FUTURE TRENDS

Report

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TRENDS RESEARCH & ADVISORY

Future Trends Report

Future Trends Report, published in English and Arabic by TRENDS Virtual Office in Montreal, stands out as a distinctive publication dedicated to highlighting:
1. the most important forward-looking studies that aim to identify future trends, analyze various variables that may influence these trends, and determine the best future scenarios.
2. the most important applied studies that explore the application of knowledge, scientific theories, and information to solve current problems and overcome future challenges.
3. the most important illustrative and graphic forms that visually summarize significant studies, helping readers understand the trends and challenges of the future world.

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Contents

1- Prospective research

The internet of things in the GCC 4
Depression amongst Syrian refugees in Canada 6
International students and transnational setworks 8
War and its impacts on societies: the Russia-Ukraine case 10
How do prospective teachers understand educational research? 12

2- Applied research

Urban spatial strategies in the GCC 14
Professional development of university teachers through research 16
Taking the researcher's emotions into account in research design 18
Does AI genuinely improve our lives? 20
Power dynamics during childbirth 22

3- The future in numbers

When Every Continent's Population Will Peak This Century 25
Ukraine's Mineral Resources 26
Ongoing Conflicts in the World, Aside From Ukraine & Palestine 27
How Top Economies Performed in the Last 10 Years, ... 28
Import Dependence Between U.S.A and Canada 29

1 Prospective research

The internet of things in the GCC

Albreem, M. A., Sheikh, A. M., Bashir, M. J., & El-Saleh, A. A. (2023). Towards green Internet of Things (IoT) for a sustainable future in Gulf Cooperation Council countries: Current practices, challenges and future prospective. Wireless Networks, 29(2), 539567-

This article introduces the concept of the Internet of Things (IoT), considered by the authors to be crucial to the development of smart cities and the achievement of sustainability goals, including energy efficiency and e-waste management. The Gulf Cooperation Council (GCC) comprises six countries: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates. These countries are experiencing rapid urbanization, leading to environmental problems such as air pollution and water scarcity.

Governments are investing in green innovations, such as solar and wind power, and seeking to improve e-waste management for a sustainable future. However, effective e-waste management policies and IoT infrastructure are still needed to reduce the carbon footprint. The economies of the GCC countries are mainly based on oil revenues, making them vulnerable to fluctuations in oil prices. Despite strong economic development, they face environmental challenges such as pollution, desertification, and water scarcity. They are the world's largest consumers of desalinated water, an energy-intensive process. However, they are betting on renewable energy, notably solar and wind power, to diversify their energy sources and meet growing demand.

The Internet of Things (IoT) is a network of interconnected physical objects (sensors, software, electronic devices) that enable communication between these elements and users. IoT services leverage technologies such as RFID, NFC, ZigBee, Bluetooth, and 5G. The latter, by facilitating fast and efficient connectivity, is essential for IoT, particularly in the healthcare, smart home and city, and energy sectors. However, IoT leads to high energy consumption, particularly through data centers and machine-to-machine communications, highlighting challenges in energy efficiency and sustainability.

IoT applications span many sectors, including manufacturing, transportation, energy, retail, healthcare, agriculture, and smart cities. In the Gulf, IoT projects are expanding, with notable initiatives in Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE. However, IoT faces challenges, including managing massive amounts of data, security, and dealing with faulty devices. Security concerns, such as cyberattacks, are increasing with greater digitization in these countries, prompting heightened cybersecurity strategies.

Green Connected Objects (GIoT) are IoT technologies aimed at reducing carbon footprints, minimizing environmental impact, and optimizing operating costs. They are based on strategies such as eco-friendly design, production, use, and recycling. In the Gulf countries (GCC), smart city projects are underway, such as Abu Dhabi's Masdar City, which integrates renewable energy for sustainability. These countries are investing in renewable energy and adopting technologies such as wireless sensor networks, green communications, and e-waste management to support the transition to a green economy.

In short, this article shows that the Gulf countries are exploring renewable energy sources, mainly solar and wind, to diversify their revenues and reduce dependence on hydrocarbons. GIoT technologies, such as green sensors and green data centers, aim to reduce energy consumption and carbon footprints. E-waste management and security issues related to IoT and blockchain require further research.

BIG DATA

"Over two-thirds of the global population is estimated to migrate to cities by 2050."

IoT

The Internet of Things (IoT) is a network of interconnected physical objects (sensors, software, electronic devices).

Prospective research

Depression amongst Syrian refugees in Canada

Kuo, B. C., & Rappaport, L. M. (2024). A prospective longitudinal study of depression, perceived stress, and perceived control in resettled Syrian refugees' mental health and psychosocial adaptation. Transcultural Psychiatry, 13634615241227696.

In 2020, the United Nations High Commissioner for Refugees (UNHCR) estimated that there were 82.4 million displaced people, including 26.4 million refugees. Depressive disorders are common among refugees, particularly those affected by war, with persistent effects of post-migration stress. Although resilient, refugees face many barriers to accessing mental health care. This recent study focuses on Syrian refugees in Canada, exploring the impact of depression on stress, perceived control, social support, and anxiety.

