Digital transformation and online learning within the context of the future of higher education

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Highlights	Abstract
• The world of higher education globally is not returning to the world that existed pre-Covid. • Learning designers must become more engaged with institutions and policy makers regarding the future of higher education. • There are many useful portents of what the future of higher education could be based on current developments and published insights from higher education leaders.	Academic conferences regarding digital transformation and online learning will continue to offer academic papers and workshops designed to advance work in online learning for all students. We will not return to the pre-pandemic ways of engaging in teaching and learning in higher education. Ongoing digital transformation and online learning will need to be future-focused if it is going to meet the needs of higher education both now and in the further future. Learning experience designers have a unique skill set and insights to aid such transitions but they must be more strategic in their engagements within their institutions and engage more widely in the higher education sector as a whole to maximize their impact.

1. Introduction

The global Covid-19 pandemic has produced profound changes in our world, including the world of higher education. Academic institutions globally were forced by circumstances beyond their control to dramatically alter the learning environment for their students and to accommodate significant changes in the work environment for their workforce (Hamad, 2022; Bakan Kalaycioğlu, et al., 2022). Already there are signs that as the pandemic starts to subside in some nations, that a return to the world that was pre-pandemic will not happen. Staff, students, and the wider public have gradually accepted that a wider choice of learning environments must be on offer within the halls of higher education and that some yet to be determined but growing number of students will never be returning to face-to-face instruction as they seek to accomplish their educational goals.

2. Thinking about the Future

Determining what the future will bring regarding digital transformation and online learning is no easy task. Futurism or future studies have a poor and perhaps well-deserved reputation within the academy in part because the history of future studies shows quite clearly that human beings are not terribly accurate in their

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prognostications about that which is to come (Samuel, 2009). Some scholars argue that the future will be extraordinarily bright and usher in a new age of existence better than all which has come before (Norberg, 2016). Others simply argue that the continual emergency of novelty in the world will continue unabated with consequences that can neither be fully foreseen nor forestalled (North, 2013). A suggested stance regarding the <u>future</u> in relation to higher education (HE) is suggested from a quote within an insightful book that tries to steer a middle path between utopianism and despair:

"How do initially fine-grained ideas about the future grow? On a lattice of principles, high-level goals, and systematic thinking. Whether one's goal is a self-sufficient house or a system for augmenting human intellect, having the overarching goal in mind and developing systematic ways of thinking about that goal provide specific guidance on which directions to pursue and how to pursue them.

> *What allows ideas about the future to take root? It's a great benefit if they are free and open to use and share. It's harder for people to agree to invest their time and thought in a system that someone else owns and controls, which may be shuttered when a startup goes out of business or when someone with different ideas and values takes control.*

> *Do models of the future need to be reasonable and lead to positive outcomes? Perhaps at some stage realistic models will come in handy, but visions of the future have proved to be useful even if they are rather absurd and exaggerated and can highlight the negative consequences of current trends. It's possible that exaggeration is even necessary to make the point at times, or to help us enlarge our imagination.*" (Montfort, 2017: 152f).

We cannot know or successfully foretell the future. The best guide to that future are emerging issues, fields of human endeavor, and new approaches to teaching and learning that are on the near-term horizon and that offer glimpses of changes that may come. At least five areas of current research and development will impact learning for ALL learners in the next 30 years: a) continuing investigations into the nature of learning across the human lifespan, b) recent and emerging technologies, c) continuing assessment and evaluation of learning, d) transitions from the old system of higher education to the "new system," and e) evolving sociocultural dimensions from a global perspective (Cheek, 2015). These five areas will likely interact in profound ways to alter how we think about learning, learning tools, learning environments, and learning purposes within an ever-changing world.

3. Some Known-Knowns

Some key changes relevant to the future of learning and higher education are already clearly emergent in the landscape of American higher education and can also be seen in an increasing number of other jurisdictions. We can think of these changes as the "known – knowns." The following paragraphs provide a preliminary description of these changes along with some examples and, in some cases, exemplars whose websites feature fuller information on these transformations.

It has been apparent for some time that equal intellectual talent does not lead to equal results no matter what subject, discipline, or proficiency about which we are speaking. A longitudinal study of 55 PhD physicist professors at elite American institutions by the sociologist Hermanowicz (2009) who followed them across several decades of their professional careers demonstrates clearly that while there were commonalities there also were many differences in achievements and self-perceptions about their academic careers. Attempts at achieving equality of opportunity have often been confused in American higher education with achieving equality of outcomes when it is easily demonstrable that even in the most elite institutions there is differentiated achievement amongst even the professorate in ways that are difficult to predict or to fully explain.

