

Transformation of the Higher Education System: Forces and Strategies

Firdissa Jebessa*

Received: 16 September 2025; Accepted: 28 July 2026

Abstract: The global Higher Education System (HES) is undergoing a profound and necessary transformation, moving beyond incremental reform to a fundamental redefinition of its core purpose, vision, and structures. This paper argues that this systemic shift is a critical response to a powerful confluence of external forces, including the disruptive technological impact of the Fourth Industrial Revolution (4IR), intense economic pressures, societal demands for equity and employability, changing student demographics, and the realities of globalization. The 4IR, in particular, acts as a primary catalyst, disrupting labor markets and necessitating an overhaul of pedagogy and curriculum to foster future-ready skills like critical thinking and creativity through interdisciplinary and flexible learning pathways. This transformation is guided by core tenets that ensure change is systemic and systematic, including mission reorientation towards societal impact, innovative leadership, pedagogical renewal, and comprehensive digital transformation. However, the landscape presents a paradox of opportunities and significant challenges. While opportunities exist for greater innovation and accountability, many systems are hampered by rapid expansion that erodes quality, a lack of instructional leadership, and political unpreparedness, leading to a failure of quality initiatives. The driving forces compelling this change are analyzed as an interconnected web: economic constraints demanding new funding models and a demonstration of return on investment; societal imperatives for closing equity gaps; demographic shifts requiring flexible pathways for non-traditional learners; and technological disruption enabling personalized learning, but also creating new demands. In response, this paper proposes a holistic strategic framework comprising six interconnected pillars: (1) pedagogical innovation toward active and competency-based learning; (2) full digital transformation leveraging AI and Open Educational Resources; (3) curriculum modernization with industry-aligned micro-credentials; (4) building operational agility and financial sustainability through diversifications and partnerships; (5) deepening community engagement and scholarship; and (6) fostering instructional leadership and a supportive institutional culture. Ultimately, institutions that embrace this comprehensive transformation will evolve into vital hubs of lifelong learning and innovation, while those that resist risk irrelevance. The survival and future relevance of higher education depend on its ability to successfully navigate these forces and implement the strategies to fulfill its evolving contract with society.

Keywords: Higher Education Transformation, Fourth Industrial Revolution, Driving Forces, Change Strategies, Systemic Reform

DOI: <https://doi.org/10.63990/ejhe.v9i1.14125>

* Associate Professor, Center for Educational Research, Institute of Social and Economic Research, Addis Ababa University, Email: firdissa.jebessa@aau.edu.et

Conceptions and Tenets within the HES Transformation

Higher education (HE) is increasingly recognized as a pivotal institution for shaping graduates, the workforce, and society at large (Firdissa, 2024). Its conception, however, varies across contexts. The classical liberal view, articulated by Newman (1982), frames HE/university as an institution dedicated to cultivating the intellect and character of its students. Newman argues for a broad, liberal education that cultivates intellectual and moral character, integrating various fields of knowledge with theology as a guiding force, rather than focusing on vocational training. This ideal was later reinvigorated and expanded by Kerr's (1963) "multiversity" model, which balances the missions of education, research, and public service. As Ravi (2012:8) explains, this model envisions a system transformed for greater access, quality, and equity, leveraging both conventional and Open Educational Resources (OER) to cultivate professional and human excellence.

In the modern age, transformation within the HES entails far more than incremental reform; it constitutes a fundamental redefinition and revitalization of its core purpose, vision, and structures (Firdissa, 2024). This systemic shift is a necessary response to the emerging societal demands and global challenges, driven by technological and economic changes. It involves paradigm shifts across five key areas: pedagogy, technology integration, governance, access and equity, and curriculum relevance.

These areas, among others, include a move toward competency-based and active learning, responsiveness to artificial intelligence (AI) and online education, new funding models like public-private partnerships, inclusive policies for marginalized groups, and aligning curricula with the demands of the Fourth Industrial Revolution (4IR) (Schwab, 2016). The 4IR, which was coined by Schwab in 2015 in *Foreign Affairs* magazine as a theme for the WEF Annual Meeting (Schwab, 2015), is a primary catalyst for HES transformation. Characterized by the exponential fusion of digital, biological, and physical technologies, the

4IR is disrupting labor markets, governance, and education at an unprecedented speed and scope (Schwab, 2016; WEF, 2020). In response, HE must overhaul its curricula and pedagogy to prepare learners for a future where an estimated 85 million jobs may be displaced by the end of 2025 while 97 million new roles emerge, demanding skills such as critical thinking and creativity (WEF, 2020). This necessitates a shift toward interdisciplinary STEAM (Science, Technology, Engineering, Arts, and Mathematics) integration, lifelong learning pathways, and micro-credentials to foster the innovation and human-centric skills required for this new era (Gallagher, 2016; Yakman, 2008).

