concerns. In an undertaking of this magnitude, it is important that administration develop a teamwork atmosphere with faculty in order to secure buy-in and the full understanding and cooperation of the faculty.</td>
<td>McLean, 2006</td>
</tr>
<tr>
<td>2. Information Technology (IT) department with a customer oriented support role</td>
<td>In order to create an effective and harmonious work environment for faculty who teach online, technology support personnel must learn to be extremely supportive and responsive to immediate needs of the faculty. Little is more frustrating to faculty who teach online than the breakdown of equipment or slow responsiveness of technical support. These issues need to be addressed at the highest levels to ensure the IT department is ready to support the additional demand that will result from the implementation of an online program.</td>
<td>Frith &amp; Kee, 2003, Jennings &amp; Bayless, 2003</td>
</tr>
<tr>
<td>3. Effective and well supported campus network</td>
<td>It should be obvious that online teaching program success is going to rely heavily on the network infrastructure and campus servers to provide the needed connectivity to online students. These functions should be up and running 100% of the time in order to adequately support an online teaching program.</td>
<td>Frith &amp; Kee, 2003</td>
</tr>
<tr>
<td>4. Effective Server Support</td>
<td>Support and services for students who will enroll online must be in place before an online teaching program can be developed. These services are essential parts of the basic foundation needed to support an online teaching program. If these services are not established well in advance of implementation, online students will have difficulty with registration, counseling advice, purchase of required books, and performing research.</td>
<td>Tallen-Rannels et al., 2006</td>
</tr>
</tbody>
</table>

3 Table used with the permission of the authors.
**Development Stage:** Designed to identify the processes and elements that are essential during the development of an effective online teaching program

<table>
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<tr>
<th>Factor</th>
<th>Description</th>
<th>Source(s)</th>
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<tr>
<td>1. Online Program Policies</td>
<td>It is important to establish policies before or very early in the development process so that a guide to follow exists. These policies should address issues such as methods to be used in the development process; how the program will be administered; what groups or individuals will handle various aspects; how training will be conducted; what, if any, faculty incentives will be implemented; what hardware and software will be used and how technology will be configured; how the curriculum will be developed and placed in the online format; and finally, how the program will be funded.</td>
<td>Compora, 2003</td>
</tr>
<tr>
<td>2. Staff Development Program</td>
<td>Staff and faculty development is essential to the strength and effectiveness of any online program. The expense of proper training pales in comparison to losses of time and energy that result from staff and faculty who lack proper training. Several studies show that it is even better if faculty development classes can be offered online, so faculty can get a better feel for what their students will experience. A healthy online training program must be preceded by a healthy development program for both faculty and staff.</td>
<td>McQuiggan, 2007</td>
</tr>
<tr>
<td>3. Faculty Incentives</td>
<td>Incentives are often expected or are offered to faculty as an enticement to work in an online program. The reason incentives are often expected or required is that online teaching is more of a strain than normal classroom teaching. Without proper control of time spent online, longer work hours and a higher workload may easily result with an online teaching program. Since students are likely to be studying in the online environment at anytime 24/7, there is often a tendency for students to also want access to the professor 24/7.</td>
<td>Dahl, 2003; McKenzie, et al., 2004</td>
</tr>
<tr>
<td>4. Teamwork Approach</td>
<td>A well honed <em>Teamwork Approach</em> to the online teaching process can often be enough incentive in itself. If faculty and staff feel they are part of an effective well-organized team, they will often find satisfaction in that fact alone.</td>
<td>Dahl, 2003; McKenzie, et al., 2004</td>
</tr>
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<td>5. Faculty Development Program</td>
<td>See #2 above</td>
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<tr>
<td>6. Faculty Mentoring Program</td>
<td>Faculty mentoring has been lauded as one of the more effective methods of helping faculty retain and apply training session information. Training that takes place without mentoring is quickly forgotten and refresher training is required, but training that is followed by a well-organized mentoring program has proven very effective in helping faculty remember what was discussed in the classroom. Mentoring can also be a form of encouragement to faculty who might otherwise not implement certain technology at their disposal.</td>
<td>Helton &amp; Helton, 2005; Mandemach, Donnelly, Dailey, &amp; Schulte, 2005</td>
</tr>
<tr>
<td>7. Course Management System</td>
<td>Selection of the proper Course Management System (CMS) is critical to the development of an online teaching program. Some of the more common include WebCT®, Blackboard®, eCollege®, Desire2Learn® ANGEL®, and Moodle™. Each CMS has unique features that may or may not be useful or user-friendly for a given institution. This is why it is critical to evaluate several systems before launching an online teaching program to ensure your institution is getting a product that will adequately meet the needs of the faculty and the students.</td>
<td>Ruiz et al., 2006</td>
</tr>
<tr>
<td>8. Lecture capture or course online delivery system</td>
<td>This line of online teaching products includes Tegrity™, Panoptica®, Camtasia®, Eluminate®, or Wimba®. The author calls these Course Delivery Systems because each of these products has a unique way of managing multimedia for online delivery of course lectures or lessons either synchronously or asynchronously. Most of these products are software-based and can work with or augment the capabilities of a CMS to provide better student comprehension of online course content. The careful selection of these products is also very important to the overall quality of an online teaching program.</td>
<td>Kosak et al., 2004; Ryan et al., 2005</td>
</tr>
<tr>
<td>9. Online test security</td>
<td>Faculty are often, and rightfully, concerned about online test security. How can tests be proctored or students be monitored while taking a test online and at a distance? The answer in many cases is, you can't, but online tests can be designed so that minimal time is given to complete the test in order to restrict a student's ability to find answers they do not already know. Software is available that will restrict a student's ability to exit the testing software until the test completion, but at times this can be cumbersome and difficult to use. This issue is an important consideration in the development of an online teaching program and policies should be developed early to prevent future problems.</td>
<td>Tallent-Rummel et al., 2005</td>
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### Maintenance Stage

