

Transforming the World by Transforming the University: Envisioning the University of 2040

by Ariane König, Robert Dyball, and Federico Davila

This article is part of a regular section in *Solutions* in which the author is challenged to envision a future society in which all the right changes have been made.

We are educating students to engage with a future that will be very different to the era in which most universities were established. Global change is accelerating in every sphere of society. As intersecting technological, social, environmental, and economic issues become increasingly complex, the future becomes less predictable. Given this uncertainty, how might education in 2040 look? Specifically, how will universities combine research, teaching and learning, and civic engagement to foster just and sustainable futures?

The Challenges: Old-Fashioned Academia

Creating just and sustainable futures requires nurturing students to be change agents, adept at novel, complex, and interdisciplinary thinking.¹ These are skills that universities were not established to provide, and many find themselves poorly equipped to foster them.^{2,3}

In traditional academic institutions, teaching intervention skills, civic engagement, and interdisciplinary work is minimally rewarded, and often, even actively discouraged. Academics are rewarded for reporting research findings with little explicit focus on solutions in high-impact, narrowly-disciplined, focused journals.



Lizette Kabré

Students participate in a breakout session at the 2014 IARU Sustainability Conference.

This has reinforced public perceptions of academics as divorced from the real world.

Most large universities are structured around disciplinary knowledge silos. Departments of arts and social sciences, economics, physics, biology, and so forth, typically house the sub-disciplines over which they claim ownership. Administrative and funding structures can make it hard for students and staff to move between these silos. Programs of study typically demand course selections from a narrow range of options deemed appropriate for a major or specialty. Where funds or prestige follow student enrollments, many colleges actively minimize “leakage” to other areas.⁴

Consequently, cross-fertilization of ideas is minimal, with students and staff forced to work around “the system” to achieve it. More compliant students simply pass through their university education with little exposure to ideas outside of their chosen area of specialization. Knowledge required for tackling sustainability has no natural home in this arrangement, and is often shoehorned into an existing program, such as environmental studies. In reality, sustainability cuts across all academic disciplines. Institutional cultures that encourage disciplinary specialization and discourage blending knowledge are not well equipped to develop an understanding of complex and contested human–environment systems.^{5,6}

Breaking through Silo Walls

The institutional barriers between disciplinary silos within universities are replicated in barriers between the university and the non-academic world beyond. Where there is no outreach to communities, business, and policy makers grappling with these problems, there is little capacity to influence change in the real world at all. On occasions when students are tasked with working with these stakeholders—such as through student projects—requirements that they report in academic language can make their findings of little practical value to those stakeholders. As a result, there is a lack of meaningful engagement and co-production of knowledge with non-academic sectors. Assessing project recommendations merely for their academic merit, with no expectation of implementation, can be frustrating for students concerned with actually changing the world for the better. Many students are painfully aware of the problems facing the world today and want to be empowered to do something about it. Some academics open to experimentation have committed to teaching for “action competence,” but it is still far from the norm.

A further challenge is to develop approaches and indicators for innovation that will enable transitions to new forms of production, consumption, and distribution, with new combinations of technologies, institutions, and lifestyles. Students need to generate messages that enthrall consumers of current modes of production to willingly embrace these new modes of production.⁷ This future orientation is a major challenge for traditional university educators, themselves educated in silos of specialized knowledge gained from the past.

So, how would a university training program for future sustainability leaders look? We now write from the

year 2040, where we imagine such a university exists. We outline the core structural and educational elements of this university, and a graduate student provides a commentary and reflection in each section.

The University of 2040: Pedagogical Philosophies

In 2040, our university is a place of mindfulness and a vibrant hub for collective inquiry into continued improvement of environmental quality and human well-being. This is a place in which critical research perspectives and solutions to real-world problems are incubated. Here, research-led learning is driven by a normative concern for a better world.⁸⁻¹⁰

Our university focuses on humility, empathy, and human potential. Our students come from all over the world, interact in a vibrant campus life that emphasizes the importance of non-academic extra curricular social activities as well as study, and have educational interests that align with the university’s vision of contributing to a just, worthwhile, and sustainable future.

Our courses are co-taught by academics from different disciplinary backgrounds. Students are able to specialize in technical fields, yet all degree structures require them to relate that specialization to societal and environmental challenges through compulsory breadth courses. We see our challenges as framed by the communities we work with and in which we are embedded. Many courses involve projects that work with local businesses, government agencies, and communities. The university strives to practice what it preaches. Its buildings and grounds are designed and managed to demonstrate innovation in sustainability practice. The physical structure of the campus serves

I was born in 2020. I grew up with too little political action on climate change, food security, and biodiversity loss. But I also grew up at a time when renewable energy was growing fast; a world in which poverty was waning; one that was more connected than ever before. I grew up with the chance to learn from other cultures and knowledge systems from around the world about how to mobilize social action for change.

My university offered me the opportunity to specialize in energy systems, in a degree program that emphasized concern for human well-being. My professors have been supportive and empathetic, and the atmosphere collegiate. Mine is a university that speaks to the concerns of my generation.

Student Reflection, Class of 2040

as a living curriculum for learning sustainability principles. General staff also make a significant contribution to teaching, with facilities and services managers sharing the everyday management challenges of converting sustainability principles into practice.

Students are required to form mixed-background groups, where the requisite range of knowledges and skills is determined by the nature of the problem that they are addressing. A key course requirement is to report back to community stakeholders and to suggest solutions to their real local problems. Frequently, student project proposals are actually acted on by the stakeholder partners, something the students find both rewarding and empowering.