It aims to fill the gap in longitudinal research on their mental health and coping mechanisms.
Drawing on stress and resilience theories, this study examines the extent to which initial depressive symptoms predict perceived stress and control one year later. Participants (235 Syrian refugees) were recruited in Windsor, Ontario, and followed for one year. Secondary analyses also explored the impact of depressive symptoms on anxiety and social support. The results show mild depressive symptoms on average in Syrian refugees both at baseline and after one year, with a moderate prevalence of depressive symptoms. Although below clinical thresholds, anxiety symptoms were reported by a proportion of participants. Analysis revealed that depressive symptoms at baseline predicted low self-efficacy and low perceived control after one year, whereas self-efficacy or feelings of helplessness at baseline did not influence later depressive symptoms. Furthermore, initial depressive symptoms were linked to lower perceived social support and higher anxiety symptoms after one year. Participant dropout at follow-up assessment was low and mainly associated with marital status. Analyses also showed that age, gender, and marital status were only weakly related to control and psychological well-being variables.
This longitudinal study examines the impact of depressive symptoms on the psychosocial adjustment of Syrian refugees after resettlement in Canada. Results indicate that depressive symptoms at departure are associated with impaired psychosocial well-being, including low perceived control and increased powerlessness. Furthermore, these symptoms predict low self-efficacy and social support after one year. These findings corroborate similar studies on Iraqi refugees, underlining the importance of treating depression in the early stages of resettlement to mitigate long-term effects.
The authors recommend early detection and targeted management of depressive disorders in Syrian refugees. They emphasize the need for an integrated, trauma-sensitive healthcare model and suggest culturally appropriate interventions to help refugees cope. Finally, the research highlights the importance of a holistic approach that considers the social determinants of health to improve refugee well-being. These findings have implications for other refugee populations worldwide, including those from Ukraine, Afghanistan, and Myanmar.

According to the UNHCR, 82.4 million people were displaced in 2022, including 26.4 million refugees.

Early screening for depressive symptoms among refugee newcomers within a culturally and trauma-informed, integrated health setting is highly important.

Prospective research

International students and transnational setworks

Robinson, O., Somerville, K., & Walsworth, S. (2024). Building, negotiating and sustaining transnational social networks: Narratives of international students' migration decisions in Canada. Global Networks, 24(1), e12442.

International students represent a fast-growing migratory category, and understanding their migration decisions is becoming increasingly important, as explored in this article by two sociology professors (Robinson and Somerville) and one industrial relations professor (Walsworth), all associated with Canadian universities. This study examines the role of social networks in the migration decisions of international students to Canada, highlighting the importance of transnational ties. Informal social networks play an essential role in providing information, reducing fears, and supporting integration. Even when the information transmitted is incomplete, these networks offer important symbolic support. The study also shows how these networks function as informal migration agents, facilitating successful student migration.

The number of international students in Canada has grown considerably over the past two decades, with institutions relying increasingly on the earnings of these students. Students also benefit from the possibility of becoming permanent residents, making them particularly attractive to the job market. Social networks play a crucial role in the migration decisions of international students, offering information, emotional, and financial support. However, these networks can also be limited by incomplete information. This study focuses on how transnational networks influence students' migration decisions and processes.

The study examines the experiences of international students at a medium-sized Canadian university. It was carried out in two phases: an online survey followed by in-depth interviews with 30 participants from 16 countries. The students, aged between 18 and 35, shared their motivations and experiences of studying abroad. The analysis of the interviews, conducted using the grounded theory method, highlights the influence of social networks on immigration decisions and their evolution during the migration process. Study participants did not use formal migration agents to make decisions about studying abroad. They relied mainly on informal social networks, such as family, friends, and ethnic or religious groups. The Internet and social media platforms such as Facebook played a key role in providing personal testimonials and information about destinations and educational institutions. Families often influenced country choices, offering practical and emotional advice. Transnational friendship networks also filled information gaps and supported settlement, providing reliable advice and a sense of security.

Transnational professional and community networks strongly influence the migration decisions of international students. Colleagues, friends, and community members share experiences and advice, facilitating orientation towards study abroad. For example, students were encouraged by work colleagues or friends to apply to certain universities. In addition, ethno-cultural and religious networks offer moral, practical, and emotional support, acting as host families. These networks help students integrate while also sparking new migrations by offering advice and support along the way.

This study shows that international students, like other migrants, create and maintain social networks to obtain information about migration, receive support, and shape their decisions to study abroad. These networks—often family, professional, or religious—play a key role in students' adaptation and integration. Although some networks provide incomplete or misleading information, they remain crucial in offering emotional and symbolic support. Students also become informal migration agents, sharing their experiences to help others migrate, creating an ongoing transnational dynamic.

In 2019, Canada hosted approximately 640,000 international students, representing a 185% increase from 2010, making it the world's fourth most popular destination for international study. (CBIE, 2020)

The decision to study abroad is evidently immersed in a continuous migration process involving transnational network building, negotiating and sustaining.

Prospective research

War and its impacts on societies: the Russia-Ukraine case

Lim, W. M., Chin, M. W. C., Ee, Y. S., Fung, C. Y., Giang, C. S., Heng, K. S., Kong, M. L. F., Lim, A. S. S., Lim, B. C. Y., Lim, R. T. H., Lim, T. Y., Ling, C. C., Mandrinos, S., Nwobodo, S., Phang, C. Su. C., She, L., Sim, C. H., Su, S. I., Wee, G. W. En., & Weissmann, M. A. (2022). What is at stake in a war? A prospective evaluation of the Ukraine and Russia conflict for business and society. Global Business and Organizational Excellence, 41(6), 23–36 https://onlinelibrary.wiley.com/doi/full/10.1002/joe.22162

War is a complex phenomenon that impacts societies and businesses, often in devastating ways. This article explores the impact of war on business and society through the conflict between Russia and Ukraine, a subject that has been little explored in contemporary research. The effects of war are multidimensional: economic (inflation, reduced investment), environmental (deforestation, pollution), health-related (destruction of health systems, malnutrition), and social (forced displacement, psychological trauma). The article highlights the need to study these impacts to better understand the consequences of war on modern societies and businesses.