Increasingly in the future, internal and external perceptions of excellent higher education teachers will be based on how many students they successfully helped to meet or exceed a standard rather than how many students they lost along the way. Engineering and physics are well-known for their "failure" rates which are usually taken to mean the program is rigorous rather than that the program is more likely poorly designed when that many able students fail and exit it. Changing attitudes among engineering faculty and changes in program and course design have led to substantially higher success rates within "reengineered" engineering programs like those at Worcester Polytechnic Institute in Massachusetts and the outstanding success in both engineering and the sciences programs achieved by all admitted students, including large numbers of minorities, at the University of Maryland Baltimore County up through the PhD level.

Expert designers of learning environments such as the professionals within the Association for Educational Communications and Technology (AECT) have understood for some time now that the learning environment itself accounts for much learning success and is also responsible for much learning failure (Bishop, Boling, Elen, & Svihla, 2020.) Ample case studies and replication studies show that designing well for student success pays rich dividends and benefits all students across all disciplines as well as benefitting those who are charged with teaching them and the institutions where they reside.

We now know that "talent" is spread much wider than commonly recognized, but that differential identification and nurturing is paramount. This is seen in the diverse populations benefitting from higher education pre-college identification and programming provided to talented students as young as age 6 by longstanding programs at American research universities including Johns Hopkins, Vanderbilt, Duke, Stanford, Northwestern, and the University of Connecticut. Cambridge, Imperial, Kings, Durham, and Exeter universities in the UK have founded mathematics schools to teach hundreds of disadvantaged students while still in their sixth forms in order to build a pipeline of future STEM undergraduates at these British institutions and others like them throughout the world. The wide spread of talent is also seen in the success of large numbers of low income, previously poorly performing students, who have been accepted at open enrollment institutions like community colleges and many four-year public higher education institutions throughout the United States and who have gone on to contribute substantially to their families, communities, and the nation.

Broader access to learning benefits <u>communities</u> as well as individuals. CUNY – the City University of New York system of colleges, Arizona State University (ASU), and Miami Dade College – a community college that offers many bachelor-level degrees as well, are all fine examples of how entire urban environments and their communities have been uplifted over time by a rising tide of academic achievement powered by these institutions which have a relentless focus on enabling student success (cf., Spirou, 2021).

Contemporary universities are really multi-versities, i.e., federations of specialized units (akin to a corporate conglomerate). While traditionally in America, a university has been thought of as "a prime instrument of national purpose" and integral to the economic, military, and cultural strength of the country, it is through the variegated nature of these institutions that substantial change and improvement in the educational, social, economic, and socio-technical landscapes develop (Kerr, 2001; Cole, 2009). Changing these complex institutions is immensely challenging yet exceptionally rewarding [e.g., the experience of a former president of the Georgia Institute of Technology (Georgia Tech) across 17 years (Clough, 2021)].

4. Some Interesting Examples of Institutions and Specific Programming

Innovation within universities is strongly encouraged in many countries, including the United States and Canada. Below is an eclectic mix of different types of institutions in the US and Canada that provide some food for thought in thinking about current innovations, some of which are very long-standing, even if their present iterations look somewhat different than the original effort launched years earlier.

Northeastern University (northeastern.edu) in Boston, MA is a large research-intensive university with eleven locations worldwide and a plethora of degree programs at bachelor, masters, and doctoral levels. Northeastern made cooperative education a non-negotiable cornerstone of its educational programming over 100 years ago. Today, Northeastern undergraduates and graduate students alternate each semester of full-time academic study with a subsequent semester of full-time work for which they receive academic credit. Their coop program now spans experience-powered learning in 148 countries and annually involves over 2,900 corporate partners.

Johnson & Wales University (jwu.edu) whose original campus is just about an hour's drive south of Boston in Providence, Rhode Island, is another institution well-known for its on-the-job, fully academically integrated internships every semester with over 2,100 internships per year in over 1,100 sites in 47 states and 28 countries for its 8,000+ students who hail from 65 countries.

Another long-running program, albeit with many changes in names and specific programming since its founding in 1926 is *Semester at Sea* (semesteratsea.org). Working with its current academic partner, Colorado State University since 2016, this past academic year saw 504 students and 63 faculty experience a 7.5 - month program that covered 41,000 miles, 35 countries, and 90+ cities around the globe combining academic learning with real-world exposure and in-depth multicultural experiences.