Designed to keep a well-developed online teaching program going strong, and to map out changes, updates, and improvements that may be needed along the way.

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<th>Description</th>
<th>Source(s)</th>
</tr>
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<td>1.</td>
<td>Continuously evaluate new online technology. This process ensures the online teaching program is managed and supported by the best and most up-to-date technology available. Ryan et al., 2005</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Update technology only when value added. This is closely related to #1 in that decisions to upgrade technology should only be made when it can be proven that there will be value added with the updated technology. Many times technology is updated just because it is the latest and greatest, with no evaluation of the need for the upgrade. Ryan et al., 2005</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Periodically assess and update quality of course content. This process is much more critical in an online environment than with campus courses because technology and online student demands change much more rapidly. Maintaining accreditation is often another factor that requires constant monitoring and updating of online course materials. Many institutions evaluate their online curricula and update it each semester. Cook &amp; Dupras, 2007; Tallien-Runnels et al., 2006</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Set limits on online faculty personal time intrusion. This factor is often overlooked by administrators who are not familiar with the stresses and demands of an online teaching program. Without constraints, faculty could very easily become overwhelmed from the 24/7 demands on their time. Policies should be carefully designed to take this factor into account and build in faculty release time and downtime to recuperate and regenerate. Poor management in this area can result in the loss of valuable faculty members at a very high cost to the institution. McLean, 2006</td>
<td></td>
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<tr>
<td>5.</td>
<td>Survey faculty semiannually. These factors work closely with item #3 because they are an integral part of the update and upkeep process. It is common practice to provide an exit survey to students at the end of each semester, but faculty surveys are much less common. Faculty also need to have a continuous process where they can voice their opinion on what policies are working well and what may need to be changed. Faculty surveys are a good way for administrators to be proactive and keep abreast of trends and changes that may be needed. Ryan et al., 2005</td>
<td></td>
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<tr>
<td>6.</td>
<td>Survey students at end of every semester. A follow up to items #3 and #6. Surveys are great, but they have little effect if not used to make positive changes to the curriculum, the technology, and the support structure for an online teaching program. Feedback from faculty and students should be carefully evaluated and changes should be made when possible and feasible. Ryan et al., 2005</td>
<td></td>
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<tr>
<td>7.</td>
<td>Make changes to programs based on faculty and student input. This is a follow up to items #5 and #6. Surveys are great, but they have little effect if not used to make positive changes to the curriculum, the technology, and the support structure for an online teaching program. Feedback from faculty and students should be carefully evaluated and changes should be made when possible and feasible. Ryan et al., 2005</td>
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Appendix J

Figure 1. Implications of Proposed Solutions

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<td>· Maintain Mission</td>
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<td>· Up Front Cost</td>
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<td>· No Guaranteed ROI</td>
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<td><strong>LONG TERM</strong></td>
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<td>· Increased Student Debt</td>
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<td>· More Sustainable</td>
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<td></td>
<td>· Potential to Provide Greater Access</td>
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Appendix K

2014 HIGHER EDUCATION TECHNOLOGY LANDSCAPE
A STUDENT LIFECYCLE FRAMEWORK AND CATEGORIZATION TECHNOLOGY PROVIDERS

<table>
<thead>
<tr>
<th>ADMISSIONS &amp; ENROLLMENT</th>
<th>STUDENT SUCCESS &amp; INSTRUCTION</th>
<th>ADVANCED CNTR</th>
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