This article adopts a case study approach to examine the impact of war on business and society, focusing on the conflict between Russia and Ukraine, which began on February 24, 2022. The aim is to explore the consequences of this war on business and society on a global scale. The study was conducted by analyzing over 100 relevant press articles until a data saturation point was reached. The information gathered was analyzed thematically to ensure the credibility, transparency, and reliability of the results. This study provides new perspectives on the impact of this conflict.

The results show that war, as a result of armed conflict, has a profound impact on business and society, both within and between opposing forces. An analysis of article headlines reveals that Russia's invasion of Ukraine has led to cybersecurity risks, economic disruption, international sanctions, and forced migration. The impact on society includes limited access to essential resources, rising unemployment, reduced purchasing power, and an increase in asylum seekers. On a global scale, the war has caused supply shortages and inflation, particularly in the wheat and oil sectors. In addition, misinformation has proliferated due to increased reliance on social networks, making it more difficult to distinguish between true and false information. These impacts also affect businesses, which face cyberattacks and technological sanctions.

This study highlights the impact of war not only in terms of armed conflict but also in terms of cyberattacks. Russia, as a leading cyber actor, has targeted Ukrainian companies (communications services, power grids) with cyberattacks, while Russian companies have also been subjected to cyberattacks in response to the invasion. These attacks are disrupting the operations and supply chains of digital companies. In addition, the war is affecting digital growth and business sustainability, particularly in the technology industry, where sanctions have had a major impact. International sanctions have led to boycotts but also to support for Ukraine, as demonstrated by the actions of solidarity-based companies. Brand management strategies and ethical decisions play a crucial role in companies' responses to global crises. This research opens new avenues for future studies, which will greatly enhance action and support for affected companies. Four main lessons emerge: 1) War limits access to resources and creates shortages, unemployment, and refugees in war-torn countries. 2) It causes supply shortages, inflation, and misinformation risks in external countries. 3) Companies in conflict zones face cyberattacks, sanctions, and risks to digital growth risks. 4) Companies must manage ethics and brand image in response to these challenges.The article also highlights the importance of collaborative research in addressing these global issues.

War, as a result of armed conflict, has a profound impact on business and society, both within and between opposing forces.

Russia's invasion of Ukraine has led to cybersecurity risks, economic disruption, international sanctions and forced migration.

Prospective research

How do prospective teachers understand educational research?

Perines, H., & Ion, G. (2020). How Do Prospective Teachers Understand Educational Research? The Teacher Educator, 56(1), 101–116. https://doi.org/10.108008878730.2020.1846831/

This study explores conceptions of educational research among future teachers at a Chilean university. The focus groups, conducted in Spanish, lasted about an hour, and the transcribed data was analyzed according to the principles of grounded theory. The results show that participants' conceptions are influenced by research methodology courses and their professors' approach.

The majority of participants perceive research as an essential tool for improving their teaching practices. They see it as a means of diagnosing and solving educational problems based on reliable data rather than common sense or rehearsed approaches. The authors cite the example of a key course, Methodology for Educational Diagnosis, taken in the first year, which left a lasting impression on students. This course, focused on identifying and solving problems in real school contexts, reinforced their instrumental view of research. However, students lament a lack of continuity, as research experiences are rare after this course, creating a gap in their training.

Teachers play a central role in shaping students' conceptions of research. Some students value teachers who integrate scientific articles or encourage research projects. For example, one teacher motivated a student to present his work to other programs. However, criticisms also emerge, particularly regarding a lack of organization in data collection activities or a rigid approach to teaching research.

Participants also regret the absence of regular research activities throughout the program. This leads to feelings of insecurity when carrying out their own projects, such as final theses. Some express difficulty in choosing a subject or structuring their project, reflecting a need for more consistent support.

Students recognize the importance of educational research for their professional development, but their conceptions remain largely instrumental. They perceive research as a set of techniques rather than a broader epistemological process. This finding suggests that teacher training programs do not foster a thorough understanding of research. Participants hope that the curriculum reforms introduced since 2019 will improve the integration of research into teacher training. They suggest adding more research-related courses with an emphasis on the practical application of findings to solve real-world problems.

The study highlights the key role of research methodology courses and teachers in the training of future educators. However, current approaches fail to develop a comprehensive vision of research. It is recommended that universities review the place of research in their training programs, integrating ongoing research activities and training teachers to encourage a critical and reflective approach.

One limitation of the study is that it took place at a single university. Further research in a variety of contexts, as well as a quantitative approach, could enrich these findings. Despite this, the study provides valuable insights for improving teacher training and integrating research into future practice.

Teachers play a central role in students' conception of research.

Universities and faculties involved in teacher education should critically evaluate the way educational research is treated.

2 Applied research

Urban spatial strategies in the GCC

Arif, M., & Aldosary, A. S. (2023). Urban spatial strategies of the Gulf Cooperation Council: A comparative analysis and lessons learned. Sustainability, 15(18), 13344.

This article explores the urban spatial strategies of the member countries of the Gulf Cooperation Council (GCC), taking a comparative approach to understanding how these nations manage rapid urbanization and the associated socio-economic challenges. The GCC countries, rich in oil resources, are experiencing some of the fastest urbanization in the world, with 85% of the population living in urban areas. They are striving to reduce their dependence on hydrocarbons by focusing on economic diversification and sustainability.

This study uses a SWOT analysis to assess the National Spatial Strategies (NSS) of these countries and identify both similarities and specificities in each national vision. Common strengths include considerable financial resources from oil revenues, the ability to fund ambitious projects such as smart cities and modern infrastructure, and regional collaboration to harmonize policies and foster sustainable development. Common weaknesses, on the other hand, include excessive dependence on oil, inequalities in resource distribution between urban and rural areas, and a lack of effective coordination between central governments and municipalities.