A final long-running program is *The School for Field Studies* - SFS (fieldstudies.org) which has been in operation for over 40 years. SFS has research field stations in 10 countries in Asia, Africa, and Latin America with long-standing and ongoing scientific research programs with highly qualified scientists from a variety of fields who regularly publish in peer-reviewed academic journals. These field scientists work with cohorts of students and other faculty who join them for extended periods of time in studies in natural, environmental, and social sciences related to the work of the individual field stations. The balanced coursework and fieldwork give students a deep appreciation for the need for both study and experience while increasing their knowledge of ecology, conservation, and environmental stewardship.

Three more recent innovations remind us that a continual process of innovation is occurring in higher education in response to both an ever-changing world and internal pressures on academic institutions. *Quest University* is a recently-founded Canadian university in Squamish, a town located in the Canadian Rockies (questu.ca). Students design their own education, delving deeply into topics for which they have a passion. Every student earns an interdisciplinary bachelor's degree in arts and sciences and the 600 students study in classes with no more than 20 individuals in blocks, not semesters, which run 3.5 weeks in duration. As their website announces, students study "questions not majors."

The *D School at Stanford University* (dschool.stanford.edu) is an excellent recent example of an in-house innovation hatched by several Stanford faculty to build eight abilities in the life of any undergraduate student who wishes to engage in the program during their time at Stanford. A place for explorers and experimenters, students engage in radical collaboration on real-world projects facing unbounded problems with a 100% opt-in culture that means you only choose it if you want to do so. Since everyone chooses to be there, they hone eight distinct abilities that the design school identifies as: 1) navigate ambiguity, 2) learn from others, 3) synthesize information, 4) experiment rapidly, 5) move between concrete and abstract, 6) build and craft intentionally, 7) communicate deliberately, and 8) design your design work.

Our final example is *Minera University* (minerva.edu) which was founded by the American psychologist Stephen M. Kosslyn and colleagues (Kosslyn and Nelson, 2017). They conceived of a cross-contextual, interdisciplinary curriculum that would be experienced in small seminars in real-time coupled with location-based assignments and civic engagement in a rotation through global cities in seven countries.

Minerva was ranked #1 in World Universities with Real Impact (WURI) in 2022 (wuri.world); a listing of what are designated as 300 of the most innovative universities in the world. WURI who created the rankings was launched at the second conference of the Hanseatic League of Universities (HLU) in their quest for a

new, more dynamic way to highlight innovative universities. HLU, taking its name "Hanseatic League" from the medieval precursor alliance focused on market towns and merchants, was launched as a global alliance of universities by Hanze University of Applied Sciences in the Netherlands in 2018. As the organization's website proclaims, "WURI highlights creative and innovative approaches to university research and education that focus on:

1) Industrial applications, rather than the traditional ways of counting research papers and lecture-type teaching;
2) Value-creating startups and entrepreneurship, rather than a traditional focus on the number of jobs filled; and
3) Social responsibility, ethics, and integrity, rather than a focus on knowledge and skills just for material success.
4) Student mobility and openness for exchange and collaboration between schools and national borders, rather than an independent yet closed system.

Designers and others interested in the future of higher education will learn much by visiting the websites of each of these 300 institutions – some well-known and highly ranked in indices of global universities and others that will be unfamiliar to most readers. At a minimum, this reinforces the point of this article – designers as well as university administrators should become more aware of innovations going on in the field of higher education well beyond their local geographies in the interests of advancing the design of future learning environments in ways that will increase the worth and impact of local innovations.

Recognizing and nurturing talent, enabling student success, careful attention to the design of learning environments, open access, and entrepreneurial federations of specialization are all part of the landscape of the known-knowns in contemporary American higher education. All efforts at digital transformation and the furtherance of online learning affordances must be positioned within the context of these known-knowns. At the same time, we are witnessing perhaps more innovation occurring in higher education institutions in the United States than ever before. These innovations occur within a highly entrepreneurial environment where individual professors, programs, colleges, and other units of universities are relatively free to try new approaches, reinvent programs, engage new partners, and forge new alliances. Designers of digital transformation and online learning can utilize, build upon, ally with, and learn from these continuing experimental approaches to improvements in higher education. While not all of these innovations will survive the gauntlet of feasibility, improved learning, applicability, replicability, scalability, etc., they provide inspiration and portends of the future for higher education at a systemic level.

5. Twelve Emerging Innovations with Precursors

Below is a short summary of twelve more-generalized emerging innovations that can be seen across the United States in various locations along with some precursors that point the way towards a potential future for their widespread applicability:

1) *Open 24/7 in multi-sites in multi-use facilities.* [**Precursors**: many American institutions minimally exhibit this feature but are still insufficiently narrow in who is served, in what manner, and at what time during the day – for example, the current collegiate times set by most institutions for the majority of students to learn is completely out of sync with students' internal biological clocks. Students are wide awake and active when most professors sleep, and their bodies would prefer to be sleeping when most professors are awake! Some institutions are already employing more flex arrangements for faculty, in part as a result of Covid, and we can anticipate that increasingly these institutions will be even more full-service institutions operating around the clock.]