Diversity of learning groups is key. Cross-disciplinary perspectives, professional expertise, community perspectives, and a diversity of backgrounds and experience constitute a vital repertoire essential to dealing with real-world problems. Students



University of Salford Press Office

Online courses at the University of 2040 provide spaces for students to collaborate on joint projects with peers from different cultural perspectives.

partner with their international peers to work across cultures and environments, and much of this work is done across the Internet in virtual classrooms. Internet usage has moved far beyond merely acting as an information repository, and now provides a genuine, interactive, and knowledge-generative learning arena. Students collaborate on joint projects in these online spaces, helping to reveal to themselves how their own cultural paradigms limit the range of solutions they can imagine. While students do still sometimes travel on international exchange programs, the Internet is the primary vehicle for broadening their cultural horizons. A reduced carbon footprint from travel is an added benefit.

Transformative learning—relying on collective learning in diverse groups and organizations—is at the heart of our learning processes for individuals, groups, institutions, and systems. In transformative learning situations, learners—including teachers—need to be challenged by the

experiences and perceptions of others. In order to embrace complexity, conflict, uncertainty, and ignorance, we ensure that knowledge from diverse participants is made explicit, communicated, and understood by all. We structure and manage social interactions so that conflicts of interest are clear, and underlying values explicit.

By co-designing and producing knowledge, we build transformative networks operating across scales: centered on impacts on campus and in the neighborhood, as well as globally through international collaboration and interactive Internet-based sharing of resources.

The University of 2040: The Curriculum

Our main goal is to educate students for the practice of sustainability interventions as a social-learning process. This involves projects and programs of research, looking at which elements are transferable and scalable to different problems from those originally envisioned. Crucial

The use of web-based learning technologies means that I gain technical, as well as academic skills. My professors mentor, enable, and encourage me to pursue projects with industry and government, honing my academic skills for the real world.

I commute to the physical campus for the intensive, face-to-face courses, where I exchange project findings with classmates. The university is flexible, allowing me to balance family, study, and to be active in my field of interest.

Student Reflection, Class of 2040

to this is a rigorous, but flexible, conceptual framework for moving between the social and ecological contexts of a specific problem and towards the general principles of justice and sustainability, in a futures-oriented manner.¹¹⁻¹³ We have projects concerned with the earth system and rebuilding the relationship between humanity and nature, as well as projects concerned with the functioning of particular subsystems, such as food, water, energy, and transport. We are always directing attention to the co-production of science and technology with the norms of a sustainable society. This interdisciplinary research deals with complexity and uncertainty by adopting a systems approach.^{14,15}

With this, we can consider interactions across society and nature, formal and informal institutions and governance, expert and lay knowledge, the global and the local, as well as past, present, and future. Scenario analysis approaches are an example of a method used to enhance our understanding of adaptation to new socio-ecological systems—all with high levels of uncertainty—the likelihood of disruptive changes, and a plethora of values and choices.¹⁶

Educational Tools for a New World

We have designed three, interchangeable types of courses:

- Fully web-based classes, which are largely concerned with theoretical frameworks and conceptual tools to help analysis and problem framing
- Face-to-face classes, which focus on real-world problems
- Hybrid classes, where courses are co-run in two or more countries, with face-to-face classes interacting via teleconference. These parallel courses have a number of web-based group projects where students design projects with common elements

The “flipped classroom” is a principle around which teaching and learning is structured at our university. The concept relies on teaching by teams of teachers and learning in class by groups of students: students often learn from home alone, first getting acquainted with new theories and concepts by reading and using web-resources. Teachers develop experiential engagement opportunities in class, usually hands-on activities for students to apply their new knowledge to practice on assigned problems. Learning is conceived as the creation of actionable knowledge, either alone or in groups, largely achieved by engaging learners in applied problem-solving activities. Projects are then demonstrated and discussed in class. Teachers can thus offer more personalized guidance and interaction with students, instead of merely lecturing to them.

Student projects show attention to the design of “learning environments,” which allow for both formal and informal teaching. We design spaces for socializing and learning



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across physical, virtual, institutional, and networked spaces. Virtual course platforms and web-based tools for group projects, as well as networks, are established together with our learning communities, and are responsive to changing needs. This creates spaces for critique, reflection, and reframing at all levels: ranging from specific issues to deliberations on the meaning of progress and the purpose of learning. These are essential to instilling critical thinking and a mindset of deep questioning. In our role as teachers we also act as agents of change, working in the real world, with research that is responsive to local needs.

Would you Enroll in the University of 2040?

By mapping today’s systemic challenges onto one plausible future for higher education in 2040, universities can effectively contribute to fundamentally altering the relationship between environment, society, and science and technology.

Future universities have rethought the relationship between knowledge of what is and visions of what ought to be. Altering this relationship will demand integrating research, teaching, and learning with civic engagement to transform human–environment relationships. This will help to align the purpose of universities with sustainability goals.

Reshaping current university thinking, structures, and teaching approaches remains a challenge. We need to learn from our mistakes and create visions of the future from which co-creative research and transformative science may emerge. Finding greater ways of working with communities, creating social learning environments, and motivating cross-fertilization across disciplines and practice is our mission. We are embedded in a global network of universities exchanging on how better to improve the translation of global technological solutions and abstract knowledge to local solutions that are socially robust. **S**



UNDP Photo

United Nations Development Program Administrator Helen Clark meets with a team students and faculty from Victoria University that designed a net-zero energy solar model house.

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