The opportunities identified lie in economic diversification through tourism, technology, and non-oil industries, the integration of smart technologies for better urban management, and the use of spatial strategies to stimulate innovation and create jobs. However, threats include regional geopolitical tensions, climate challenges such as water scarcity and extreme temperatures, and rapid population growth increasing infrastructure demands.

The case studies analyzed highlight the specificities of each country's strategies. In Saudi Arabia, Vision 2030 aims to diversify the economy with projects such as NEOM, a smart city, while promoting decentralization and regional development. In Qatar, National Vision 2030 focuses on sustainability and climate resilience, integrating multi-centric urban planning to limit urban sprawl. The United Arab Emirates emphasizes technological innovation and environmental sustainability in projects such as those in Dubai and Abu Dhabi, guided by Visions 2021 and 2030. Oman, with Vision 2040, focuses on a diversified and sustainable economy, actively involving local communities to balance economic growth and environmental conservation.

The paper suggests ways to strengthen urban strategies. Improving coordination between national and local levels, promoting inclusive policies that integrate social, environmental, and economic dimensions, and incorporating more smart technologies for efficient resource management are essential steps.

In conclusion, the study highlights that GCC countries can shape resilient and prosperous cities by sharing best practices and adopting sustainable strategies. By capitalizing on their financial strengths, these nations have the opportunity to collaborate in addressing the common challenges of rapid urbanization and economic transition.

The GCC countries, rich in oil resources, are experiencing some of the most rapid urbanization in the world, with 85% of the population living in urban areas.

GCC countries can shape resilient and prosperous cities by sharing best practices and adopting sustainable strategies.

Applied research

Professional development of university teachers through research

Biémar, S., Quinting, B., & Bragard, I. (2023). Soutenir le développement professionnel des enseignants en haute école par la recherche: analyse d'un dispositif d'appel à projets interne. Revue internationale de pédagogie de l'enseignement supérieur, 39(39 (2)).

This article examines the impact of a call for research projects scheme set up at Belgium's Haute École Libre Mosane (HELMo) on teachers' professional development. This mechanism is part of the context of Belgian higher education institutions, which have favored professional training and sought to integrate applied research into their missions since the introduction of the 2013 decree. Historically, teachers at Belgian universities have focused their efforts on teaching practice, but they are increasingly encouraged to engage in research projects.

This dual function, combining the roles of pedagogue and researcher, raises questions about their professional identity, as well as the obstacles and levers that may influence their commitment.

A questionnaire survey was carried out among 145 teachers who had participated in calls for projects between 2009 and 2019, with 51 responses retained for analysis. The questionnaire aimed to explore the reasons for teachers' involvement, the skills they developed, and the impact on their teaching practices. A qualitative analysis of the responses identified trends and highlighted areas for improvement. Teachers cited various reasons for participating: 21.6% sought to enrich their teaching practices, 15.7% responded to external solicitations, and 25.5% found that the accessible format of the HELMo call facilitated their involvement.

Participants reported several skills acquired through these projects. Some 60% stated that they developed new knowledge, 42% improved their project management skills, and 36% strengthened their research skills. Additionally, 54% of respondents reported an improved ability to collaborate in interdisciplinary teams. These skills significantly impacted teachers' pedagogical practices, with almost 75% claiming that their participation transformed the way they teach. Research findings enable them to illustrate concepts in the classroom, while integrating new pedagogical approaches, such as webinars or podcasts, enhances their teaching. Moreover, some teachers involve their students in stages of the research process, reinforcing active learning.

The results of this study show that research is a powerful driver of teachers' professional development. It encourages them to reflect on their practices and promotes interaction with the professional world. However, these initiatives require appropriate support to overcome organizational challenges and establish a research culture in a predominantly teaching-oriented environment. The integration of research within higher education helps develop a teacher-researcher identity and enrich inter-professional collaboration. It also strengthens the link between research, teaching, and professional practice, particularly through projects rooted in real-world needs.

This dynamic fosters pedagogical innovation, meeting the expectations of both students and external partners. However, the authors note that further efforts are needed to remove structural obstacles and strengthen teachers' research skills. This could include specific training and personalized support to better integrate research into their daily work. A holistic approach would enable teachers to fully embrace their role as researchers while enriching the educational experience and contributing to the development of innovative solutions suited to contemporary challenges.

Research is a key driver of teachers' professional development, fostering self-reflection and engagement with the professional world.

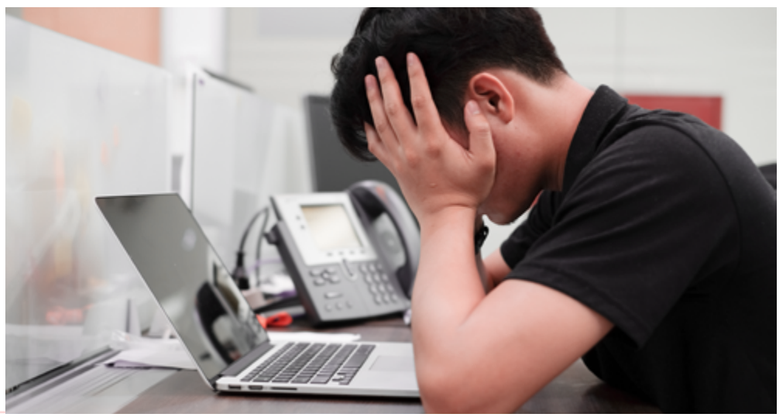
Further efforts are still needed to remove structural obstacles and strengthen teachers' research skills.

