IFE Insights Reports

Educational Policies:
Lessons from IFE Conference 2024

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Tecnológico de Monterrey

Institute for the Future of Education

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Prologue

Educational policies have been consolidated as pillars that forge educational standards and the direction of learners, whether at the level of nations or individuals, according to each institution. Their impact falls directly on the daily operation of learning entities; however, their purpose lies in guiding towards equitable and sustainable progress that ensures quality education.

As every individual's right, education remains a central axis on which universal access must be guaranteed. In the current global landscape, knowledge spreads through fostering skills such as critical thinking, creativity, conflict resolution, and collaborative work. For this, there must be statutes and bodies that ensure the development and continuous training of students, teachers, and actors in the educational community.

Integrating innovative technologies from a strategic vision can contribute to the professional success of different people. However, it will be essential that the policies created are flexible and lead to adaptability so that the curriculum is updated, teacher training is imperative, and lifelong learning is adopted by all territories equally.

Education is the catalyst for opportunities to evolve in social and economic matters. In the digital age, challenges persist for future generations, with changing work environments and where literacy in these systems is vital to not only prevail but also progress.

The challenges will have to be addressed according to each region's different contexts, since there is most likely no solution applicable to all cases. Climate change, poverty, and gender disparity, among others, are issues in which education can serve to build and strengthen the resources necessary to tackle them.

The formation of fair, reforming, and inclusive educational policies is essential to building a better life for millions of people worldwide. If properly designed, they can transform environments of all types, where complex problems become visible, and a resolution emerges with joint efforts. They represent an investment in a dignified and agile society in the face of future scenarios.

Michael J.L. Fung
Executive Director of the Institute for the Future of Education (IFE)

Preface

Education is the cornerstone not only for the integral development of an individual in several aspects of their lives but for the correct and just advancement of any society and, therefore, the well-being of our planet. Still, education needs to be sustained by several pillars that require constant upgrading and maintenance to provide their students with the finest, high-quality education that will shape them into experts in their field of work. Most of the time, said pillars can be intersected with one another and must work together to reach an institution's goals.

Constant innovation is necessary in technologies, teaching strategies, and facilities, to name a few. In addition, one of the priority areas of innovation should be educational policy since this area regulates and manages the other areas. Innovation in policies means that schools need to adapt themselves to new generations and the novelties that come with them, as well as what will be expected of them to thrive in the future.

Tecnológico de Monterrey's IFE Conference 2024 didn't stay behind and made sure to include a series of conversations dedicated to educational policy. Throughout three days, the Policy Track at IFE brought together many talented people from different universities across the world who work within this field and shared with the audience their experiences and thoughts on related topics such as flexible and responsive education systems, digital and green economy, ethical concerns regarding AI, and modern strategies to implement educational policies. In addition, government representatives were able to shed light on Mexico's situation regarding current policies.

The editorial team would like to thank Dr. Raúl Valdés Cotera, Chief Coordinator of UNESCO's Institute for Lifelong Learning's Program, for his invalu-

able support in the organization and participation at the event that led to the creation of this report.

This new installment of the IFE Insights Reports provides a look into what was discussed during the Policy Track, providing us with fresh and up-to-date ideas and themes that need to be brought up in institutional conversations to enhance current educational policies.

Innovating institutional policies shape and transform our current classrooms and prepare them for the upcoming generations. Institutions must innovate to create a positive impact on their students so their actions also have positive outcomes on society and the environment.

José Escamilla de los Santos
Associate Director of the Institute for the Future of Education (IFE)

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1. Introduction: Designing the Future of Education

Life has never been faster than it is now due to the arrival of new technologies and the great influx of information that accompanies it. Now, trends don't last much, digital solutions can become obsolete in a matter of months, and unfortunately, findings on climate change's impact are often discovered. As Tony Bates explains, "technology is leading to massive changes in the economy, in the way we communicate and relate to each other, and increasingly in the way we learn."[1] Situations, issues, and the newest tendencies persistently pile up, and universities must do their best to prepare their students for an uncertain future.

1 Bates, T. (2024). "Teaching the Skills Needed for the Future" in *Creating the University of the Future*. Eds. Ehlers, U. & Eigbrecht, L. Springer. http://doi.org/10.1007/978-3-658-42948-5.

Education can't stay behind. Not only are the elements mentioned above changing, but so are the variety of profiles of the people that make up the education system: students, teachers, deans, etcetera. The characteristics of a teacher today won't compare to those of a teacher from the 1900s and so on, but now, teaching strategies evolve more frequently due to the amount of information available, such as new research and knowledge as well as awareness regarding different mental models. As Grant Lichtman (2009) points out, "technology has made knowledge nearly universally accessible, disrupting the foundation of education that has existed since people first gathered around fires thousands of years ago."[2]

Change is the first step when thinking about the future of education. If universities want to accommodate an ever-changing environment, they can't avoid transformation. But it isn't easy. It can bring chaos, discomfort, and uneasiness, and it is an emotional roller coaster full of ups and downs from which many would want to get off immediately or not get on at all.

Moreover, even though change on all levels must be normalized among all institutional tiers, it must be especially propelled by higher administrative areas such as boards of directors, deans, and rectors, among others. From there, their willingness to evolve can trickle down to all other areas of the institution, reaching their students and motivating them. This openness means being able to adapt ourselves to the current circumstances that surround us and acting accordingly to address them.

Adjusting to the world's pace is also related to lifelong learning (LLL), a concept that needs to be regularly contemplated by all since we learn every single day of our lives, and universities shouldn't be the last stop on people's learning journeys.

Learning is a continuous process extended beyond formal institutions that should also take place in various environments, including communities and workplaces, to remain relevant throughout life. This is especially true now since industries and environments' needs are also shifting so quickly, and so is the demand for specialized professionals, who need to be learning and training constantly to keep up with their surroundings.

2 Lichtman, G. (2014). *#EdJourney: A Roadmap to the Future of Education*. John Wiley & Sons.

Educational institutions should be the main advocates regarding lifelong learning by incorporating elements that foster this practice among their current and potential students to encourage them to keep on learning. In addition, they need to respond quickly to markets' demands by being on the lookout for the latest trends in the workforce and helping graduates occupy job positions that may not exist today but will do on the next day.

Real-time analysis to identify skill gaps in students, the use of learning analytics, and the development and implementation of micro-credentials and certificates are some steps that can be taken toward a more flexible and responsive education system.

It also should be considered that the COVID-19 pandemic forced many education institutions across the globe to switch to digital modalities that many had still not adopted. Even if it was complicated for both teachers and students, nowadays, attending class digitally or in a hybrid mode has facilitated education for many people who don't have the time or resources to attend in person, creating a beneficial way for people to access education. These kinds of modalities not only remove obstacles or inspire people to keep learning but also create inclusive spaces in which people from different backgrounds and experiences can interact in digital classrooms, enriching diversity in institutions.

Reiterating climate change and environmental issues, it's important that educational policies promote both economic and sustainable development to safeguard the future of our planet and upcoming generations. Education for sustainable development (ESD) is described by UNESCO as a type of education that "gives learners of all ages the knowledge, skills, values, and agency to address interconnected global challenges including climate change, loss of biodiversity, unsustainable use of resources, and inequality. It empowers learners of all ages to make informed decisions and take individual and collective action to change society and care for the planet."[3]

However, a sustainable education encompasses more than taking care of and raising awareness of the state of the environment and resources.

3 UNESCO. (2024) *What you need to know about education for sustainable development*. UNESCO. https://www.unesco.org/en/sustainable-development/education/need-know.

It also entails social justice, citizenship empowerment, equity, and civic virtues that guide societies toward the correct path toward political and economic sustainability as well. Addressing inequities is also critical since huge gaps in educational attainment exist among different racial and economic groups.

To this day, a recurrent theme that has been and will continue to make a huge impact on the way we work, study, and live is artificial intelligence (AI). Used correctly, AI is a great ally that assists, facilitates, and quickens daily tasks and can enhance human performance. Still, on the other hand, AI technologies can be damaging if they're being used abusively, and they can have negative repercussions on everyone when heavily relied on, such as lower critical thinking skills and technological dependence.

In 2022, Chat GPT shook the world with its appearance. Even if it wasn't the first language model out there, it made drastic changes in education. Institutions had to act quickly when deciding to ban or adopt these AI technologies. Now, it's safe to say that AI isn't going anywhere anytime soon; on the contrary, its use has been normalized.

That being said, and to use AI as mere support, it's imperative for institutions to create policies that can accelerate administration processes or broaden education access and to unite students' abilities and the use of AI to obtain results that make a positive impact on each person's potential as well as the greater good. Needless to say, it's now and not later that educational policies have to be adjusted continually to be agile and responsive to an evolving society and the new challenges that arise.

"If schools are to fulfill their potential and help in the transformation towards a sustainable future, teachers, curriculum developers, and school administrators must come to a deeper understanding of the global realities that beset humanity."

- John Fien[4]

4 Fien, J. (2024). "Educational Policy and Practice for Sustainable Development" in *Encyclopedia of Life Support Systems*. UNESCO. https://www.eolss.net/sample-chapters/c11/e6-61-05-01.pdf.

The information from this report was collected from several talks and presentations that were carried out from January 23 to 25 during IFE Conference 2024, an international event that is annually organized by Tecnológico de Monterrey's Institute for the Future of Education (IFE), which is focused in providing spaces to discuss the most relevant and innovative trends regarding education through conferences and panels, projects, networking, among other activities.

With the participation of 160 institutions from 30 countries, IFE Conference creates different divisions that address very specific themes. For these pages, the series of presentations within the Policy Track was the main source of information as to cover relevant subjects about education policies, where specialists from different universities shared their knowledge on the current context, challenges, opportunities, and trends surrounding this topic.

It is well known that education has a pivotal role to play in what lies ahead for nature, societies, and industries. Rethinking our current systems and realities as well as regularly updating policies will maintain the quality and effectiveness of students' learning experiences, foster innovation, and provide future generations with the necessary and adequate tools to navigate this complicated contemporary world.