2) *Ubiquitous virtual learning in 2D and 3D immersive formats, augmented realities, and intentional f2f.* [**Precursors:** these innovations are now widely deployed in many higher education institutions (e.g., Stanford Graduate School of Business's LEAD business certificate program offered through a virtual world in partnership with VirBELA) and used regularly by teams of students as part of their projects across a very wide range of disciplines as well as individual faculty, staff, and students pursuing research in many specialized areas including the arts, humanities, social sciences, sciences and engineering, and medicine. They are, of course, very widely deployed in culture more generally as well as widely used in corporate, military, government, and community institutions for a variety of tasks and specialized learning.]

3) *Learning across the human lifespan with "electronic passports" issued at a very young age and maintained across one's life. They serve as a personal possession of the individual's entire cumulative learning "record" and attainments.* [**Precursors:** existing widespread use of electronic portfolios of student work and their documented achievements as well as electronic student transcripts within a single institution at secondary and post-secondary education, e.g., myefolio.com – a statewide system open to all Minnesota residents; long-time users of student portfolios to satisfy graduation requirements include Alverno College in Wisconsin, Wesleyan University in Connecticut, and Kapi'olani Community College in Hawaii.]

4) *Just-in-time, on-demand learning in myriads of topics & disciplines available from multiple registered and validated sources*. [**Precursors**: many higher education and secondary education institutions now utilize micro-credentialing programs available to students by self-selection to enhance their regular coursework or to further hone already existing skills they possess but wish to improve. "Badging" programs are also widely in use across the country. A wide variety of videos are available globally on YouTube and other platforms to learn a myriad of things, in most cases taught by someone with specialized knowledge and skills all the way up through experts.]

5) *Higher education professors who are practicing specialists (not necessarily academicians) in specifically designed and certified areas*. [**Precursors:** teachers who offer private lessons such as in the arts for generations; internships and apprenticeships; learning in the so-called "informal sector," of museums and other cultural institutions around the globe; corporate internal "universities" overseen by Chief Learning Officers, and the now widespread use of adjuncts who are practitioners with large amounts of real-world experience in the disciplines in question.]

6) *Learning via any means possible with maximum credit/credentialing for what you already know and can do* [**Precursors:** Excelsior University in New York, Southern New Hampshire University, Western Governors University in Utah, and American Public University in West Virginia].

7) *Learners throughout society of varied ages, races, ethnicities, and languages can be found thoroughly intermixing while learning across all levels of attainment, subjects, disciplines, and topics. "Elites," of various kinds, are no longer readily discernible although they still exist in every discipline and subject and can readily both self-identify and be identified by others when required. They increasingly resemble less and less the elites of bygone decades in terms of their demographic details.* [**Precursors:** community learning projects

organized by various nonprofits to accomplish specific, time-delimited purposes; the rise of internet-based hobbyists and others showcasing amazing yet highly-specialized skills from the very young to the elderly who are global in their reach and exhibiting human diversity among their engaged followers.]

8) *Full seamless transfer of learning attainments from one environment to another one so little time off task is wasted.* [**Precursors**: Northeastern University in Massachusetts, Drexel University in Pennsylvania, Johnson & Wales University in Rhode Island, with completely integrated learning internships for credit throughout the course of one's undergraduate studies; Advanced Placement (AP) courses and DANTES tests which can be taken for college credits and are widely accepted.]

9) *Unequal time spent learning by individuals to attain the same competencies, i.e., time on learning is variable commensurate with the pace of individual learners*. [**Precursors**: Coursera, EdX, Kahn Academy, and other sources of secondary and university-level courses you do at your own pace; intelligent tutoring systems; CISCO Academies and Microsoft Certification self-paced courses and exams.]

10) *Universities are one of many providers of learning experiences competing for learners' attention; they are lead providers of some specialized learning and no longer deliver many learning services they provided in prior decades.* [**Precursors:** We are already in the early stages of replacement providers and some universities award credits for these alternative means of achieving knowledge and skills – see 8 above. This trend will only continue as several corporations, many of which have always had corporate learning systems, now have turned them into true college-credit awarding institutions or partnered with other institutions to ensure that collegiate credit is awarded for attainment of on-the-job learning and skills enhancement.]

11) *University faculty and staff have multiple pathways to promotion and recognition and roles that are clear in terms of their primary focus and major time commitments (e.g., pure research, applied research, teaching, tutoring, mentoring).* [**Precursors:** A growing number of US universities allow faculty to self-select into various tenure and promotion tracks focused on one or an explicit mix of the following options: 1) research, 2) teaching, and 3) community service.]