Applied research

Taking the researcher's emotions into account in research design

Pesle, M. (2023). De l'expérience subjective à l'objet de recherche. La prise en compte des émotions du chercheur dans la construction de la recherche. La thèse Cifre en SHS. L'art de la double contrainte, 171186-.

This article analyzes how the researcher's emotions and subjective experience influence the construction of the research object, based on a study carried out as part of a CIFRE thesis in political science. Author Manon Pesle explores the dual posture of employee and researcher and examines the tensions and opportunities arising from this situation. This unique framework, characterized by multi-positionality, combines operational missions within an organization with academic objectives.



Pesle draws on her own experience, gained between 2011 and 2016 as a salaried doctoral student at the Grenoble Alpes Métropole urban community, to study the development of educational policies in disadvantaged neighborhoods.
In this context, the author adopts a methodology centered on participant observation. This method, by integrating personal experiences and emotions into the analysis, enables her to better understand the institutional and political dynamics underlying her object of study. Immersion in this dual posture reveals several key aspects of the researcher's experience. First, the constant tension between the roles of employee and researcher is a major challenge. Pesle underlines the difficulty of reconciling institutional expectations, often focused on administrative or operational tasks, with academic requirements that demand significant research time. This duality, often unbalanced, gives rise to a feeling of unease and a questioning of personal legitimacy. It also reveals the power relations implicit in the relationship between the institution and the researcher.
The author also highlights the importance of emotions in the research process. Emotions experienced in the field, such as frustration, anger, or satisfaction, are not merely personal experiences; they become valuable tools for understanding institutional and political tensions. For example, these feelings help reveal latent conflicts between metropolitan officials, local councilors, and communes, as well as the limitations of existing educational systems. Emotions thus become indicators of social and political dynamics that might otherwise remain invisible.
Pesle's experience also led to a significant shift in her research focus. Initially centered on educational policies in disadvantaged neighborhoods, her thesis expanded to include a broader reflection on the professional practices of metropolitan managers. Immersion in the workings of an institution allowed her to observe in depth the relationships between local authorities, the technical challenges of managing these programs, and the practices of the stakeholders involved.
This reflexive posture, in which personal experiences enrich the understanding of systemic dynamics, demonstrates that subjectivity can be an asset in knowledge production.
The article concludes with a discussion of the methodological and sociological implications of this approach. Far from representing biases or weaknesses, emotions provide valuable insights into social realities. They offer a better understanding of institutional logics and the tensions that shape interactions between different actors. This perspective enriches sociological analysis by integrating subjective elements that are often overlooked.
The author also highlights the structural limitations of CIFRE schemes, where the expectations of host organizations and academic ambitions are not always aligned. These tensions, sometimes a source of identity conflicts for the researcher, call for clearer guidance and a precise definition of objectives for both parties.
In conclusion, Manon Pesle demonstrates that emotions, far from being disruptive, play a central role in social science research. They provide a deeper understanding of institutional and political realities while enriching sociology with a more comprehensive, contextualized approach. The researcher's subjective experience, when integrated reflexively, broadens the field of analysis and produces more nuanced results. This work underscores the importance of valuing these subjective dimensions in research practices to better apprehend complex social dynamics.

Applied research

Does AI genuinely improve our lives?

Have our lives improved since AI became a daily part of them? - Conference 2024 - Milieux Institute for arts, culture and technology – Canada https://milieux.concordia.ca/rebuilding-ai-at-the-2024-mutek-forum/

On August 30, 2024, during the closing day of the MUTEK Forum, Professor Karim Jerbi of Université de Montréal urged the audience to reflect on artificial intelligence's (AI) impact on our daily lives. He raised key questions: Does AI genuinely improve our lives? Does it address the pressing issues in our communities?

These reflections guided the discussion during the panel "Abundant Intelligences at the Intersections of Neuroscience, AI, Art, and Indigenous Knowledge." Moderated by Concordia University professor Jason Edward Lewis, co-director of the Abundant Intelligences program, the panel underscored the need to address bias and data sovereignty in AI. Lewis highlighted that recurring biases in AI models indicate systemic flaws requiring a foundational redesign. The Abundant Intelligences program, grounded in Indigenous epistemologies, aspires to transform AI by advocating for representation and support for Indigenous communities. It emphasizes the inclusion of diverse perspectives and intelligences, both human and non-human.

Professor Jackson Two Bears of Western University warned that technological advancements often marginalize Indigenous communities, some of which lack basic resources like clean water or internet access. Integrating Indigenous voices into AI development is critical to avoiding such exclusions. The program fosters interdisciplinary collaboration among researchers, labs, and Indigenous communities worldwide. As a research-creation initiative, it bridges science and art, challenging the dominance of computer science in defining AI. Māori neurobiologist Dr. Melanie Cheung observed that this interdisciplinary approach fosters creativity and expands scientific possibilities.

Running through 2029, the project initially focused on building a robust infrastructure for collaboration. Workshops, cross-disciplinary integration, and team-building efforts laid the groundwork. Among its pilot projects is an initiative described by Dr. Jerbi, exploring AI models capable of analyzing brain signals during dreams to generate visuals.

Throughout the day, ethical and non-human dimensions of AI were explored, including at Milieux's "Wilding AI Lab." Presented in collaboration with the Applied AI Institute, this lab invited participants to imagine how AI could be made "wilder"—more attuned to human and non-human realities.