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2. Policy Track
Insights

2.1 AI in Education: Insights to Guide the Development of Ethical and Effective Policies

The rapid development of AI has jeopardized education worldwide. Institutions and educators have expressed different concerns about plagiarism, cheating, and quality education. This situation is not surprising, as Priten Shah highlights all the fears and misconceptions about AI technologies, many of which are rooted in unfamiliarity and lack of knowledge about them.[5]

5 Shah, P. (2023). *AI and the future of education: Teaching in the age of Artificial Intelligence.* John Wiley & Sons, Inc.

In this regard, Rose Luckin, Professor of Learner-Centered Design at University College London Knowledge Lab, explains that educators are concerned about AI's safekeeping and ethics involved in the matter, so they need to be informed about the obstacles, as well as the benefits. In order to understand the importance of developing ethical and effective policies, this chapter explores the complexities and challenges of integrating AI into education.

a. AI Literacy and Education

Although AI is not a new concept, the past couple of years have been revolutionary within the field. Following the launch of ChatGPT and other Generative AI (GenAI) tools, their potential as transformative models capable of revolutionizing across all levels has influenced modern education. These tools can assist educators in overcoming hardships within their teaching practices and alter students' learning processes by providing personalized learning experiences.

In this case, it is important to consider AI literacy, which Cecilia Ka Yuk Chan defines as the capacity to grasp, evaluate, engage with, and make well-informed choices concerning AI technologies in everyday situations. This entails comprehension of AI's fundamental principles, identification of its various applications, consciousness of its ethical, societal, and privacy ramifications, and understanding its effects on human emotions and well-being. Overall, the concept involves responsible usage of these tools.[6] In addition, the author elucidates an AI Literacy Framework:

6 Chan, C.K.Y. & Colloton, T. (2024). *Generative AI in Higher Education: The ChatGPT Effect (1st ed.).* Routledge. https://doi.org/10.4324/9781003459026.

AI Literacy Framework
Understanding AI Concepts: Grasp basics of AI, including machine learning and neural networks, for informed engagement and decision-making.
Awareness of AI Applications: Recognize AI's diverse daily uses for enhanced productivity and improved experiences.
AI Effectiveness for Human Emotions: Understand how AI interprets and responds to emotions, enabling empathetic interactions.
AI Safety and Security: Consider risks like privacy breaches and biases, empowering protection and responsible data practices.
Responsible AI Usage: Acknowledge ethical considerations, promoting fair and accountable AI usage for balanced technology engagement.

Adapted from Chan and Colloton (2024).[7]

With the arrival of AI, educators must possess a range of skills to navigate the current technological landscape effectively. Teachers must innovate pedagogically, incorporate AI tools for personalized learning, and be ethically aware of AI's implications in education. They should align with policies, use AI for social good, and prepare students for upcoming AI careers. Continuous professional development is crucial to staying updated on AI advancements, promoting responsible AI usage, and instilling ethical practices in students.

7 Ibid.

b. Ethical Concerns and Safeguarding

In the rapidly evolving landscape of education technology, the integration of AI raises significant moral considerations, such as bias replication, data privacy, academic integrity, and its impact on mental health.[8] This emphasizes the importance of protecting students and promoting responsible AI usage.

According to Daniel Schiff, recently, more than 100 AI ethics guidelines, frameworks, and policy strategies have emerged from governments, corporations, and non-governmental organizations, while more than 30 governments have formulated comprehensive national AI policy strategies, and over 20 others are in process.[9] For example, in 2022, Korea AI Education was incorporated into the curriculum, in order to use AI in a smart and ethical way[10] with the objective of making sure students understand AI concepts and principles, recognize the significance of data and its application, and value the diversity in AI problem-solving approaches.

"The need to define the context of AI in education and the importance of ethical use of AI tools; potential risks of AI and the need to ensure that AI benefits all students equally."

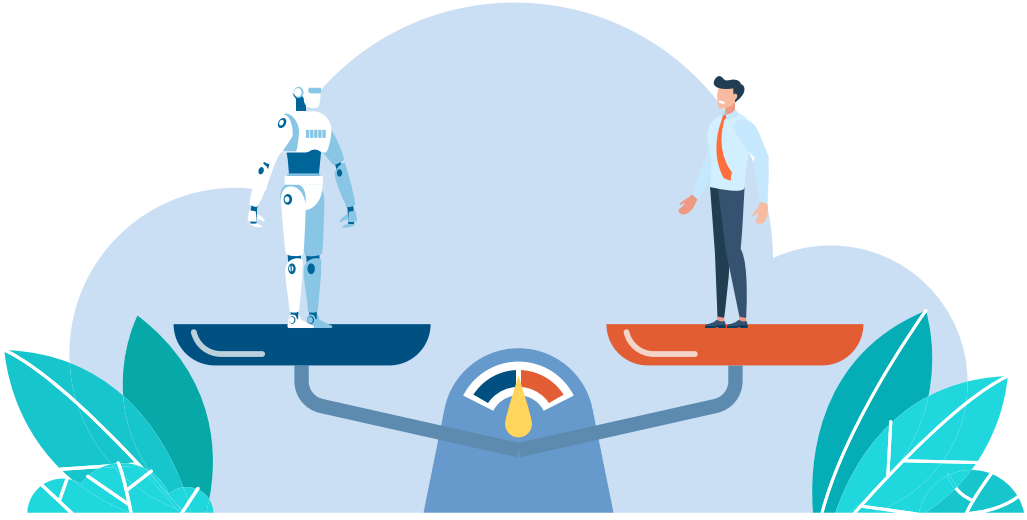
- Susana Irene Díaz, Vice-rector for Research Universidad de Oviedo

8 Grover, N. (2023, Jun 03). *The ethics of AI in education*. Financial Express. https://www.financialexpress.com/jobs-career/education-the-ethics-of-ai-in-education-3111961/.

9 Schiff, D. (2022). Education for AI, not AI for education: The role of education and ethics in national AI policy strategies. *International Journal of Artificial Intelligence in Education, 32*(3), 527-563. https://doi.org/10.1007/s40593-021-00270-2.

10 Choi, J., Yang, E., & Eun-Hee Goo. (2024). The effects of an ethics education program on artificial intelligence among middle school students: Analysis of perception and attitude changes. *Applied Sciences, 14*(4), 1588. https://doi.org/10.3390/app14041588.

Therefore, AI Literacy is so valuable that students and professors can identify and tackle the ethical adversities posed by AI technologies. This involves addressing concerns such as bias in data, privacy issues, and user responsibilities. A well-versed use of AI can ensure equitable and impartial engagement and that the protection of users' data and rights is prioritized.[11]



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C. AI in Learning and Teaching

AI revolutionizes learning and teaching by personalizing education, adapting itself to individual needs, and enhancing accessibility. Through adaptive algorithms, AI tools can analyze student progress, tailor content, and offer real-time feedback. Helping educators by automating administrative tasks and providing data-driven insights not only empowers learners globally but teachers as well. In this matter, Shah elaborates on the main implications of AI in education:

11 Chan, C.K.Y., & Colloton, T. (2024). *Generative AI in Higher Education: The ChatGPT Effect (1st ed.)*. Routledge. https://doi.org/10.4324/9781003459026.

Main Implications for AI in Education
Fundamental Purpose: AI's ability to handle tasks like content creation prompts educators to reconsider traditional teaching methods and justify their relevance in light of technological advances.
Content Generation: Educators utilize GenAI to streamline lesson planning by creating custom materials, which saves them time. Students can also employ AI to draft papers and receive personalized feedback.
Personalized Learning: GenAI tailors educational content to suit individual learner's needs, enhancing accessibility through adaptation features.
Ethical Considerations: Integrating GenAI prompts concerning ethical dilemmas, including bias replication and academic integrity. Educators must address these problems and establish guidelines for ethical AI usage.

Adapted from Shah (2023).[12]

Education is a field attached to traditions, which not even the pandemic was able to change. Nevertheless, educators began to panic with the arrival of AI, and institutions globally started to ban it instead of focusing on teaching it correctly,[13] as Susana Irene Díaz Rodriguez pointed out, "not to teach artificial intelligence but to teach or to introduce students in the use of these technologies because they use them all the days of the year."

12 Shah, P. (2023). *AI and the future of education: Teaching in the age of Artificial Intelligence*. John Wiley & Sons, Inc.

13 The Economist. (2024, Jan 11) *AI can transform education for the better*. The Economist. https://www.economist.com/business/2024/01/11/ai-can-transform-education-for-the-better.

d. Risks and Misinformation

The rise of AI has intensified concerns about disinformation, enabling its promoters to exploit AI's capability to generate realistic images and convincing videos, potentially depicting prominent figures or celebrities delivering scripted dialogue as directed by creators. In this regard, some authors have shared concerns about how AI can be used to spread disinformation promoting harmful ideologies.[14] Therefore, AI-generated content is evolving to be more sophisticated and harder to detect; this increasing realism aids malicious actors in promoting their agendas through convincing propaganda.[15]

"So it's a very difficult path to tread. On the one hand, you want to alert people to the risks. You want people to understand that there are challenges with these technologies. On the other hand, you want them to reap the benefits of these technologies."

- Rose Luckin, University College London

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14 Williams, T. J. V., Ioannou, M., & Tzani, C. (2024). Artificially disinformed and radicalised: How AI produced disinformation could encourage radicalisation. *Assessment & Development Matters 16*(1), 29–34.

15 Gonzalez, O. (2023). *AI Misinformation: How It Works and Ways to Spot It*. CNET. https://www.cnet.com/news/misinformation/ai-misinformation-how-it-works-andways-to-spot-it/.

UNESCO highlights some possible risks of GenAi usage, such as its potential to fabricate information and include non-existent research publications, which may tempt users to copy, depriving junior researchers of learning through trial and error.[16] Additionally, there's a need to guard against GenAI's improper data handling, privacy breaches, unauthorized profiling, gender bias, and the propagation of dominant norms at the expense of alternative viewpoints and plural opinions.

"Risks associated with AI, such as misinformation and unethical usage, are imperative in students' curricula. But also, universities should foster open discussions and develop guidelines for AI educational uses."