12) *University research projects reflect a mix of: 1) long-term basic research, 2) many applied research projects commissioned and executed in partnership with corporations and/or community organizations and/or government agencies, 3) projects initiated, designed, and executed by self-organizing teams of students with student-selected faculty advisors and university supervisors, and 4) projects initiated, designed, and executed by self-organizing teams of community members with community-selected faculty advisors and university supervisors.* [**Precursors:** Innovation Academy at the University of Florida; Lehigh University's recent Mountaintop Initiative and its well-developed international co-ops program.]

These innovations are fully underway and are likely to continue to evolve and expand as time goes on. They are but a small sample of the tremendous ferment going on in higher education around the globe. They are also a reminder that learning designers need to be fully engaged within these ventures as well as maintaining

ongoing awareness of the various visions for the future of higher education being articulated by university leaders, academicians, and wider publics.

Jason Wingard, President of Temple University in Philadelphia with a second campus in Tokyo, has a deep background in both corporate settings and academia. He has recently unequivocally said that the traditional institution of higher education in America is presently "on fire" and that changes need to be far more systemic, deep, and innovative if the institution is to survive within modern society (e.g., Wingard and Farrugia, 2022; Wingard, 2022). While others may quibble with his metaphor of a house afire, the overall consensus across the major publications cited in the annotated reading list provided here, is that substantive and far-reaching changes are needed to be more responsive to the needs of modern societies worldwide than the current system of higher education appears to be able to reliably deliver.

6. Conclusion and Suggestions

What might learning designers, and those who already value their work, actually *do* to make themselves more central to the mission and integrally involved in leading the substantial redesign of higher education institutions and their many programs? How do you raise the profile of designers of learning experiences within academic institutions that are organized mostly around concerns of disciplines and fields of study rather than around problems with student (alumni/client/society) *learning* as the most pressing need of the enterprise? Since so much learning is situational, contextual, and social, the preliminary set of actions offered here should be seen as a stimulant to further inquiry, data gathering and analysis, and hard thinking on the part of learning designers everywhere. Here are 13 things that could be undertaken, expanded, or substantially altered moving forward:

1) More widely deploy agile methodologies to respond more quickly to emerging needs.
2) Engage in continuous curricular innovation informed by data analytics of a wide range of measures of student engagement and learning.
3) Promote perpetual institutional scanning for potentially promising innovations in other institutions and locales – including those drawn from nonprofit and for-profit institutions outside of higher education and their learning programs/endeavors.
4) Incentivize and support instructors to integrate cutting-edge content, promote convivial student interchanges on social media platforms, and provide more visual content and "gaming-oriented" types of engagements for students.
5) Increase experimentation with different lengths of courses including 1-2 days, modular intensives, focused skills attainment courses, certification-focused intensives, work-embedded learning "moments" for students doing internships, "intelligent" coaching, and courses that focus specifically on improving self-reflection, metacognition, and increased skills at sharing insights with others.
6) Push for the replacement of credit hours based on time to performance-based systems that are agnostic about where, when, or how something is learned coupled with more rigorous evidence that students have acquired the requisite knowledge and/or skills sought.
7) Deploy "intelligent agents" more widely throughout learning environments.
8) Expand continuous assessment of learning applications with an adaptive learning framework that is discipline-specific.
9) Rigorously purge and redesign courses that "are not working," based on objective standards and persist in the effort until every course across the institution achieves at least 90% of students succeeding at an agreed upon standard.
10) Advocate for the incorporation of professional learning designers into all university faculties (colleges/schools/departments) and with a vocal, recognized representative of learning design interests (e.g., chief learning officer) within the top administrative officers of the institution.

11) Maintain an institutional learning council comprised of select faculty, staff, chief learning officers from corporations and nonprofits, and undergraduate and graduate students which annually is charged with producing an institutional report on what is working well and what needs to be changed within the near term and the longer term to advance *learning* across the institution.

12) Embed select faculty in *effective* corporate learning endeavors for brief periods of time to provide grist for ideas about improvements within higher education institutions and to learn from the internal quality assurance that these corporate "universities" utilize drawing upon big data applications and rigorous improvement efforts.

13) Collaborate with colleagues at other institutions of higher education to push for more attention to *learning experience design* throughout the sector of higher education within your own region, group of peer institutions, and/or nation.

The degree to which learning experience designers self-organize, continue to evolve their own theories, understandings, and achievements, act strategically, and make valuable contributions at the institutional level and within departments, will have much to do with the impacts they have on the future of higher education globally. Not all designers are well-suited to these types of roles but those that are must be supported by their design colleagues for the kinds of changes that are required to be realized.