The MUTEK Forum, held August 20–23, 2024, at Montreal's Monument-National and Society for Arts and Technology, served as an international hub for ideas on digital culture, art, technology, and society. Its 10th edition highlighted innovative artistic practices while fostering discussions on the ethical and political dimensions of technology. Concordia University's Milieux Institute played a pivotal role, presenting panels and performances at the intersection of AI, art, and Indigenous knowledge. Maurice Jones, curator and doctoral candidate at Concordia's Centre for Interdisciplinary Studies in Society and Culture, emphasized the importance of such forums in fostering open dialogue on societal challenges posed by technology.

A standout session led by Jason Lewis examined designing AI systems rooted in Indigenous knowledge. It emphasized the development of culturally sensitive AI that acknowledges diverse forms of intelligence while exploring intersections between neuroscience, AI, art, and Indigenous traditions. The forum also addressed broader themes like AI infrastructure and societal impacts. In a previous edition, researcher Dr. Sarah Myers West called for rethinking deterministic narratives about AI and envisioning a more adaptable technological future. She advocated for challenging big tech monopolies and fostering alternative trajectories for AI through continuous experimentation.

In summary, MUTEK Forum 2024 provided a critical platform to discuss AI's implications, emphasizing Indigenous perspectives and interdisciplinary collaboration. This approach aims to foster a more equitable and inclusive technological future, aligning AI development with diverse cultural and ethical considerations.

Applied research

Power dynamics during childbirth

Schaaf, M., Jaffe, M., Tunçalp, Ö., & Freedman, L. (2023). A critical interpretive synthesis of power and mistreatment of women in maternity care. PLOS Global Public Health, 3(1), e0000616.

This article explores how power dynamics contribute to the mistreatment of women during childbirth. The authors conducted a critical interpretive synthesis in three phases to analyze power-related factors underlying such mistreatment. In the first phase, the researchers defined the scope of their inquiry by reviewing 63 studies that employed diverse methods and spanned various geographical contexts. They identified power-related factors across multiple levels.

At the intrapersonal level, a lack of awareness of one's rights emerged as a key issue. Interpersonally, the hierarchical relationship between patients and providers often reinforced unequal dynamics. At the community level, widespread discrimination against Indigenous women was a recurring theme. Organizationally, the pressure on healthcare workers to meet performance targets created conditions conducive to mistreatment. At the legal and political levels, the absence of accountability mechanisms for rights violations was a critical concern. While most studies addressed multiple levels of the social ecological model, some focused exclusively on interpersonal factors.

In the second phase, the authors expanded their analysis to include 104 studies, delving deeper into underexplored power-related themes. These included the normalization of mistreatment in maternity care, perceptions of women's suitability for motherhood, the geopolitical and ethnopolitical agendas tied to fertility, and the emphasis on achieving quantifiable performance goals in healthcare systems. These areas revealed the pervasive influence of societal and institutional structures on the treatment of women during childbirth.

The final phase involved synthesizing and analyzing the findings, which highlighted several overarching themes. Social norms were shown to play a significant role in shaping how women are treated during childbirth, often perpetuating mistreatment. The design of healthcare systems emerged as another critical factor, with some systems reinforcing power imbalances while others offered opportunities to mitigate them. The study emphasized the necessity of adopting multi-level strategies to address these issues comprehensively.

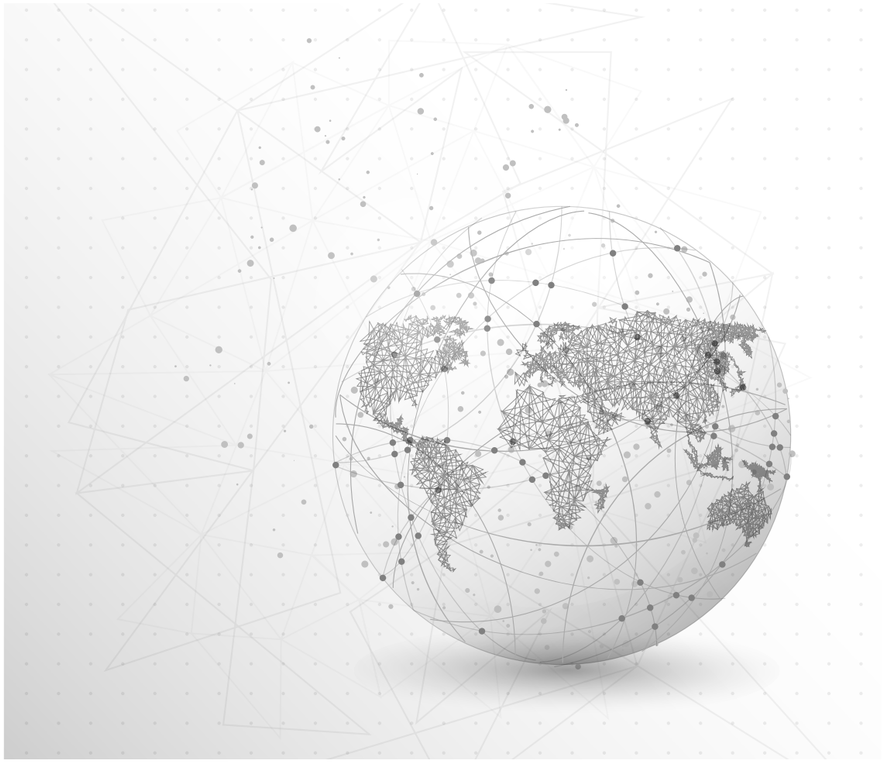
The analysis also underscored the importance of examining power dynamics as "drivers of drivers" of mistreatment—fundamental forces that shape broader systemic issues. By understanding these dynamics, transformative interventions can be developed. The authors called for further exploration of social norms, the structural design of health systems, and the effectiveness of multi-level approaches in promoting respectful maternity care.