The process of adapting to these forces requires a reimagining of higher education's very social purpose, driven by both external pressures and an internal reassessment of the sector's role (Bates, 2019; Christensen & Eyring, 2011). This is guided by a set of core tenets that ensure change is "systemic and systematic" (Firdissa, 2024: 33). These tenets include mission reorientation toward societal impact and employability; leadership that fosters a culture of innovation and shared governance (Kezar & Eckel, 2002); curriculum and pedagogical innovation centered on active and competency-based learning (Freeman et al., 2014); comprehensive digital transformation (Bates, 2019); and proactive global engagement (Altbach & Knight, 2007).

For these changes to be sustainable, they must be underpinned by financial and operational resilience. This entails diversifying funding sources through industry partnerships, efficiently utilizing OER to reduce costs, and improving administrative efficiency (Selingo, 2018). Ultimately, institutions that embrace and adapt this holistic transformation, aligning with global sustainability goals as urged by UNESCO (2021), can evolve into vital hubs of lifelong learning and innovation and are poised to mitigate the societal inequalities exacerbated by technological disruption and fulfill higher education's evolving contract with society, while those that resist it risk irrelevance.

The HES Landscape, Trends and Transformation Rationales

The HES landscape is all about the complex and dynamic environment of higher education institutions (HEIs), encompassing the current state of tertiary education, including their structure, funding, policies, teaching, research and service activities, challenges, opportunities, trends, and their interconnections/interplays with various stakeholders and with the influences of the global world. The interplays and the influences have ignited rapid changes within the HE sector alongside the rise of a knowledge-based society; social, economic, and information globalization; increased demand for higher education; and changes in the political and social environment of many countries, including ours - all of which influence the HES in many ways (Firdissa, 2022).

First, since the latter half of the 20th century, the world has been witnessing a shift from economic growth led by mass-production industry based on established technology to knowledge-based growth in which hard and soft innovation (creation of knowledge) has a higher economic value. Second, due to the striking development of information technology in recent years, the movement of people, goods, money, and information has become much easier, and globalization of the world economy has been accelerated (Firdissa, 2022; 2024). Third, the rising demand for HE (earlier following World War II) has come with the necessity of mastering new knowledge and technology, demanding adaptive educational credentials. Consequently, HE has been remarkably expanded throughout the world, and yet at varying rates and degrees of achievement. Fourth, changes in the political and social environments of many countries from the 1990s and the recent international situation have demanded that the HE sector contribute to the development of a healthy civil society and cultivation of social cohesion (Ibid).

The Ethiopian HES, as elsewhere, is in an era of both opportunities and challenges. In the firstplace, we are witnessing a renewed passion for HE, research, and innovation; accountability to taxpayers by adding value for the bucks and for the bungs-leading to authentic transformation; and standing responsive to interconnectedness, globalization, and networked designs — all catalyzing the role of HE for development by producing an enlightened workforce, creating knowledge, and serving the citizens.

Secondly, on the other hand, Ethiopian HE is facing unprecedented challenges for various reasons. Notably, “...the rapid expansion of higher education has brought about declining quality. The country’s lack of instructional leadership and systemic and systematic culture of handling the sector exacerbated the threats to the Sector. Equally, the efforts to reach HEIs very close to nations, nationalities, and peoples of the country were benightedly led. Consequently, quality in Ethiopian HEIs has remained *searching for black gold in a dark room* (Firdissa, 2022, 2015, 2024). Practices show that emphasis and resources have been directed to quantitative gains by enrolling and graduating students with little or no concern for their level of competency and quality. Whereas quantitative gains can stand as surface symptoms, they cannot be the bottom line and sine qua non for the aspired development of the nation. Equally, there is loose management commitment to quality initiatives because many leaders are busy with political commitments and firefighting, not in learning and quality assurance matters. Studies show that 80% of quality initiatives fail in the first two years, mainly because of lack of senior management backing and commitment (Sallis, 20022; Firdissa, 2015, 2022, 2024). This is due to the minimal readiness in some countries, including Ethiopia, for transforming their HES. In some countries, “the political and administrative ranks are utterly unprepared to assume their new role of providing sound and consistent guidance and strategic orientation regarding the longer-term goals and directions in national higher education and science policies” (Hénard, 2010: 43-44, citing Fried, 2006).