7. References

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Norberg, J. (2016). Progress: Ten reasons to look forward to the future. OneWorld Publications.

North, M. (2013). *Novelty: A history of the new*. The University of Chicago Press.

Spirou, Costas (2021). Anchoring innovation districts: The entrepreneurial university and urban change. The Johns Hopkins University Press.

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8. Annotated Reading List

This annotated further reading list highlights varied works by university leaders in the United States and a few important works outside of the USA. It briefly describes the value that each resource provides regarding thinking about the future of higher education and the role of designers of learning experiences and learning systems within them – even though the latter role is rarely mentioned nor recognized – a point that this article seeks to advance.

Alexander, B. (2020). *Academia next: The futures of higher education*. Johns Hopkins University Press. (A series of scenarios regarding the future of HE from a futurist, consultant, and Senior Scholar in the Learning, Design, and Technology Program at Georgetown University.)

Aoun, J. E. (2017). *Robot-proof: Higher education in the age of artificial intelligence.* The MIT Press. (The enterprising president of Northeastern University in Massachusetts, a distinguished scholar of Arabic, presents a well-worked out argument why artificial intelligence will never replace what human teachers can supply to help students develop their knowledge and skills.)

Association of Public and Land-grant Universities and the Coalition of Urban Serving Universities (2022). *APLU USU principles of institutional transformation – open*. (An open access course of four modules open to anyone anywhere featuring the work of three US universities to transform themselves. https://Fiuit.instructure.com/courses/801?)

Austrian Council for Research and Technology Development, Ed. (2017). *Prospects and future tasks of universities: Digitization – internationalization – differentiation*. LIT Verlag Gmbh & Co. KG Wien. (An example of a European country's look at the future of their universities in light of wider environmental scans from a nationally created independent entity to advise the Austrian government on matters related to research, technology, and innovation.)

Beach, J. M. (2011). *Gateway to opportunity? A history of the community college in the United States*. Stylus Publishing. (Community colleges are an American invention that have historically been engines of advancement for underserved populations and meeting the needs of business and industry, but they have frequently been criticized by politicians and others. The author taught in a variety of community colleges in CA and TX as well as teaching at Oregon State University, University of California, and the University of Texas San Antonio.)

Bowen, J. A. (2021). *Teaching change: How to develop independent thinkers using relationships, resilience, and reflection*. Johns Hopkins University Press. (Former President of Goucher College, a liberal arts college in Baltimore, MD, and longtime university professor of music and innovative teaching, describes detailed steps that can be taken to advance independent thinkers within higher education institutions.)

Clough, G. W. (2021). *The technological university reimagined: Georgia Institute of Technology, 1994-2008. Memoirs of a university president*. Mercer University Press. (An insider's view of leading change within one of America's leading science and technology-intensive research university within a major metropolitan area.)

Cole, J. R. (2009). *The great American university: Its rise to preeminence, its indispensable national role, why it must be protected*. Public Affairs. (Insightful, data-rich book by the John Mitchell Mason Professor and former Provost and Dean of Faculties at Columbia University. It is a combination of history, social science research, and sociopolitical commentary and perhaps the best single book that explains well the preeminence of American research universities across all existing university ranking systems as well as public perceptions of university quality.)

Crow, M., W. B. Dabars (2018). *Designing the new American university*. Johns Hopkins University Press. (Keen thoughts from the president and a senior administrator at Arizona State University who have

been at the forefront of leading innovation in American higher education. The significant changes he has brought to ASU and its rise across multiple global ranking systems have been intentional, inspirational, and not always welcome in all circles within or outside of the university.)

Crow, M., W. B. Dabars (2020). *The fifth wave: The evolution of American higher education*. Johns Hopkins University Press. (A thoughtful sequel to their earlier book with an even broader and bolder perspective.)

Daniels, R. J. (2021). *What universities owe democracy*. Johns Hopkins University Press. (The current president of Johns Hopkins University in Baltimore, MD reflects on the public and social purposes of American universities. JHU was the first true American research university and remains one of the top performers in research, teaching, and responding to global issues.)

Diver, C. (2022). *Breaking ranks: How the rankings industry rules higher education and what to do about it*. The Johns Hopkins University Press. (The president of Reed College in Oregon who carried on the tradition of his predecessor *not* to provide information to organizations that rank universities argues that chasing rankings results in poor decisions detrimental to the institution and its mission. He offers alternative ways to determine university worth and values, with a particular emphasis on liberal arts colleges.)