- Carlos Iván Moreno, Rector for Online Learning (UDGVirtual)

e. Regulation of AI

In order to regulate, it's necessary to understand, explains Carlos Iván Moreno at the IFE Conference while questioning if AI regulation is even possible. The challenge of deciding what to regulate persists; tech firms propose focusing on regulating advanced "frontier" models or even a licensing system for models surpassing performance thresholds, along with controlling chip sales and requiring cloud providers to report model training.[17]

The European Parliament was the first regulation to address the application domains of AI rather than the technology itself. This

16 Holmes, W. & and Miao F. (2023). *Guidance for Generative AI in Education and Research*. UNESCO. https://doi.org/10.54675/EWZM9535.

17 Park, B. (2023, October 24). *The world wants to regulate AI, but does not quite know how*. The Economist. https://www.economist.com/business/2023/10/24/the-world-wants-to-regulate-ai-but-does-not-quite-know-how.

regulation aims to ensure that AI systems used within the EU are safe, transparent, traceable, non-discriminatory, and environmentally sustainable. Human oversight is advocated over automated systems to mitigate potential harm.

AI Act: Different Rules for Different Risk Levels	
Unacceptable Risks	**High Risk**
• Cognitive behavioral manipulation of people or specific vulnerable groups • Social scoring • Biometric identification and categorization of people • Real-time and remote biometric identification systems	• AI systems that are used in products under the EU's product safety legislation. • AI systems falling into specific areas that will have to be registered in an EU database.
Transparency Requirements	
• Disclosing that the content was generated by AI • Designing the model to prevent it from generating illegal content • Publishing summaries of copyrighted data used for training	

Adapted from: EU AI Act: first regulation on artificial intelligence[18]

18 European Parliament. (2024, June 18). *EU AI Act: first regulation on artificial intelligence*. European Parliament. https://www.europarl.europa.eu/topics/en/article/20230601STO93804/eu-ai-act-first-regulation-on-artificial-intelligence.

Globally, AI governance strategies differ, reflecting diverse socio-economic and cultural backgrounds. The EU employs extensive regulation, contrasting with the sector-specific approaches in the U.S. and the innovation-centric methods in Asia and Africa.[19]

f. Good Practices

AI is revolutionizing industries worldwide, promising unprecedented advancements in efficiency, innovation, and decision-making capabilities. However, with these progressions come significant ethical, societal, and regulatory obstructions. Establishing and adhering to good practices in AI is crucial to harness its full potential while ensuring it operates correctly, transparently, and responsibly.

In this matter, it's important to focus on the seven steps that governmental agencies

can take to regulate GenAI suggested by UNESCO:

Step 1: Endorse international or regional general data protection regulations or develop national protocols	GenAI models train using data collected from global citizens, raising concerns about consent and data protection. Legislation like the EU's GDPR provides a framework, but global implementation varies, underscoring the need for consistent monitoring and expanded legal protections worldwide.

19 Walter, Y. (2024). Managing the race to the moon: Global policy and governance in Artificial Intelligence regulation—A contemporary overview and an analysis of socioeconomic consequences. *Discover Artificial Intelligence 4*(1), 1–24. https://doi.org/10.1007/s44163-024-00109-4.

Step 2: Adopt/ revise and fund whole-of-government strategies on AI	Regulating generative AI should be integrated into comprehensive national AI strategies to ensure safe and equitable AI deployment, particularly in education. Coordination across government sectors is essential for effective implementation and addressing emerging challenges in AI governance.
Step 3: Solidify and implement specific regulations on AI ethics	To address AI's ethical dimensions, specific regulations are essential. UNESCO's 2023 review reveals that only about 40 national AI strategies identify ethical issues and principles, with enforcement through laws or regulations still lacking in most cases.
Step 4: Adjust or enforce existing copyright laws to regulate AI-generated content	The widespread adoption of GenAI presents new copyright adversities regarding both the training data and the status of AI-generated outputs. Currently, only China, EU countries, and the United States have amended copyright laws to address these implications.
Step 5: Elaborate regulatory frameworks on generative AI	As AI technologies advance, governments are hastening the update of regulations. By July 2023, China was the sole country to enact specific regulations on GenAI, mandating proper labeling of AI-generated content under existing online information service laws.
Step 6: Build capacity for proper use of GenAI in education and research	Educational institutions must build capabilities to assess the benefits and risks of AI, including GenAI, for education. This requires supporting teachers and researchers with training and ongoing development, as seen in initiatives like Singapore's AI Government Cloud Cluster.

Step 7: Reflect on the long-term implications of GenAI for education and research	The evolving impact of current GenAI versions on education is still unfolding, with questions remaining about their implications for knowledge creation, teaching methods, curriculum design, and copyright. Open public debates are essential for shaping human-centered AI policies.

Adapted from UNESCO (2023).[20]

"The appeal of AI is undeniable, but its integration into pedagogy demands a judicious balance. We must be wary of viewing it as a panacea, for the essence of education lies in the human touch – the spark of curiosity, the thrill of discovery, and the warmth of mentorship. AI, in its most potent form, should serve to amplify these experiences, not replace them."

- Cecilia Ka Yuk Chan & Tom Colloton[21]

Navigating the integration of AI into education demands a nuanced understanding of both its potential benefits and ethical implications. As educators grapple with concerns over plagiarism, cheating, and maintaining educational quality, hardships should be addressed through informed policy development. By fostering a balanced approach that acknowledges both the promises and pitfalls of AI technologies, educational stakeholders can pave the way for ethical and effective implementation in the classroom and beyond.

20 Holmes, W. & Miao, F. (2023). *Guidance for Generative AI in Education and Research.* UNESCO. https://doi.org/10.54675/EWZM9535.

21 Chan, C.K.Y., & Colloton, T. (2024). Generative AI in Higher Education: The ChatGPT Effect (1st ed.). Routledge. https://doi.org/10.4324/9781003459026.

2.2 Challenges and Opportunities in Shaping Education for the Digital Economy

Developing adaptable education systems that cater to the demands of the digital economy is becoming relevant to enable significant, fulfilling outcomes. This requires institutional change, the integration of critical competencies into curricula, and encouraging lifelong learning in people's lives. The following chapter addresses the challenges of technological inequity and the importance of interdisciplinary approaches to solving complex problems. Moreover, it offers valuable guidance for policymakers and educators aiming to transform education to meet the world's current and upcoming needs.

a. Digital Economy and Sustainable Development Goals

Access to digital technologies and connectivity has been identified as a facilitator for achieving different Sustainable Development Goals (SDGs) set by the United Nations (UN). The list also includes education, healthcare, gender equality, and poverty alleviation.[22] Digital technologies may help reach each established SDGs; nevertheless, especially for education, they contribute to promoting youth employment and data literacy.

By leveraging information and communication technologies, which have played a transformative role in education, with e-learning platforms, telemedicine, or mobile banking, people are able to access many vital services. In this manner, through digital platforms and e-services, underserved populations can approach healthcare, education, and financial services.[23] A promise held by the digital economy involves reducing the costs of financial intermediation, granting payment services for cashless economies, and providing access to loans and equity for people who had never afforded this before.[24]

Scholars have defined government digitalization as improving the delivery of digital public services and, in addition to contributing to the SDGs, building up transparency and accountability in governance. Besides economic development, this digital process may strengthen decent work, industry innovation, and infrastructure. Similarly, it delivers sustainable and environmentally friendly practices by reducing waste and resource consumption.[25]

22 Youssef, A. M. A. R. (2022). The Role of the Digital Economy in Sustainable Development. *International Journal of Humanities and Language Research*, *5*(2). https://ijhlr.journals.ekb.eg/article_303616_d3e4dfc5a739906fa916bc8f208900ab.pdf.

23 Ibidem.

24 Besada, H. (2018). *Digital Economy and the Implementation of the 2030 Agenda for Sustainable Development*. UN Office for South-South Cooperation. https://www.unsouthsouth.org/wp-content/uploads/2018/12/Digital-Economy-and-the-Implementation-of-the-2030-Agenda-Hany-Besada.pdf.

25 Kwilinski, A., Lyulyov, O., & Pimonenko, T. (2023). The Coupling and Coordination Degree of Digital Business and Digital Governance in the Context of Sustainable Development. *Information 14*(12), 651. https://doi.org/10.3390/info14120651.

"When carefully planned and adequately resourced, sustainable business models for connectivity can equip learners with independence and digital skills not only for education but also for work and life," stated Franck Luisada, BCG's Managing Director, Senior Partner, and Global Sector Leader for Telecommunications.[26]

The digital realm expands access to quality education, where broader opportunities may diminish economic disparities. Furthermore, this occurs hand in hand with digital literacy programs and initiatives that develop distinct skills, having a significant role in people benefitting from the digital economy. This financial system stimulates economic growth and job creation, for instance, as online marketplaces and e-commerce platforms forge entrepreneurship and work opportunities. Another example is the generation of Open Educational Resources, which are freely available online materials that offer high-quality educational content to a wider audience.[27]

In its nature, the digital economy has aspired to democratize knowledge, revolutionizing access to information. However, although it grants capacity for sustainable development, it also presents several obstacles. Challenges in this domain require bridging the gap in the digital divide while ensuring that disadvantaged communities can profit from the opportunities the digital economy provides. In many regions of the world, particularly low-income and marginalized communities, access to digital infrastructure and internet connection is limited or even non-existent, which deepens existing inequalities and bounds equal participation in the digital economy.[28]

Additionally, some legal or regulatory constraints may limit innovation. Sustainable development will require policies and regulations that safeguard privacy and maintain ethical considerations to in-

26 ITU. (2021, November 1). *School connectivity equips learners for education, work, and life*. ITU News. https://www.itu.int/hub/2021/11/school-connectivity-equips-learners-for-education-work-and-life/.