These all enfeebled our HES' readiness to overcome the hassles that have come along with environmental and technological changes; the need for accountability; insufficiency of resources; and unpredictability in politics — all limiting the sector's contributions to the development endeavors of the nation to the required level.

Particularly, the Ethiopian HES is currently under pressure to withstand the effects of accelerated changes and instability, the universality of business, technological changes, globalization and competition, scarcity of resources, increased customer expectations, and accountability. Some of these stand as opportunities and some as challenges for HE transformation. Particularly, whereas technology influences the functioning of institutions in the marketplace and reshapes pedagogy and teaching, globalization allows the free flow of ideas, capital, people, and goods around the world, implying after-effects on identity and culture (Fägerlind & Strömqvist, 2004; Firdissa, 2024).

Both extremes (opportunities and challenges) have catalyzed the HES to undergo substantial changes and transformations impacting global, regional, national, and local contexts; some have created new opportunities while others have engendered new challenges. HEIs' learning, teaching, research, and services are, therefore, affected by the physical and psychosocial effects of these and the demands of the day. So, it is a survival strategy to stand answerable to the demands of the day by delivering transformative outcomes — revitalizing the ways of knowledge creation, preservation, dissemination, extension, application, and innovation, cognizant of the global and local circumstances.

As Salim (2009: ix) indicates, "...the World Bank sought policy developments and innovations to encourage reforms leading to greater access, equity, relevance, and quality in ... tertiary education systems". In line with this and as part of a survival mechanism, many HEIs, including those in Ethiopia, have introduced various reforms. These

reforms have changed the way their activities are organized, how services are provided, and the way institutions are managed. Such a process of reformation has become a survival strategy for improving the relevance and quality of the concerned HEIs' programs, curricula, and courses. The existence quest of many HEIs' systems has required a painful reformation, resulting in changes to their governance systems, management/administration, and leadership.

Ethiopia is now conscious of the fact that its HEIs cannot continue business as usual in knowledge production, preservation, application, and use. The current Ethiopian HE landscape demands a liberated mindset and instills a culture of accountability, eventually transforming HEIs along with their revitalized vision, mission, and goals. Consequently, the country is putting in place an autonomous system (starting with AAU as the first flagship Autonomous Research-intensive University as of 2024).

Driving Forces of the HES Transformation

The current landscape of HE is witnessing a number of pressures that call for transforming the System. This has been learnt from an extensive review of different sources.[†] Personal reflections suggest that the pressures are a combination of different forces, including economic pressures and societal demands, changing student demographics and expectations vis-à-vis technological intervention, and the evolving nature of knowledge and research vis-à-vis globalization and international competition.

[†] (OECD, 2019; Deming & Walters, 2017; Archibald, & Feldman, 2018; WEF, 2020; Kezar, 2019; Saltmarsh, & Hartley, 2011; Eagan, 2014; Arum & Roksa, 2011; Seaman et al., 2018; Zawacki-Richter, 2019; Means et al., 2013; Gibbons et al., 1994; Borrego & Newswander, 2010; UNESCO, 2021; Altbach & Knight, 2007; Marginson, 2016; de Wit et al.; 2015).

The transformation of higher education is being propelled by a powerful confluence of external economic and societal pressures. Economic pressures and funding challenges, marked by declining public subsidies and rising tuition, have forced HEIs to operate more like enterprises, demanding a clear demonstration of workforce value and Return on Investment (ROI) from students and policymakers alike. This financial squeeze is intensified by societal demands to address critical issues such as the skills gap, social equity, and civic engagement. Societies increasingly expect HEIs to be engines of mobility, producing employable graduates with saleable competencies while simultaneously closing equity gaps and fostering responsible citizenship, thereby justifying their public values (Firdissa, 2024).

Simultaneously, the very nature of the student body and their expectations are shifting dramatically. The rise of non-traditional learners, such as working adults and part-time students, has created a pressing demand for flexible, accessible pathways and personalized support systems that accommodate diverse lives and goals. This demographic shift is perfectly aligned with and enabled by relentless technological intervention. The booming of AI, big data, and online learning platforms provides the tools to meet these new demands, pressuring institutions to personalize pedagogy, automate administration, and expand access through digital means, fundamentally reshaping the learning experience.