In conclusion, this synthesis highlights the importance of examining power dynamics across all levels of the social ecological model to understand and combat the mistreatment of women in maternity care. An interdisciplinary approach and a willingness to challenge existing power structures are essential to fostering respectful and equitable maternal healthcare systems. The study provides a critical framework for addressing these issues and underscores the transformative potential of integrating insights into power dynamics into health policy and practice.

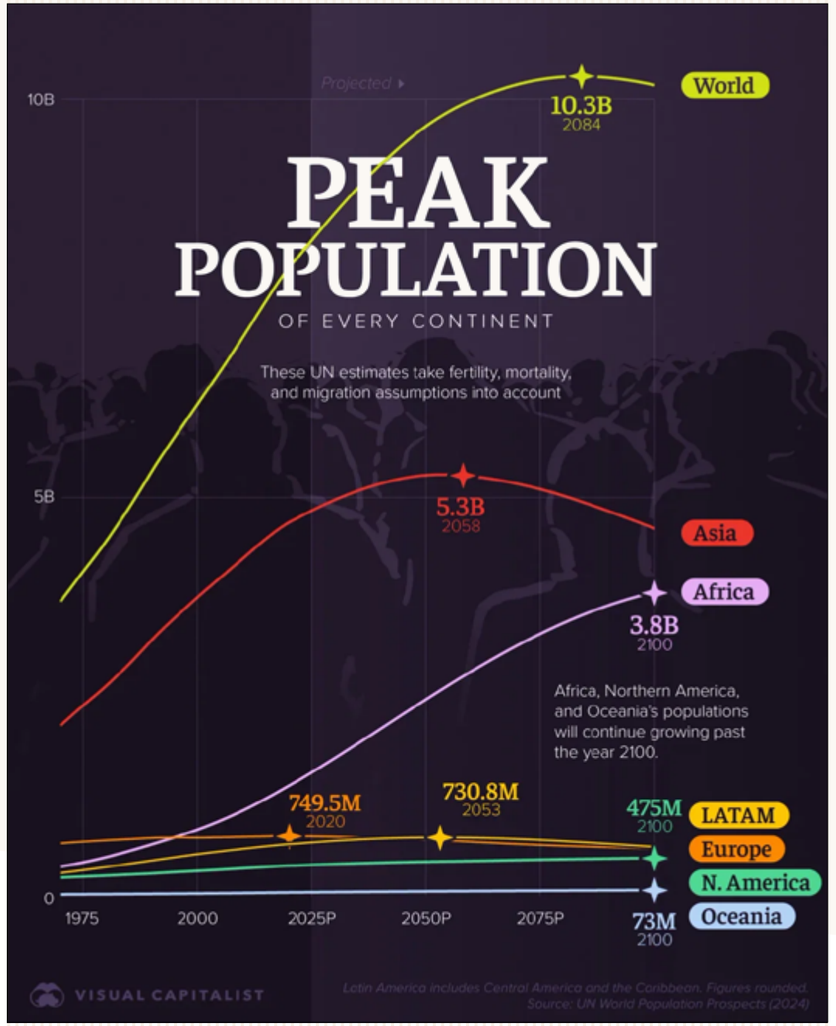
The hierarchical relationship between patients and providers often reinforced unequal dynamics.

Social norms play a significant role in shaping how women are treated during childbirth, often perpetuating mistreatment