27 Ibidem.

28 Ibidem.

vest in proper infrastructure and create educational frameworks that empower individuals.[29] According to Kwilinski, Lyulyov, and Pimonenko (2023),[30] policymakers should tailor educational initiatives to communities' and industries' specific needs, consequently attaining a diverse skill set that enhances digital advancements for sustainable development.

b. Curriculum Development

Focusing on generating a curriculum that aligns with current environmental and technological trends, such as generative artificial intelligence, will be relevant to endure changes over time. Modernizing curricula is essential for institutional progress. Those who train their students with critical thinking competencies, creativity, and ethics will be able to thrive before any latest technology.

During the curriculum development process, employability capabilities and qualifications adapted for a successful performance are key elements to encompass, and a strong collaboration between industries and universities should be established to flourish in real-case scenarios. The bond between the curricula design and implementation must consider the short- and long-term impact of creating graduates with complete profiles. Critical thinking is a primary aptitude for preparing for the ever-changing landscape.[31]

The use of AI in various industries requires the education sector to respond with reworked curricula and reformulated policies. Although no country is fully prepared for automation, exemplary efforts

29 Ibidem.

30 Kwilinski, A., Lyulyov, O., & Pimonenko, T. (2023). The Coupling and Coordination Degree of Digital Business and Digital Governance in the Context of Sustainable Development. *Information* 14(12), 651. https://doi.org/10.3390/info14120651.

31 Rebelo, H., Christodoulou, P., Payan-Carreira, R., Dumitru, D., Mäkiö, E., Mäkiö, J., & Pnevmatikos, D. (2023). University–Business Collaboration for the Design, Development, and Delivery of Critical Thinking Blended Apprenticeships Curricula: Lessons Learned from a Three-Year Project. *Education Sciences, 13*(10), 1041. https://0-doi-org.biblioteca-ils.tec.mx/10.3390/educsci13101041.

in regions that foster abilities demanded by an AI-powered society work as a starting point for a policy framework for education's response to AI, as the ones presented in the last chapter.[32]

To navigate the fluctuating directions of digital technology, there is an explosion in demand for skills. Nevertheless, this represents a major challenge for education. Primarily, multiple definitions of these competencies exist, and systems must designate which ones are needed to prepare the curricula. However, it may be costly for institutions to develop the necessary conditions for this to happen, such as training teachers, as well as considering that curricular reforms are estimated to proceed every 10 years approximately. UNESCO's "Global Education Monitoring Report, Technology in education: a tool on whose terms?" (2023) suggests that digital skills are also conventionally obtained out of school due to the slow pace of change in formal education, as traditional education systems concentrate on an essential core set.[33]

Faced with this landscape, Arturo Cherbowski, Executive Director of Santander Universidades and General Director of Universidad México, explains the central challenge of implementing new educational models and practices. As countless obstacles currently exist, he discloses that dialogues about sustainability and digital disruption have been present in educational environment discussions for at least 20 years.

Regardless, after analyzing and issuing a clear diagnosis of what educational systems need, the implementation phase fails, and there are no outcomes at all. Cherbowski questions whether the reason is the heavy structural weight or the legacy of change resistance in institutions, not only in higher edu-

32 Pedró, F., Subosa, M., Rivas, A., & Valverde, P. (2019). *Artificial Intelligence in Education: Challenges and Opportunities for Sustainable Development*. UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000366994.

33 Global Education Monitoring Report Team. (2023). *Global Education Monitoring Report, 2023: Technology in Education: A Tool on Whose Terms?* https://doi.org/10.54676/UZQV8501.

cation (HE) but also in the ones HE serves.

Ultimately, Cherbowski describes the challenge as no longer understanding "what the world needs," given the changes and dislocations in the worlds of work, inequality crisis, and polarization predicament that are being experienced, which have been identified and thoroughly discussed. The road involves comprehending and agreeing on how to respond to these issues.

"If we carry out a deep analysis of conscience, our institutions have been very slow to keep up with the challenge because the incentives are not there, the stagnant structures are not moving, and it is easier to complain than to respond. The fundamental challenge is no longer in 'what' but 'how,' and the 'how' in a vision of a call to action that really makes us stop talking about the transformation of education and truly start acting and consider what the transformation of our educational models must be."

- Arturo Cherbowski, Executive Director of Santander Universidades and General Director of Universidad México

He indicates that this is not just a pedagogical issue; it constitutes the core of the institutions and social organizations' functioning that they serve. Although resistance to change in institutions is a limitation, work must be oriented to act upon the transformation of higher education.

In this sense, Martha Castellanos, Academic Vice-Rector of Universidad Areandina in Colombia, proposes changes in curricula that develop those aptitudes and skills that encourage students to deal with ambiguous and intricate situations. Circumstances that did not occur a few years ago, in the light of artificial intelligence, for instance, are taking place. Despite that, the problems are essentially the same ones that humanity has experienced for decades.

"We have to return to the human essence, and that is the development of critical thinking and ethics, as well as generating a curriculum that includes the basic elements that are going to allow us, first, to survive this world and to produce more instruments that enable our students' creativity and their response to complex problems. Critical thinking and ethics today are more necessary than ever."

Martha Castellanos, Academic Vice-Rector
of Universidad Areandina in Colombia

She points out that perhaps humanity's problems are oriented to a particular profession, but transdisciplinarity is vital because an understanding of reality is needed in the curricula. The teacher is the only one who can deliver the dynamism of the present since technologies such as ChatGPT may have the information but do not provide critical thinking.

C. Inequities and Gaps

Inequity in access to technology and the digital divide affects the students' ability to participate in the digital economy fully. Rose Luckin, Professor of Learner-Centered Design at University College London Knowledge Lab, believes that AI should be available to everyone nowadays. AI should be adapted into education to reduce gaps; otherwise, it makes no sense. She draws attention to the fact that whenever some electronic tool is introduced, it is thought that there's an advance in education; however, it depends on several social issues and the context where it is implemented. For this reason, before going beyond AI, the industry of education must make sure that these resources are within reach to all.

In turn, Jon Altuna, Vice-Rector of Universidad de Mondragón, from a European perspective, conceives that transformations have various

dimensions. It's not only about focusing on the environmental or digital sphere but also the demographic changes that affect all educational policies. In addition, he affirms that specific frameworks are being designed for complex abilities, such as socioeconomic or green competencies.

"You see all the skills pact, the Green Deal, all the documents talk about the new professions, the new skills that are going to be necessary. And here is the good news: those institutions that in some way adopted that model and are convinced it was the appropriate one and continue to be, make us very well positioned. But what is true is that these scenarios are placing us in totally different, totally new taxonomies."

Jon Altuna, Vice-Rector of Universidad de Mondragón

Technological changes, as well as social and demographic shifts, require fostering a culture of lifelong learning, which may be a considerable challenge. Hence, universities should prepare themselves, as higher education institutions are the protagonists of change.

Luis Gutiérrez Aladro, Academic Vice-Rector of TecMilenio, visualizes the responsibility universities in Mexico possess. He expresses that the main challenges in the region are being enhanced by the augmentation of AI, which includes partial access to technology. On a large scale, the level of technology penetration in the country is not ideal; for some areas, the number of devices a student brings to school every day will only continue to grow, yet for at least 31.5% of the population, this is not a reality.[34]

In view of this, Aladro establishes that institutions must ensure people acquire skills, soft and techni-

34 INEGI. (2023, June 19). *Encuesta Nacional sobre Disponibilidad y Uso de Tecnologías de la Información en los Hogares (ENDUTIH) 2022*. INEGI. https://www.inegi.org.mx/contenidos/saladeprensa/boletines/2023/ENDUTIH/ENDUTIH_22.pdf.

cal capabilities. Also, individuals who already have certain competencies require updating them in order to remain relevant; some might even need to enhance their level of proficiency by one or two steps.

"I think we government and institutions need to work hard as to understand where we are going, and if we go there, facilitate technological resources. Whether academic degrees continue to exist or not, the public who needs to update, increase, or acquire skills should still be able to have access to said degrees and technology."

Luis Gutiérrez Aladro, Academic Vice-Rector of Tecmilenio

d. Teacher Education and Current Needs

Teachers play a key role in their students' learning process. Their effective training is critical for their performance within the classroom. Having the tools teachers need to stimulate learning has a positive effect on the educational experience as a whole. Equipping faculty with modern pedagogy strategies will prepare them to respond to the challenges and necessities students are and will be facing.[35]

Encouraging the productive use of technology among students helps nurture competencies that are relevant and beneficial for their future careers. Nevertheless, in Latin America, this breach is magnified when teachers, and therefore students, do not know how to use technology. Carlos Iván Moreno, Rector of the Virtual University System of Universidad de Guadalajara, recalls that, according to UNESCO, only 10% of universities in the world have some guidelines and orientations on employing artificial intelligence in the classroom;

35 Lynch, M. (2022, July 14). *The Significance of Effective Teacher Training.* The Edvocate. https://www.theedadvocate.org/the-significance-of-effective-teacher-training/.

in Mexico, less than 10 universities count with that standard.