Furthermore, the academic landscape is being reshaped by the evolving nature of knowledge and research. The rise of inter-/multi-/trans-disciplinary approaches, the push for open science, the need for industry collaboration, and the accelerated pace of knowledge obsolescence require universities to break down traditional silos and create more fluid, collaborative, and relevant research and curricular structures. This occurs within a context of intense globalization and international competition, where universities must compete for talent and research funding on a world stage, navigate cross-border education, and internationalize their curricula to enhance their

reputation and prepare students for a globalized workforce (Firdissa, 2024).

In conclusion, the transformation of higher education is not driven by a single isolated trend but by the powerful and interconnected convergence of economic constraints, societal imperatives, demographic shifts, technological disruption, epistemological evolution, and global competition, all of which collectively compel a fundamental reimagining of the HEIs' missions, structures, and operations with worthwhile strategies.

HEI Transformation Strategies

A strategic approach to higher education transformation focuses on being holistic, systematic, and responsive to evolving societal and student needs, leveraging digital technologies, and fostering collaboration with stakeholders. From an extensive review of different sources[‡] and personal reflections, HE transformation strategies include: pedagogical innovation and personalized and active learning experiences; digital transformation and learning technologies; curriculum modernization and micro-credentials; operational agility and financial sustainability; engaged scholarship and community partnerships; and instructional leadership and cultural change.

In the first place, the current landscape of higher education demands a fundamental enhancement of teaching and learning by directly addressing student expectations for personalized, flexible, and affordable educational experiences. This involves implementing flexible learning options such as online degrees and Massive Open Online

[‡] (Bensimon, 2018; Witham, 2015; Freeman, et al., 2014; Johnstone, & Soares, 2014; EDUCAUSE, 2021; Weller, 2020; Gallagher, 2016; Fong, et al.; 2021; Selingo, 2018; Denning & Lewis, -2016; Boyer, 1996; Bringle & Hatcher, 2009; Kotter, 2012; Kezar & Eckel, 2002).

Course (MOOC) credit recognition, while simultaneously ensuring that technological integration supports rather than suppresses crucial human interaction. Success is further bolstered by comprehensive student support services, culturally responsive teaching practices, and the adoption of innovative pedagogical models like competency-based education, project-based learning, and experiential learning, all designed to support the holistic success of a diverse student body amidst rising cost pressures.

Second, transforming higher education necessitates a full embrace of digital transformation, which involves strategically leveraging digital tools and platforms to radically improve learning access, facilitate online opportunities, and enable virtual global collaboration and exchange. This goes beyond mere implementation to include critically equipping both faculty and students with the essential skills for universal digital design and effective tool utilization, ensuring equitable access and digital literacy. The adoption of advanced technologies—including AI-driven tutoring, adaptive learning platforms, Virtual Reality (VR) and Augmented Reality (AR) integration, and OER—is key to creating dynamic, efficient, and accessible learning environments for the modern era (Milgram & Kishino, 1994; Firdissa, 2024).

Third, curriculum modernization is a critical strategy that calls for moving beyond traditional degree structures to design scalable, relevant, and interdisciplinary credentials that align with contemporary workforce needs. This involves creating industry-aligned micro-credentials, skills badges, and micro-master's programs that offer stackable, recognizable value in the labor market, providing learners with more flexible and targeted pathways for professional development and lifelong learning. By making curricula more agile and responsive, institutions can ensure that the competencies they nurture in learners are directly applicable and valuable to both the learners themselves and the employers.

Fourth, successful HE transformation is highly dependent on fostering robust collaborations and partnerships, both within the institution and with external stakeholders from industry, the community, and global academia. This strategy utilizes digital technologies to strengthen ties with the labor market in education, research, and innovation, while also promoting global mobility and cross-border educational programs. Furthermore, it involves practical steps like administrative automation, forming public-private partnerships, and diversifying revenue streams through continuing education, all aimed at optimizing resources, enhancing institutional agility, and increasing the practical impact of academic work.

Fifth, successful HE transformation focuses on deepening the institution's mission by boosting service-learning, community-based research, and civic engagement programs, thereby reinforcing the public purpose of higher education. Concurrently, it requires intentional internal reform through shared governance models, the establishment of innovation incubators, the implementation of robust change management frameworks, and dedicated faculty development programs. This dual focus ensures that the institution is not only externally engaged and responsive to societal needs but also internally structured to support innovation, empower its staff, and manage the transformation process effectively.