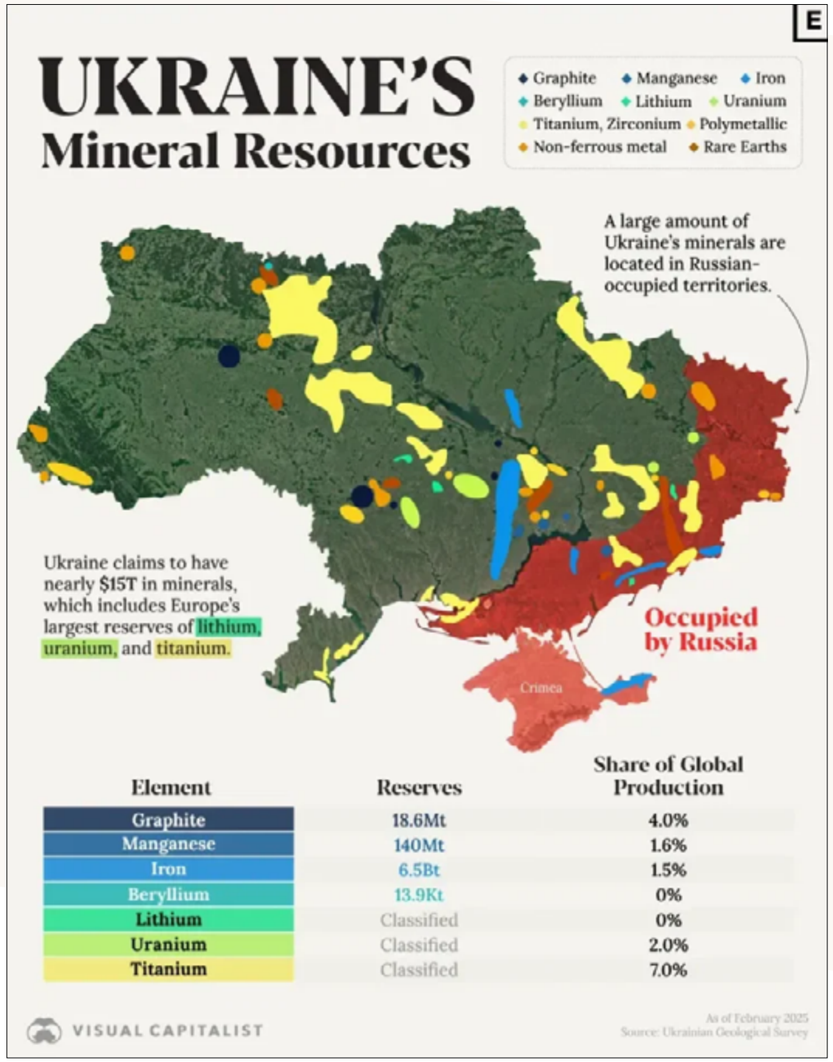
3 The future in numbers



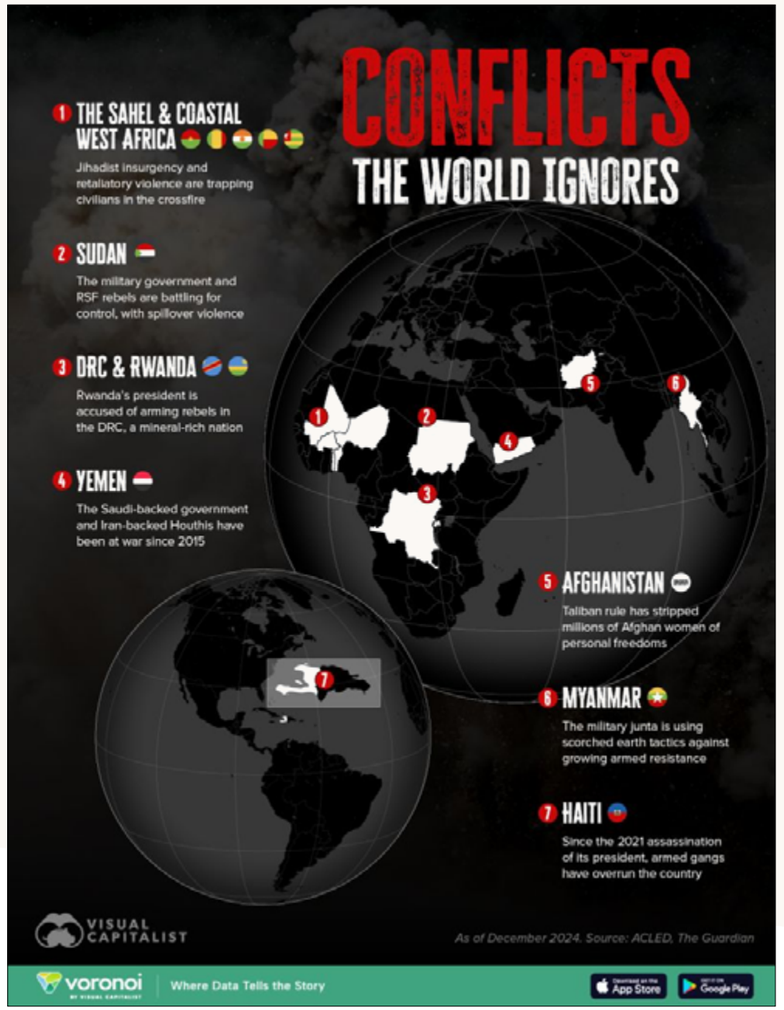
When Every Continent's Population Will Peak This Century

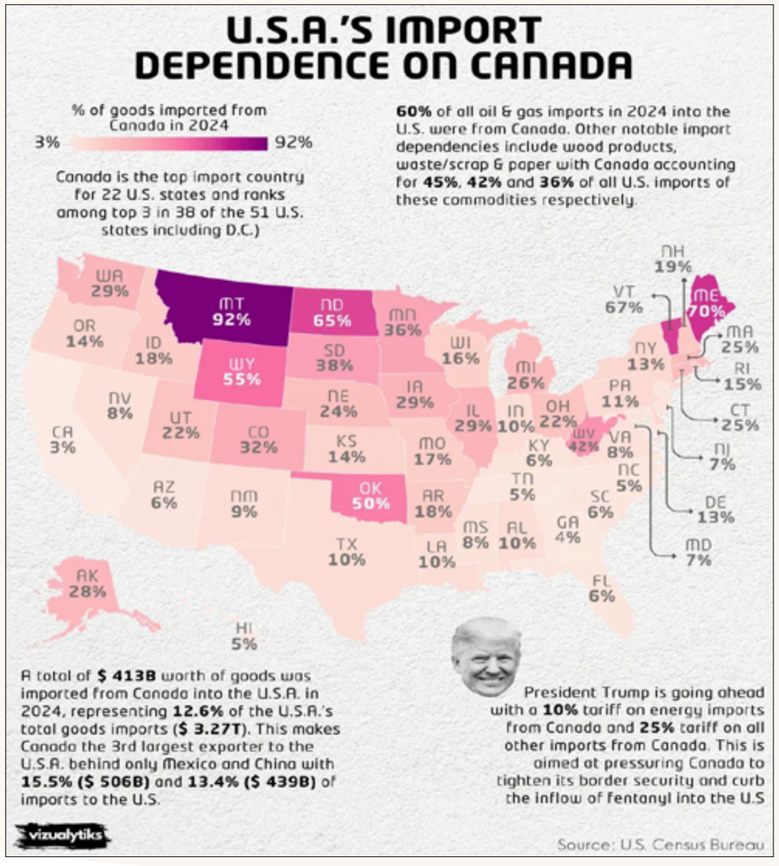


Ukraine's Mineral Resources



Ongoing Conflicts in the World, Aside From Ukraine & Palestine



How Top Economies Performed in the Last 10 Years, After Adjusting For Inflation

Import Dependence Between U.S.A and Canada