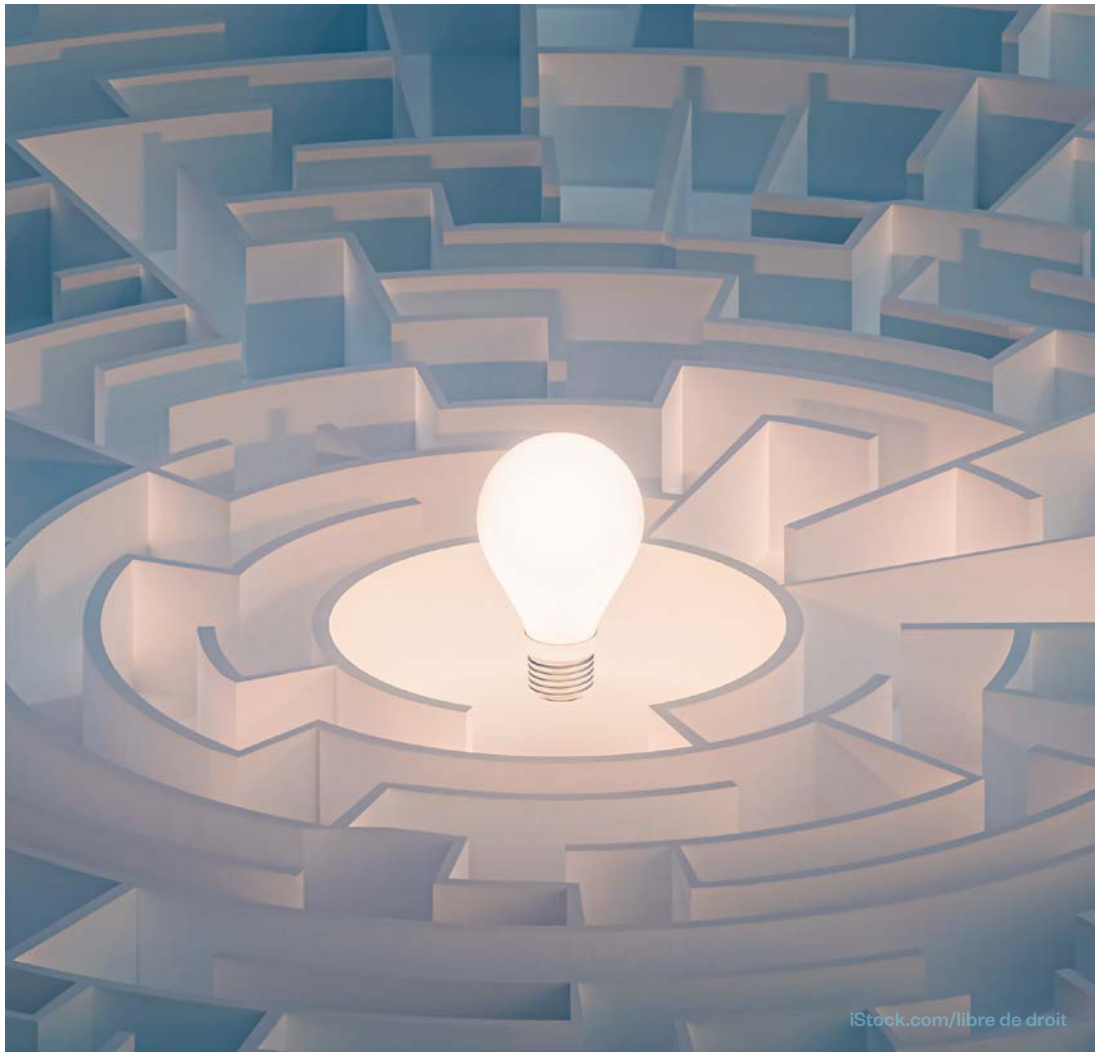
Otto Granados, former President of the advisory committee of the Organización de Estados Iberoamericanos para la Educación, la Ciencia y la Cultura (OEI) and former Secretary of Education in Mexico, shares that until last year almost 887,000 teachers were classified by discretionary criteria without any quality filter or real verification of their aptitudes, entailing people with characteristics for a specific position they aren't necessarily suitable for. Today, there are 155,000 people in Mexico who perform teaching functions without a professional degree that qualifies them to do so. Some figures also show that 11% of primary education teachers do not even have a degree.

Therefore, teachers' profiles must be rethought to match the current era's demands, ensuring educators are equipped to connect students with the dynamic contemporary world. It is important to revalue the work of these professionals and continually upskill them to keep up with the shifting educational landscape.

e. Good Practices/Lessons Learned

Transition from discussing changes to actively implementing them:	**Interdisciplinary learning for tackling complex problems:**
Institutions should leverage existing knowledge and take decisive actions rather than continually diagnosing problems. Structural inertia and resistance to change are significant barriers within educational institutions. Addressing these challenges requires strong leadership and a commitment to transformative action.	Teachers play a pivotal role in adapting and delivering new educational paradigms, highlighting the need for ongoing professional development and support. Competencies must be acquired, updated, and enhanced.

Dual education models:	Lifelong learning is essential:
Combine theoretical and practical learning, to effectively create relevant educational programs. Collaboration between universities and socio-economic entities is necessary to ensure that education meets the evolving necessities of society and the economy.	Continuous updating and enhancement of competencies are required to keep pace with technological advancements and changing job market demands.

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2.3 Implementation of Educational Policies

This chapter integrates insights from policymakers at different levels. The discussion with Senator Antares Vázquez Alatorre highlighted the need for intersectoral collaboration, community involvement, and evidence-based policies to address challenges in education and the improvement of learning outcomes. Additionally, the panel integrated by Milagros Gismondi (Ministry of Finance of the Nation, Argentina), Joaquín Guerra (Academic and Educational Innovation Vice-Rector of Tecnológico de Monterrey), and Otto Granados (Ex-President of the Advisory Committee of the OEI and Ex-Secretary of Education in Mexico), brought these experts together as to explore the complexities of implementing educational policies.

The focus on modernizing the curriculum, integrating technology, and enhancing teacher training provides a comprehensive overview of key topics, highlights, positions, and additional insights from the discussion, offering valuable perspectives on effectively navigating the implementation of educational reforms in a changing political and social landscape.

a. Mexican Educational Policy Reforms

In 2019, Mexico faced significant modifications to its educational policy; the main reform was the amendment of Article 3 of the Mexican Constitution, which emphasizes education as a human right and establishes the State's obligation to provide higher education for every Mexican, added to the establishment of the General Law of Higher Education.[36] These reforms aim to increase access and ensure quality education for all, establishing a continuous improvement of teaching and learning.[37]

In Mexico, 4.5% of GDP was allocated, with 36% for primary education, 19% for lower secondary education, 17% for upper secondary education, and 28% for tertiary education. While an upper secondary qualification is vital for workforce entry, 14% of OECD young adults don't count with it; in Mexico, this figure rises to 43%, surpassing the OECD average and highlighting disparities in educational attainment among 25-34 year-olds.[38]

In this aspect, the Mexican government has so far implemented

36 Diario Oficial de la Federación. (2019, May 15). DECRETO por el que se reforman, adicionan y derogan diversas disposiciones de los artículos 3o., 31 y 73 de la Constitución Política de los Estados Unidos Mexicanos, en materia educativa. DOF. https://www.dof.gob.mx/nota_detalle.php?codigo=5560457&fecha=15/05/2019#gsc.tab=0.

37 Maldonado-Maldonado, A. & Rodríguez, R. (2019, May 19). Reforma al Artículo Tercero, ¿quién gana, quién pierde? *Nexos.* https://educacion.nexos.com.mx/reforma-al-articulo-tercero-quien-gana-quien-pierde/.

38 OECD. (2023). Education at a Glance 2023: OECD Indicators. México. *OECD iLibrary.* https://doi.org/10.1787/e13bef63-en.

various strategies in the educational sector, primarily focusing on improving access, quality, and equity in the national education system. Whereas the administration has made significant efforts to address socioeconomic disparities and enhance domestic education, the focus on internationalization has for now been relatively limited compared to other areas[39]. Nevertheless, this emphasizes different questions about how to guarantee quality education rather than just its access. According to Oxford Analytica, additional government commitments may exacerbate sectoral difficulties for teachers; mismatches between skills and labor market needs will continue to foster underemployment. Meanwhile, a lack of reliable data will intensify obstacles when identifying and remedying issues within the Mexican education system.[40]

b. Educational Equity and Access

Quality education is determining for personal development and sustainable progress; and though significant strides have been made, challenges still remain.[41]

Progress toward quality education was already lagging before COVID-19, which aggravated learning losses in UN countries. Without intervention, 84 million children could be out of school by 2030, with 300 million lacking essential literacy and numeracy skills. Achieving free primary and secondary education by 2030, along with equal access to vocational training and eliminating educational disparities based on gender and wealth, is necessary.

39 Espinoza, L. (2023, August 15). *Education reforms in Mexico: what challenges lie ahead?* British Council. https://opportunities-insight.britishcouncil.org/blog/education-reforms-mexico-what-challenges-lie-ahead.

40 Oxford Analytica. (2023). Mexico education quality to remain poor despite reform. *Expert Briefings*. https://doi.org/10.1108/OXAN-DB280656.

41 Bourne, J. (2015, September 17). *The Sustainable Development Goals explained: Quality Education*. YouTube. https://youtu.be/j65FEmRHTzk?si=KJ5gJhg7xkDJ0B0u.

Education is integral to achieving Sustainable Development Goals, reducing inequalities, promoting gender equality, and nurturing peaceful societies. To meet these goals, education financing must become a national priority, ensuring a free, compulsory, and inclusive education with improved infrastructure and digital integration. While progress has been made toward global education targets, obstacles persist like ensuring that basic skills are attained and addressing economic constraints and learning disparities in marginalized regions.[42]

The UN draws attention to governments, as they must prioritize education policies that guarantee universal access and equity, particularly for vulnerable and marginalized groups. According to Senator Antares Vázquez Alatorre, the Mexican government has incorporated topics such as drugs, gender-based violence, and building peace into the curricula in order to take into account the immediate context.

iStock.com/FeodoraChiosea

42 United Nations. (n.d.). *Education - United Nations Sustainable Development*. United Nations. https://www.un.org/sustainabledevelopment/education/.

C. Modernizing Education

Rapid technological advancements have revolutionized learning and development in the 21st century. These innovations have enabled flexible, personalized learning experiences that transcend traditional constraints of time and place. Moreover, they have unlocked vast potential, allowing for scalable learning solutions and adaptive systems that harness large, diverse datasets to optimize educational outcomes. This transformative impact extends beyond formal education, reshaping our access to information and redefining how we approach learning, interaction, and work.

This evolution demands a shift in the way we view education. Employers increasingly value practical skills and experience over formal degrees, focusing on qualities like resilience and teamwork. Credentials such as competency badges and micro-certificates are gaining prominence as markers for individuals' capabilities and potential contributions, too. Age is becoming less relevant as a determinant of skill and career progression, challenging conventional employment norms and redefining professional value.