European Universities Association (2021). *Universities without walls: Scenarios for 2030*. February. (An excellent thought piece about various scenarios that could affect European higher education over the next decade, including wider social and economic changes and their likely impacts.)

Fischman, W. & Gardner, H. (2022). *The real world of college: What higher education is and what it can be.* The MIT Press. (Two professors at the Harvard Graduate School of Education and Harvard University conducted a broad study of non-vocational higher education over five years at ten different American universities and carried out more than 2,000 interviews among a diverse group of students, faculty, administrators, trustees, young alumni, parents, and job recruiters. They find students are disinterested in the largely transactional nature of current education and blame this on the institutions themselves and call for major changes.)

Geiger, R. L. (2004). *To advance knowledge: The growth of American research universities, 1900-1940*. Transaction Publishers. (An authoritative history of its subject with a singular focus on the research universities of the United States, their origins, growth, and evolution.)

Geiger, R. L. *Research & relevant knowledge: American research universities since World War II*. Transaction Publishers. (Picks up where the first volume leaves off delineating the path to the present and the overwhelming influence of these research universities on not only the United States but the wider world through their tri-fold missions of research, teaching, and service to the nation and various publics.)

Grawe, N. D. (2021). *The agile college: How institutions successfully navigate demographic change*. Johns Hopkins University Press. (An economist and distinguished professor of the social sciences at Carlton College, an elite liberal arts institution, reflects on how institutions can deal with pronounced demographic changes in the populations they have traditionally served.)

Haskie, M., Tiner, K., & Mink, B., Eds. (2021). *The future of Navajo education*. Fielding University Press. (One recent example of thinking about the future of HE occurring within a minority-controlled institution, in this case the Navajo Nation. Haskie is a Professor at Diné College – the tribal university, Tiner is a professor and Mink is a professor and Dean, School of Leadership Studies, Fielding Graduate University – a long-time, regionally accredited, nontraditional institution of HE in the USA.)

Heft, J. L. (2021). *The future of Catholic higher education*. Oxford University Press. (One example of thinking going on in religiously-affiliated institutions by the former university professor, Provost, and Chancellor of the University of Dayton who is now a professor of religion at the University of Southern California and founding director of the Institute for Advanced Catholic Studies.)

Hrabowski, F. III, P. J. Rous, P. H. Henderson (2019). *The empowered university: Shared leadership, culture change, and academic success*. Johns Hopkins University Press. (The President for 30 years at the University of Maryland Baltimore County (UMBC) who retired in 2022, articulates how to make a university an engine for broadening access for underrepresented groups of students and faculty and expanding upward social mobility for ALL students backed by three decades of success at doing just that at UMBC).

International Institute for Higher Education in Latin America and the Caribbean (2021). *Thinking higher and beyond: Perspectives on the futures of higher education to 2050*. UNESCO IESALC, 25 May 2021. (A global survey of university students views about needed changes in higher education going forward.)

Irani, L. (2019). *Chasing innovation: Making entrepreneurial citizens in modern India*. Princeton University Press. (An insightful reflection from a Silicon Valley designer and ethnographer who studied a design studio in India for over a decade. She analyzes the current focus around "entrepreneurial citizenship" in her home country as it plays out in a society where powerful hierarchies such as class, caste, language, and colonialism still shape opportunities. The book, part of the Princeton series on Culture and Technology, won the ICA outstanding book award and the Diane Forsythe Prize.)

Joseph, R. J. (2022). *Bridging the gap between the abundance of American higher education talent and the immense foreign demand for it*. Oxford University Press. (A multidimensional analysis taking account of economic, demographic, organizational, political, and cultural factors to the challenges presented to American higher education as a system and at the individual institution level. A series of potential steps that might be taken to address these challenges are presented.)

Kerr, C. (2001). *The uses of the university*. Harvard University Press, 5e. (Wise insights from the former President of the University of California Berkeley, originally delivered as a smaller set of lectures at Harvard; this classic's last update was completed shortly before Kerr's death.)

Kim, J., E. J. Maloney (2020). *Learning innovation and the future of higher education*. Johns Hopkins University Press. (Kim is the Director of Online Programs and Strategy at Dartmouth College with a joint appointment at Georgetown University; Maloney is Professor of English and Executive Director of the Center for New Designs in Learning and Scholarship and founding Director of the Program in Learning, Design, and Technology at Georgetown University.)

Kosslyn, S., & Nelson, B. (2017). *Building the intentional university: Minerva and the future of higher education*. The MIT Press. (A professor emeritus of psychology at Harvard University teams up with a colleague to tell the story of the philosophical and conceptual work that went into the founding of a decidedly different university for undergraduates known at Minerva University based in San Francisco.)