Sixth, successful transformation requires a deliberate and simultaneous focus on both instructional leadership and cultural change, where leadership provides active, strategic direction for improving teaching, research, and engagement, while cultural change addresses the underlying beliefs and values that enable HEIs' progress. Effective instructional leadership involves defining a clear vision, empowering faculty, providing resources, and monitoring quality, while the necessary cultural shift involves moving towards truly valuing teaching alongside research, fostering innovation and risk-taking, cultivating inclusivity and equity, and building a collaborative

rather than a competitive ethos to change the institution's deepest assumptions.

In conclusion, these six interconnected strategies form a comprehensive blueprint for transforming higher education into a more responsive, equitable, and sustainable ecosystem, capable of thriving in a complex digital age and fulfilling its mission of empowering learners and serving society.

References

- Altbach, P. G., & Knight, J. (2007). The internationalization of higher education: Motivations and realities. *Journal of Studies in International Education*, 11(3-4), 290–305. <https://doi.org/10.1177/1028315307303542>
- Arum, R., & Roksa, J. (2011). *Academically adrift: Limited learning on college campuses*. University of Chicago Press.
- Archibald, R. B., & Feldman, D. H. (2018). *Why does college cost so much?* Oxford University Press.
- Bates, A. W. (2019). *Teaching in a digital age: Guidelines for designing teaching and learning* (2nd ed.). Tony Bates Associates Ltd. <https://pressbooks.bccampus.ca/teachinginadigitalagev2/>
- Bensimon, E. M. (2018). Reclaiming racial justice in equity. *Change: The Magazine of Higher Learning*, 50(3-4), 95–98. <https://doi.org/10.1080/00091383.2018.1509603>
- Bensimon, E. M., & Malcom, L. (2012). *Confronting equity issues on campus: Implementing the Equity Scorecard in theory and practice*. Stylus Publishing.

- Borrego, M., & Newswander, L. K. (2010). Definitions of interdisciplinary research: Toward graduate-level interdisciplinary learning outcomes. *The Journal of Higher Education*, 81(3), 349–371.
- Boyer, E. L. (1990). *Scholarship reconsidered: Priorities of the professoriate*. Carnegie Foundation for the Advancement of Teaching.
- Boyer, E. L. (1996). The scholarship of engagement. *Journal of Public Service & Outreach*, 1(1), 11–20.
- Bringle, R. G., & Hatcher, J. A. (2009). Institutionalization of service learning in higher education. *The Journal of Higher Education*, 71(3), 273–290.
- Christensen, C. M., & Eyring, H. J. (2011). *The innovative university: Changing the DNA of higher education from the inside out*. Jossey-Bass.
- De Wit, H., Hunter, F., Howard, L., & Egron-Polak, E. (2015). *Internationalisation of higher education*. European Parliament.
- Deming, D. J., & Walters, C. R. (2017). *The impact of price caps and spending cuts on U.S. postsecondary attainment* (NBER Working Paper No. 23736). National Bureau of Economic Research.
- Denning, P. J., & Lewis, T. G. (2016). The job of the university is learning. *Communications of the ACM*, 59(10), 31–33.
- Eagan, K., Stolzenberg, E. B., Ramirez, J. J., Aragon, M. C., Suchard, M. R., & Hurtado, S. (2014). *The American freshman: National norms fall 2014*. Higher Education Research Institute, UCLA.

EDUCAUSE [Education and Cause] (2021). *2021 EDUCAUSE Horizon Report: Teaching and learning edition*. EDUCAUSE.

Fägerlind, I., & Strömquist, G. (Eds.). (2004). *Reforming higher education in the Nordic countries: Studies of change in Denmark, Finland, Iceland, Norway and Sweden*. International Institute for Educational Planning, UNESCO.

Firdissa J. (2024). A Quest for Transforming Ethiopian Higher Education System (HES): Implications for Public Sector Transformation. *Journal of African Development Studies*, 11(1), 21–36. DOI: <https://doi.org/10.56302/jads.v11i1.10291>

Firdissa J. (2022). *The Roles of Higher Education for Economic Development in Ethiopia*. A Keynote Speech made at the opening of the 4th National Research Conference organized by Hope Enterprise University College, held on August 30, 2022

Firdissa J. (2015). Implementing and Using Quality Assurance: Strategy and Practice. Presented at the 3rd Annual Quality Assurance & Accreditation in HE Conference organized by AMC International, 28- 30 September 2015, Emperors Palace, Johannesburg, South Africa

Fong, J., Janzow, P., & Peck, K. (2021). *Micro-credentials and digital badges: New credentials for global higher education*. UPCEA.