To thrive in this dynamic scenario, individuals must cultivate a broad spectrum of interconnected knowledge and skills, continuously deepening their expertise. This involves embracing lifelong learning, refining methods for acquiring and updating relevant competencies and establishing robust feedback mechanisms to acclimate to ongoing changes. Adapting to 21st-century demands requires a comprehensive overhaul of how we approach education and skill development, integrating formal education with informal and experiential learning into a cohesive future.[43]

43 Walcutt, J.J. & Schatz, S. (Eds.) (2019). *Modernizing Learning: Building the Future Learning Ecosystem*. Washington, DC: Government Publishing Office. License: Creative Commons Attribution CC BY 4.0 IGO.

d. Lifelong Learning and Continuous Education

Learning extends far beyond formal education and the confines of classrooms. The world offers boundless learning opportunities where we are able to encounter vast amounts of data, questionable facts, and diverse information daily. It depends on each learner to assess this information's value and how it relates to their knowledge and experiences. The accelerated flow of information in today's world affects our ability to synthesize, retrieve, and apply knowledge effectively. Information overload is a pressing issue as data overflows at unprecedented rates. Our brains naturally prioritize clear, familiar information, sometimes retaining false or misleading data, leading to poor decisions. In an ever-growing world that is more volatile, uncertain, complex, and ambiguous, education must prepare individuals for today's issues and a continually evolving global landscape. In this light, lifelong learning (LLL) becomes essential, extending far beyond traditional educational milestones.[44]

In contrast to lifelong education, LLL places responsibility solely on individuals rather than the State. It prioritizes practical knowledge within an open market where accredited learning options adapt to societal changes despite formal structures. Thus, it recognizes both formal and informal learning equivalently as valuable in a consumer-driven society.[45]

44 Walcutt, J.J. & Schatz, S. (Eds.) (2019). *Modernizing Learning: Building the Future Learning Ecosystem*. Washington, DC: Government Publishing Office. License: Creative Commons Attribution CC BY 4.0 IGO.

45 Fuerte, K. (2024). *EduTrends Lifelong Learning*. Observatory IFE. https://observatory.tec.mx/edu-reads/lifelong-learning/.

"It's time to change course by moving away from incremental improvements to our existing education system and, instead, reimagine how foundational scientific principles can inform a new model of learning—one that spans a lifetime."

- J.J. Walcutt, Ph.D. and Naomi Malone, Ph.D.[46]

e. Collaboration and Policy Implementation

Two factors are essential to promoting innovation, enhancing educational outcomes, and addressing societal needs: effective collaboration and policy implementation. These are requirements for Mexican and global contexts. They demand coordinated efforts across institutions and industries, engagement, adaptive strategies for new daily innovations, and a commitment to equitable access and quality education for all learners.

Educational Policies and Lifelong Learning Recommendations:

- Understand education as a community asset beyond market regulation.
- Involve all actors in educational decision-making for essential participation.
- Aim for decentralization and autonomy to foster educational innovation and development.
- Allocate a quarter of development funds to education resources.
- Encourage debt swaps to offset adjustment policy effects and reduce deficits.

Adapted from: Fuerte, K. (2024). EduTrends Lifelong learning. Observatory IFE. https://observatory.tec.mx/edu-reads/lifelong-learning/.

46 Walcutt, J.J. & Malone, N. (2019). "Lifelong Learning" in *Modernizing Learning: Building the Future Learning Ecosystem.* Eds. Vogel-Walcutt, J. & Schatz, S. ADL. Government Publishing Office.

f. Good Practices

UNESCO and INEE (the former Mexican Institute for Educational Evaluation) explain that a good educational policy consists of a coordinated set of resources, such as investments, goods, services, and transfers, which are managed by governing bodies. The objective of these resources is to ensure daily interactions between teachers and students, whether in physical or virtual school environments. They are directed toward specific areas that serve as intervention key points within the State's complex operations. These core areas include the definition of educational curriculum, providing teaching materials, establishing institutional guidelines, maintaining school infrastructure and equipment, and supporting teachers in their daily classroom activities.[47]

- **Curriculum and management models**
- **Infrastructure**
- **Equipment and technology**
- **Teachers**
- **Educational equity**

Core Areas Educational Policy Intervention, from https://www.buenosaires.iiep.unesco.org/sites/default/files/archivos/LaPoliticaEducativaRegional.pdf

iStock.com/VectorMine

47 INEE-IPEE. (2018) *La política educativa de México desde una perspectiva regional*. UNESCO. https://www.buenosaires.iiep.unesco.org/sites/default/files/archivos/LaPoliticaEducativaRegional.pdf.

Educational policy implementation challenges:	**Gender equity and violence prevention:**
The implementation of educational policies faces obstacles such as political instability, resistance from unions, and bureaucratic obstacles.	Efforts to integrate a gender perspective in education and address gender-based violence: implementing protocols and collaborating with relevant organizations to create a safe and inclusive educational environment.
Culture of peace and social inclusion:	**Economic and social development through education:**
Promoting a culture of peace and social inclusion through educational programs that respect cultural, social, and territorial diversity was emphasized. These initiatives aim to foster a more inclusive and harmonious society.	Policies aimed at using education to drive economic and social development were discussed. Education is seen as a tool for improving living standards and reducing inequalities, contributing to overall societal progress.
Parental involvement:	**Pandemic impact:**
Recognizing the crucial role of parents in supporting educational outcomes is vital for student success.	The pandemic has significantly impacted adult education, leading to a shift towards more flexible learning modalities and highlighting the need for adaptable educational systems.

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2.4 Flexible and Responsive Education Systems and Learning Spaces: Initiatives for Quality and Equity in Education

Building flexible and responsive education systems that promote lifelong learning and ensure educational equity and quality is essential for harvesting meaningful abilities. Some fundamental strategies for this to materialize are underscoring the need for intersectoral collaboration, community involvement, and evidence-based policies to address the challenges in education and improve learning outcomes. Across this chapter, initiatives presented by the UNESCO Institute for Lifelong Learning (UIL) and Tecnológico de Monterrey will demonstrate practical approaches to achieve these goals and provide relevant insights for policymakers and educators worldwide.

a. Lifelong Learning Policies

Raúl Valdés Cotera, Program Coordinator at the UNESCO Institute for Lifelong Learning in Hamburg, Germany, and Program Director of the UNESCO World Network of Learning Cities, explained the key elements that the organization considers for implementing lifelong learning. He emphasized that lifelong learning is a continuous process from birth to the end of life, encompassing formal, non-formal, and informal education.

As he explains, in some regions of the world, often, when hearing the concept of LLL from higher education institutions, it's usually linked to continuing education, meaning it only contemplates the training and expansion of abilities useful for the workplace.[48] Nonetheless, a much broader glance is necessary to understand its large conception. LLL extends further from formal education systems, incorporating various learning modalities and environments. There is an increasing demand for both non-formal and informal learning opportunities, especially post-COVID. Technologies are opening this up by playing a crucial role in accessing these types of possibilities to grow talents for life.

Learning processes are generated constantly, meaning lifelong learning is inherent and affects all groups of people at all levels of education and beyond. Raúl Valdés Cotera indicates that it is important to recognize that lifelong learning is a right within the right to education. For this, it is necessary to understand the following basic notions:

48 Observatory IFE. (2024). *EduTrends: Lifelong Learning.* https://observatory.tec.mx/edu-reads/lifelong-learning/.

Key Elements of Lifelong Learning
All age groups
All levels of education: ECCE, primary & secondary school, higher education, TVET, and adult education
All learning modalities: formal, non-formal, and informal
All learning spheres and spaces: schools, universities, the workplace, community centers, libraries, museums, public spaces, among others
A variety of purposes: work skills/employment, sustainability, citizenship, leisure, among others

Source: Raúl Valdés Cotera (2024)

Governments have a significant role in articulating and implementing lifelong learning concepts, particularly at a local level. Yet, some challenges remain, such as demographic changes regarding the transformation of the job market and the entire process of migration, refugees, and cohorts. The aging society is a major element in different regions of the world as well.

According to Raúl Valdés Cotera, along with UNESCO's perspective, LLL responds to global challenges of the 21st century through the development of digital technologies, transformations in the work environment, demographic changes, the urgency resulting from climate change, health and well-being, and strengthening citizenship. Different countries around the world have directed efforts to support this paradigm, and even though no country has adapted it to perfection, others might be able to learn from their lessons.

b. Learning Cities

The concept of 'learning cities' entails that a city's infrastructure supports lifelong learning for all its inhabitants. This approach specifies the role of cities in creating intergenerational learning opportunities and fostering a culture of constant education. Educational dialogues between urban and rural areas are imperative for the development of comprehensive learning cities.

Learning cities have demonstrated to be a prosperous link between global goals and local communities. As maintained by UNESCO, it is an efficient strategy to engage citizens and mobilize institutions and community groups to bestow lifelong learning opportunities for all. Besides, it is more possible to understand the concept of lifelong learning starting from the local level.

UNESCO defines a **learning city** as one that:

- **Effectively mobilizes its resources in every sector to promote inclusive learning**
- **Revitalizes learning in families and communities**
- **Facilitates learning for and within the workplace**
- **Extends the use of learning technologies**
- **Enhances quality and excellence in learning**
- **Fosters a culture of learning throughout life**

Source: Raúl Valdés Cotera (2024)

UNESCO Global Network of Learning Cities (GNLC) is an international policy-oriented network that delivers inspiration, know-how, and best practices. Coordinated by the UNESCO Institute for Lifelong Learning (UIL), the GNLC supports lifelong learning in cities all over the world. This network promotes policy dialogue and peer learning

among member cities, forges links, stimulates partnerships, provides capacity development, and produces instruments to encourage and recognize progress made in building learning cities. Currently, more than 350 cities from 76 countries are part of the GNLC and show different experiences that can be useful to implement lifelong learning.

Raúl Valdés Cotera shows that more than 53% of the population today live in cities, which in 2030 will represent 63% of the total population. In the case of Latin America, it corresponds to 85% of the population. Cities tend to grow in an unplanned or unarticulated manner, consequently, a need arises to analyze how to build a city responsible for the challenges that their community is experiencing. The GNLC asserts that shaping economic, social, and environmental resilience, including appropriate governance and institutional structures, must be at the heart of a city's future.