Levine, A., & S. Van Pelt (2021). *The great upheaval: Higher education's past, present, and uncertain future*. Johns Hopkins University Press. (An education writer focused on higher education teams up with Levine who is President of the Woodrow Wilson National Fellowship Foundation and the former President of both Teachers College – Columbia University and Bradford College. He was formerly professor of education at both Teachers College and the Harvard Graduate School of Education and currently sits on the boards of Blackboard, Inc. and the Commission on Independent Colleges and Universities.)

Lucas, C. J. (2006). *American higher education: A history*. Palgrave Macmillan. (A compact history from colonial times to the present with a special section on contemporary challenges and issues.)

Mahon, Á., Ed. (2021). *The promise of the university: Reclaiming humanity, humility, and hope*. Springer. (A clarion call of philosophical readings about the modern university that looks perceptively at its many conflicted, interlinked agendas in light of important philosophical ideals about the purposes, aims, and ethos of contemporary higher education.)

Montfort, N. (2017). *The future*. MIT Press. (Part of the *MIT Press Essential Knowledge Series*, this is a short introduction to how humans have thought, imagined, described, and portrayed visions of the future with a particular focus on artists of various kinds and primarily in the Western tradition from a person who generates computational art and poetry.)

Norberg, J. (2016). *Progress: Ten reasons to look forward to the future*. OneWorld Publications. (A Swedish lecturer, documentary film maker and social commentator surveys ten areas where the world inhabited by humans has dramatically improved in documented ways. He also outlines what he thinks are reasons why people still generally are less optimistic about the future despite evidence such as that which he has synthesized.)

North, M. (2013). *Novelty: A history of the new*. The University of Chicago Press. (A wide-ranging view of the idea of the new to identify recurring patterns that shape our understandings of how the new emerges with insights draw from philosophy, science, and the arts from a professor of English at the University of California Los Angeles - UCLA.)

Ris, E. W. (2022). *Other people's colleges: The origins of American higher education reform*. University of Chicago Press. (A historical look at the ways in which informed and/or uninformed pressure has always been applied upon American colleges and universities to improve their operations and enhance their positive impact on society.)

Samuel, L. R. (2009). *Future: A recent history*. University of Texas Press. (This is a social history by the founder of Culture Planning LLC, a consultancy for Fortune 500 companies. He delineates six eras of future narratives from 1920 to the present focused principally on American and European thought and activities.)

Spirou, C. (2021). *Anchoring innovation districts: The entrepreneurial university and urban change*. Johns Hopkins University Press. (A university professor involved in innovation research and work explains the role that a university can play in the urban landscape.)

Thelen, J. R. (2019). *A history of American higher education*. Johns Hopkins University Press, 3e. (One of the best histories available from a distinguished historian of education who has been a professor at the University of Kentucky, Indiana University, and the College of William & Mary and is the former research director of the Association of Independent California Colleges and Universities.)

Thorp, H., & Goldstein, B. (2010). *Engines of innovation: The entrepreneurial university in the twenty-first century*. UNC Press. (Reflections and challenges from the then Chancellor and the University Entrepreneur in Residence at the University of North Carolina at Chapel Hill.)

Trowler, P. (2020). *Accomplishing change in teaching and learning regimes: Higher education and the practice of sensibility*. Oxford University Press. (A genuine theory of change in higher education from a longtime professor of higher education at Lancaster University in the UK.)

Ubell, R. (2021). *Staying online: How to navigate digital higher education*. Routledge. (A series of essays providing important insights from a highly-experienced administrator and pioneer of online education.)

Vest, C. M. (2007). The American research university from World War II to world wide web: Governments, the private sector, and the emerging meta-university. University of California Press. (Insights from a President Emeritus and professor of mechanical engineering at the Massachusetts Institute of Technology.)

Wingard, J. & Farrugia, C., Eds. (2021). *The great skills gap: Optimizing the talent pipeline for the future of work.* Stanford Business Books. (Wingard is President of Temple University and former Dean and Professor in the School of Professional Studies, Columbia University. He is a former CLO of Goldman Sachs, Vice Dean of the Wharton School of the University of Pennsylvania, and founder and chair of The Education Board, Inc. Christine Farrugia is Director of Research Initiatives at Columbia University School of Professional Studies.)

Wingard, J. (2022). *The college devaluation crisis: Market disruption, diminished ROI, and an alternative future of learning*. Stanford University Press. (Wingard, a seasoned university president, has spent a lot of time listening to students, employers, parents, and academics and makes the case that the existing higher education platform in America is "on fire" and self-destructing if immediate and more sweeping innovations are not undertaken.)