Freeman, S., Eddy, S. L., McDonough, M., Smith, M. K., Okoroafor, N., Jordt, H., & Wenderoth, M. P. (2014). Active learning increases student performance in science, engineering, and mathematics. *Proceedings of the National Academy of Sciences*, 111(23), 8410–8415. <https://doi.org/10.1073/pnas.1319030111>

- Gallagher, S. R. (2016). *The future of university credentials: New developments at the master's and doctorate level*. Harvard Education Press.
- Gibbons, M., Limoges, C., Nowotny, H., Schwartzman, S., Scott, P., & Trow, M. (1994). *The new production of knowledge: The dynamics of science and research in contemporary societies*. SAGE.
- Hénard, F. (2010). *Learning our lesson: Review of quality teaching in higher education*. OECD Publishing. <https://doi.org/10.1787/9789264079281-en>
- Johnstone, S. M., & Soares, L. (2014). Principles for developing competency-based education programs. *Change: The Magazine of Higher Learning*, 46(2), 12–19.
- Kerr, C. (1963). *The uses of the university*. Harvard University Press.
- Kezar, A. (2018). *How colleges change: Understanding, leading, and enacting change* (2nd ed.). Routledge.
- Kezar, A., & Eckel, P. D. (2002). Examining the institutional transformation process: The importance of sensemaking, interrelated strategies, and balance. *Research in Higher Education*, 43(3), 295–328. <https://doi.org/10.1023/A:1014889001242>
- Kotter, J. P. (2012). *Leading change*. Harvard Business Review Press.
- Marginson, S. (2016). *Higher education and the common good*. Melbourne University Publishing.

- Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2013). *The effectiveness of online and blended learning: A meta-analysis of the empirical literature*. Teachers College Record, 115(3), 1–47.
- Milgram, P., & Kishino, F. (1994). *A Taxonomy of Mixed Reality Visual Displays*. IEICE Transactions on Information and Systems, E77-D(12), 1321-1329
- Newman, J. H. (1982). *The idea of a university*. University of Notre Dame Press. (Original work published 1873; available at <https://www.gutenberg.org/files/24526/24526-pdf.pdf>)
- OECD. (2019). *Education at a glance 2019: OECD indicators*. OECD Publishing. <https://doi.org/10.1787/f8d7880d-en>
- Ravi, J.S. (2012). *Making the Multiversity: An Open Higher Education Model*. Perspectives, 37(3), 7-18
- Salim, A. (2009). Foreword. In G. A. Deininger, D. G. T. N. Nganga, M. C. N. Sifuna, & T. M. K. T. Mwirichia (Eds.), *Accelerating catch-up: Tertiary education for growth in Sub-Saharan Africa* (pp. vii-ix). The World Bank.
- Sallis, E. (2002). *Total Quality Management in Education (3rd ed.)*. London: Cogan Page Ltd.
- Saltmarsh, J., & Hartley, M. (Eds.). (2011). *"To serve a larger purpose": Engagement for democracy and the transformation of higher education*. Temple University Press.
- Schwab, K. (2016). *The fourth industrial revolution*. World Economic Forum (WEF) Working Paper.

- Schwab, K. (2015). *The Fourth Industrial Revolution*, in *Foreign Affairs* magazine. A theme for the World Economic Forum Annual Meeting (a working paper).
- Seaman, J. E., Allen, I. E., & Seaman, J. (2018). *Grade increase: Tracking distance education in the United States*. Babson Survey Research Group.
- Selingo, J. J. (2018). *The new U: Faster + cheaper alternatives to college*. Penguin.
- UNESCO. (2021). *Reimagining our futures together: A new social contract for education*. United Nations. <https://unesdoc.unesco.org/ark:/48223/pf0000379707>
- WEF [World Economic Forum] (2020). *The future of jobs report 2020*. World Economic Forum.
- Weller, M. (2020). *25 years of ed tech*. Athabasca University Press.
- Witham, K., Malcom-Piqueux, L. E., Dowd, A. C., & Bensimon, E. M. (2015). *America's unmet promise: The imperative for equity in higher education*. Association of American Colleges and Universities.
- Yakman, G. (2008). STEAM education: An overview of creating a model of integrative education. *Proceedings of the Pupils' Attitudes Towards Technology Conference*.
- Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education – where are the educators? *International Journal of Educational Technology in Higher Education*, 16(1), 39. <https://doi.org/10.1186/s41239-019-0171-0>