C. Policies into Practice

This initiative started with a pilot implemented by a city in Ybycuí, Paraguay, with 8,000 residents, and Shanghai, China, which has 25 million people, to verify that a public policy of lifelong learning could be articulated in different regions regardless of their size and by various actors in diverse industries.

In that sense, a definition of a learning city with a more operational denotation was introduced, with the support of several indicators connected to the sustainable development goals. By virtue of a solid formal system, intergenerational learning is revitalized in families, communities, and the workforce. Naturally, a culture of LLL will be promoted, and society will participate in the policy; even so, the network has a very clear intention of encouraging dialogue between peers where experiences are shared and instruments are being developed to boost progress

depending on a city's particular challenges.

Over the last decade, the GNLC has worked on different fields that are mainly focused on education but have also directed efforts towards issues of health and well-being, climate change, education for sustainable development, and citizen education. In a holistic method, the network's contribution to learning cities has inspired towns to collaborate innovatively, actively work to promote action and needs-oriented approaches, and place vulnerable groups at the core of their mandate.

Intersectionality has been crucial for improvement. For the coming years, some of the main quests for the GNLC include supporting cities to monitor and assess progress in their actions to become a learning city, endorsing partnerships involving universities and the private sector to seek sustainability, differentiating the challenges of cities according to their context, offer tailor-made capacity-building courses, as well as enlarge the scope of the learning cities agenda for research, advocacy, and international exchanges.

Additionally, Raúl Valdés Cotera notes that natural collaboration outside the network has emerged: around 45 cities in Latin America founded their subnetwork due to language uniting them as well as sharing common challenges. For the GNLC, other groups forming their own dynamics is beneficial because sometimes the team they have has many other responsibilities and isn't able to fully understand each context. Equally, several partnerships have been developed, as the private sector supports certain initiatives and higher education institutions by monitoring and facilitating processes, as well as providing relevant tools.

The GNLC fosters the participation of groups that have not been included conventionally, that have a voice but aren't heard enough, and thus are not able to participate in educational processes. This initiative demonstrates how local policies could be escalated to a national level. For instance, proj-

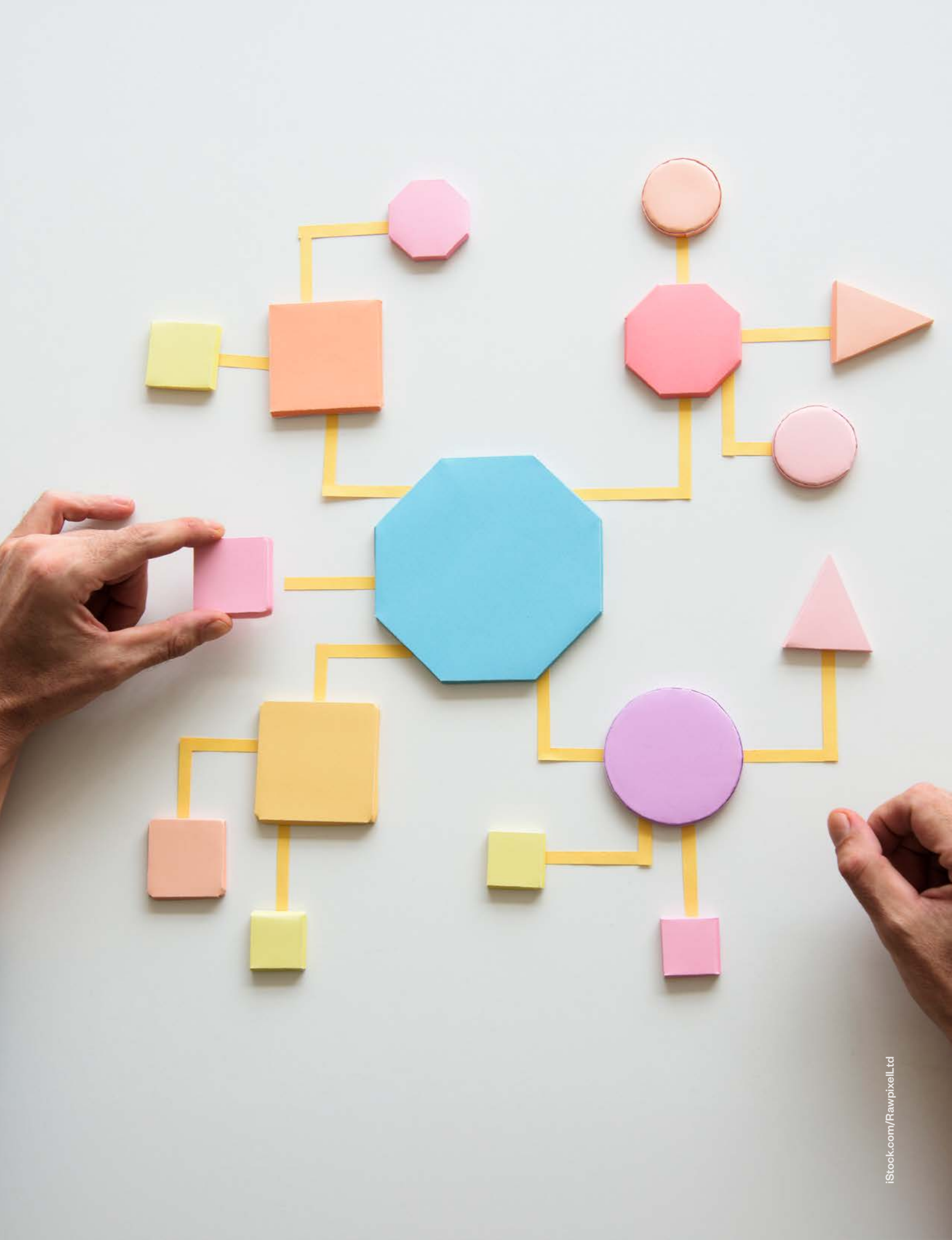
ects in early childhood in Colombia's cities have grown into national policies.

In Mexico, national qualifications frameworks operate to master theory, but practice is missing. The network has worked closely with migrants in Latin America to build skills, even if there is no certificate or already a portfolio of knowledge. Short intensive courses or micro-credentials programs have been conducted in Bogotá, Medellín, and Villa María in Argentina, where people have accumulated competencies, but there is still more to strive for.

Valdés Cotera considers Ireland to be a worthy reference, as they created a network of cities, even with places that are now part of the United Kingdom, like Belfast, where they have a connection with private initiatives and universities. In the meantime, the GNLC believes in improving the monitoring process of the city's progress, as collecting key indicators is difficult without a statistics center. To ensure sustainability, support from private initiatives and universities is required.

"We search to not only support a sector but for policies to be much more complete and accepted. We need to articulate different sectors, and we need to encourage citizens' development, which is complicated, mostly because of their language or the reality they're facing. Nevertheless, I think it's a project that has the possibility to escalate and also counts with a valuable acknowledgment that learning can happen beyond the formal system."

Raúl Valdés Cotera, Program Coordinator at the UNESCO Institute for Lifelong Learning in Hamburg, Germany, and the Program Director of the UNESCO World Network of Learning Cities



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d. Educational equity and quality

Marco Fernández, director of the Education with Equity and Quality Initiative and a research professor at Tecnológico de Monterrey, presented projects that implement tutoring programs to help students improve their learning outcomes and others that include diagnostic evaluations and targeted interventions.

The Education with Equity and Quality Initiative is the educational policy center of Tecnológico de Monterrey's School of Government. It is in charge of finding strategies to formulate applied research that helps develop public policies with governments that are willing to use evidence and begin rectifying multiple problems.

The project Learning for All was designed to address the pandemic's impact on learning and prevent vulnerable students from dropping out of school, where a 100% virtual tutoring program is offered. It is focused on students and teachers, in which students receive peer advice and academic support, an offer of academic accompaniment for "TEC students - SEP students," a Social Service Program called "Solidarity Project" from the university, consulting activities in mathematics and communication areas from Tec students to higher education students virtually and free of charge (4.5h per week). Teachers obtain continuous training, management, and teaching courses for staff on different topics, such as emotional containment, development of soft skills, and disciplinary reinforcement.

From the summer of 2021 until December 2023, the program benefited 15,267 public high school students in the states of Nuevo León, Guanajuato, Querétaro, Jalisco, Aguascalientes, and San Luis Potosí. In addition, 13 Tecnológico de Monterrey campuses throughout the country participate. TecMilenio, its sister university, is also involved.

The diagnostic evaluation project on the impact of the upper secondary level in mathematics, science, and reading comprehension-communication has been done with the states of Nuevo León, Guanajuato, Querétaro, and Jalisco. They also work with the academic bodies of the high school subsystems on pedagogical strategies to adjust the programs gradually.

e. Good Practices/Lessons learned

UNESCO's role in lifelong learning:	City-level implementation of lifelong learning:
The organization's efforts in promoting lifelong learning policies globally. The importance of recognizing and validating prior learning and competencies, especially for migrants. Education for peace, aiming to address violence in various contexts through education.	Success stories from cities such as Bogotá, Medellín, and Villa María demonstrate how local policies can influence national education policies. Examples of successful learning cities include Ybycuí in Paraguay and Shanghai in China. The role of local governments and community stakeholders in fostering a lifelong learning environment was emphasized. Dialogues between urban and rural areas are essential to create comprehensive learning cities.

Equity in education through diagnostics and interventions:	Challenges in policy implementation:
The initiative 'Education with Equity and Quality,' on assessing and addressing the learning deficits caused by the pandemic. The importance of evidence-based approaches to support policy decisions and improve educational outcomes was emphasized. The implementation of tutoring programs targeting communication and mathematics to bridge learning gaps.	The difficulties in aligning educational policies with the needs of the labor market were discussed. The need to have adaptable and responsive educational systems to stay on track with technological and societal changes was emphasized.

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2.5 Challenges and Opportunities of Higher Education in Mexico

The following chapter brings together experts' perspectives to explore the complexities of modernizing higher education in Mexico. The main focus is increasing coverage, bridging educational gaps, and integrating digital transformation into academic programs.

a. Coverage of Higher Education

As seen in Chapter 2.3, Mexico faces significant hardships in increasing higher education coverage due to geographical and socioeconomic disparities exacerbated by the pandemic, making it more challenging to achieve the desired coverage levels.

In Mexico, 4.6 million people are undergraduates, with 700,000 new graduates annually. Despite high enrollment, only 28% finish, losing much potential talent.[49]

According to Lisdey Espinoza Pedraza, President Andrés Manuel López Obrador had pledged to establish numerous state-funded "popular" universities to provide affordable higher education to low-income individuals. However, these institutions have faced criticism for inadequate staffing, funding shortages, and low academic standards. Critics argue that these universities don't have the conditions to prepare students for the workforce fully.

Since taking office in 2018, AMLO has slashed Mexico's education budget by $12 billion, a 10% reduction, resulting in layoffs of over 100,000 education workers, including teachers and administrative staff. The cuts include $7 billion from primary education, $5 billion from higher education, $1 billion from teacher training, and $1 billion from education infrastructure. There is a substantial inequality in access to higher education, particularly among indigenous populations and people in rural areas. Actions must be taken to reduce these disproportions and ensure equitable access to education for all,[50] i.e., addressing the educational disparities and the need to bridge the gap between different socioeconomic groups and regions.

49 Instituto Mexicano para la Competetitividad. (2024). "Educación superior: una pieza clave para la competitividad en México" in *El futuro de la política de educación superior en México. Los rezagos y las oportunidades*. Cabrero, E. & Moreno, C. (compilers). Universidad de Guadalajara.

50 Espinoza, L. (2023, August 15). *Education reforms in Mexico: what challenges lie ahead?* British Council. https://opportunities-insight.britishcouncil.org/blog/education-reforms-mexico-what-challenges-lie-ahead.

"This country has a tremendous need for coverage from an educational standpoint, and at the moment, we have limitations."

- Bernardo González Aréchiga, Rector at the Universidad del Valle de México.

According to Pablo Hernández Jaime, the Secretariat of Public Education (known in Spanish as SEP) reports the gross coverage rate instead of the net enrollment rate for higher education. This rate divides total enrollment by the population aged 18 to 22. It includes all enrolled students, not just those typical for the educational level, inflating the indicator. Gross coverage in traditional higher education peaked at 34.9% in 2019-20 but has since slightly declined, remaining at 34.7% in the 2022-23 academic year. Including non-traditional modes, the total coverage rises to 43.5%, showing nearly one in five university students opt for these models.[51]

b. Structural Changes in Programs

At the IFE Conference, Bernardo González-Aréchiga (FIMPES), María Teresa Nicolás Gavilán (Centro Institucional de Innovación Educativa), and Luis Armando González Plascencia (ANUIES) underlined the need for action toward technological integration, while addressing resistance to change in a traditional field like education, integrating competencies, and supporting teachers to reduce educational disparities.

Mexico needs to increase the number of higher education graduates with the required skills to meet current and future job market

51 Hernández, P. (2024, November). *Acceso y progresión educativa en México: una breve descripción*. CEMEES. https://cemees.org/2023/11/06/acceso-y-progresion-educativa-en-mexico-una-breve-descripcion.

demands. This is urgently needed for innovation and economic growth while addressing different challenges like nearshoring.[52] Nevertheless, that is not the only concern the government is facing; in agreement with Cabrero and Moreno, the Mexican government needs to engage in a new agenda taking into consideration increasing investment, elevating education levels, fostering highly skilled human capital, strengthening universities, promoting innovation, and make higher education pivotal for national development and sustainability.[53]

52 Instituto Mexicano para la Competetitividad. (2024). "Educación superior: una pieza clave para la competitividad en México" in *El futuro de la política de educación superior en México. Los rezagos y las oportunidades*. Cabrero, E. & Moreno, C. (compilers). Universidad de Guadalajara.

53 Cabrero, E. & Moreno, C. (2024). *El futuro de la política de educación superior en México. Los rezagos y las oportunidades.* Universidad de Guadalajara.

C. Good Practices

Importance of technology:	Lifelong learning and competency development:
Integrating technology into education is essential to enhance and ensure that students are prepared for the digital economy. This includes the use of digital platforms and online learning environments.	Emphasis on the continuous process of acquiring, updating, and increasing competencies throughout one's life. Lifelong learning is crucial for personal and professional development in an ever-changing job market.
Teachers' role:	**COVID-19 pandemic.**
The need to rethink and update teachers' profiles to guarantee they can effectively bridge the gap between students and the dynamic contemporary world. Teachers should be equipped to handle and teach new technologies and methodologies.	The pandemic that broke out on 2020 encouraged collaborations across various fields to find comprehensive solutions.

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Future Remarks

In the face of accelerated changes in the knowledge and skills needed across different fields, the evolution of educational technologies, and the expansion of education to non-traditional learners with vastly different backgrounds, institutions' leaders and policymakers will be required to make decisions correspondingly at a higher frequency and cadence.

"Education systems are now more than ever required to provide high-quality education and competencies, in addition to new demands for well-being and values, to enable young generations to design and contribute to our fast-paced, global economy. But education policies may not reach the classroom, failing to achieve their intended outcomes, because of weak implementation processes."[54]

Romane Viennet and Beatriz Pont

From a forthcoming perspective, policies regarding education will need to prioritize data privacy, curriculum flexibility, and teacher training in order to ensure that students are equipped with the necessary competencies to navigate the digital world responsibly. Data literacy standards must be promoted and set for an appropriate integration of technology in education. Only then will students be able to critically evaluate online information and safeguard their privacy.

Nonetheless, as humanity progresses, awareness of educational inequities and actions to diminish those gaps should be broadened. Focusing on policies that stimulate equity and inclusion in the learning structures is mandatory. This could embrace measures such as increasing access to high-quality education for marginalized communities, addressing disparities in resources and funding between schools, and promoting diversity and inclusivity in curricula and teaching practices.

Policies that support lifelong learning frameworks should be enforced accordingly. Cities and nations across the globe then will be capable of granting opportunities for individuals of all ages to acquire new abilities, adapt to changing job markets, and engage in un-

54 Viennet, R. & Pont, B. (2017, December 8). Education policy implementation: A literature review and proposed framework. *OECD Education Working Papers No. 162*. https://dx.doi.org/10.1787/fc467a64-en.

interrupted learning throughout their lives.

The UNESCO International Institute for Higher Education in Latin America and the Caribbean (IESALC) launched the Higher Education Policy Observatory, the first open-access platform to provide centralized information about 146 nations' Higher Education policies. This sets a precedent for policymakers, researchers, and educational leaders to exchange experiences, learn from each other's efforts, and strengthen constructive dialogue and effective collaboration.[55]

Given the interconnected nature of today's world, interdisciplinary collaborations among countries could develop international standards and policies for education. This could lead to initiatives to harmonize curriculum frameworks, recognize academic qualifications across borders, and facilitate cross-cultural exchange and cooperation in educational research and innovation.

55 HE Policy Observatory. (n.d.). *Welcome to the Higher Education Policy Observatory*. https://hepo.iesalc.unesco.org/pc/page/home/.

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Conclusion

Technological changes such as AI or automation, as well as social and demographic shifts, spark a need to nurture a culture of lifelong learning. Even if this may stand for a considerable challenge, ongoing evaluation, adaptation, and collaboration are essential to ensure that educational policies remain relevant, responsive, and effective for learners and communities.

Policies perform a crucial role in shaping the present and future of societies by guiding the development and implementation of educational systems. These address aspects of education, in particular curriculum, teaching methods, assessment practices, resource allocation, and access to education. Efficient educational policies strive to promote equity, inclusivity, quality, and innovation in education, aiming to prepare individuals for a successful career.

A strategic and ethical approach to policy development that upholds opportunities in shaping education for the digital economy can ensure that educational systems are not only adaptive but also sustainable and environmentally conscious. Moreover, a comprehensive understanding of the multifaceted and intricate challenges and opportunities at hand is primary for implementing strategic measures. Also, with pressing environmental challenges, there may be a greater emphasis on integrating environmental literacy and sustainability education into curricula.

"If the objective is educational completion, we can make educational completion programs. But if the purpose is to promote academic growth in people up to the age of 20 or 23, you should try to get them to finish high school, and from there, motivate them to take different kinds of courses throughout their lives."

Milagros Gismondi, Former Chief of Staff at the Argentinian National Ministry of Finance.

Decisions made today will shape the opportunities and outcomes of upcoming generations. The future commands adaptable and forward-thinking policies, to deal with quandaries and uncertainties ahead. Nevertheless, these will only originate from efforts to establish dialogues and above all, once discussed, a proactive and inclusive approach to take action.

"The future of education is being created right now, today."[56]

– Grant Lichtman (2014)

56 Lichtman, G. (2014, September, 9). #EdJourney: A Roadmap to the Future of Education. *John Wiley & Sons, Incorporated.*

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Tecnológico de Monterrey

Participants IFE Conference Policy Track 2024

Juan Pablo Murra
Antares Vázquez Alatorre
Arturo Cherbowski
Bernardo González-Aréchiga
Carlos Iván Moreno
Joaquín Guerra
Jon Altuna
Luis Armando González Placencia
Luis Gutiérrez Aladro
Marco Fernández
María Teresa Nicolás Gavilán
Martha Castellanos
Milagros Gismondi
Otto Granados
Raúl Valdés Cotera
Rose Luckin
Susana Irene Díaz

Institute for the Future of Education

José Escamilla de los Santos
Michael J.L. Fung
Verónica Sánchez Matadamas Irma
Eugenia Díaz Martínez

Research Lab IFE

Virginia Rodés Paragarino

Observatory IFE

Esteban Venegas Villanueva
Andrea Cristina Alvarez Pacheco
Mariana Sofía Jiménez Nájera
Nohemí Vilchis Treviño
Karina Fuerte Cortés
Christian Salvador Guijosa Ocegueda
Sofía García Bulle Garza
Melissa Guerra Jáuregui
Paulette Delgado Roybal
Rubí Román Salgado

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