munk school
OF GLOBAL AFFAIRS & PUBLIC POLICY

UNIVERSITY OF TORONTO

SciencesPo

Master of Global Affairs & Master in Public Policy

POLICY RECOMMENDATIONS TO ENHANCE THE INTERNATIONAL DEBATE ON THE IMPACTS OF NEUROTECHNOLOGIES: INSIGHTS FROM AN EPISTEMIC COMMUNITY ANALYSIS

Policy Brief

Luisa Verónica Arroyo Revatta

May, 2024

Introduction

These days international organizations are discussing the impact of neurotechnologies. This policy brief delves into this international discussion and makes three recommendations to address the lack of diversity in the voices and stakeholders in the debate, the lack of concrete evidence, and the lack of public knowledge. In that sense, this policy brief explains what neurotechnology is and presents the findings of a previous epistemic community's research. Then, it addresses the policy issues identified in the international debate, highlighting the theories and challenges they entail. Finally, it provides recommendations to different stakeholders on each of these policy issues.

The current situation

Neurotechnology

Neurotechnologies make what happens in the brain readable to a computer by measuring the electrical activity in the brain. Depending on the activity the person is performing, a portion of the brain gets activated, which means that neurons are communicating and exchanging neurotransmitters.[1] In theory, these technologies are built to understand, monitor, and model the activity of the human brain.

One type of neurotechnology is the Brain Computer Interface (BCI), which is a device that allows direct communication between the brain and an external device. This device records the electrical activity generated by neurons, using electroencephalography technology[2], or Functional magnetic resonance imaging[3]. The BCI then transmits the recording to another device.

The development of this technology is not new and its research has been mostly in the clinical field. (Magubane, 2023) Currently, BCIs record medical information, not about thoughts, intentions, or emotional states. (Magubane, 2023) Nevertheless, there are research projects that are trying to find patterns and predict thoughts using artificial intelligence. (Tang et al., 2023)

Research findings on epistemic communities

Since 2017, a group of academics have proposed the creation of new rights to protect people in the face of a "regulatory vacuum" in the use of neurotechnologies. According

[1] The information provided in this part comes from the class "Brain and behavior: an introduction" taught by Dr Anna Scarnà.
[2] Electroencephalography measures the electrical activity in the brain through metal discs placed throughout the skull.
[3] Functional magnetic resonance imaging measures blood flow in the brain when there is brain activity.

to them, neurotechnologies that can read and modify the brain put at risk mental integrity, autonomy, privacy, and other aspects. In that context, an epistemic community research was conducted to understand this group and assess their influence in the international forum.

The findings show the existence of a community of practice made up of three epistemic communities led by Marcello Ienca, Rafael Yuste, and Nita Farahany. They propose to acknowledge four, five and, one additional right respectively in international instruments. While they managed to introduce the debate and participate actively in the international forum[4], not all the conditions exist for them to be completely influential. On one side there are positive aspects such as an unknown complex topic, a political opportunity, their knowledge of how to position their call and manage bureaucracy, no active rival community, and their success in creating agents within the community. Nevertheless, the negative aspects are that their proposal lacks concrete data and consistency with existing standards and that international decision-makers are opting for diverse interpretations instead of adopting it.

What are the Policy Issues?

Three policy issues that emerged around the active participation of the epistemic communities in the debate at the international forum:

1. The international debates seem to be monopolized by a group of mostly academics that solely discuss the creation and recognition of new rights. Therefore, in the international debate, only one voice is heard and is brought by the same people who usually come from academia.

2. The arguments that these communities used to support their proposal are not based on concrete data. These communities comment on a hypothetical situation that could happen in the future. The only judicial case on the protection of brain

[4] At the local level, they have achieved binding regulatory and public policy changes in Chile, Uruguay, Brazil, Mexico, Spain and the United States that use the same language that these communities propose. However, internationally, the response of international organizations such as OECD, UNESCO, UN Human Rights Council, OAS, Latin American Parliament, European Union and Council of Europe has been mixed.

activity can be interpreted as a case that was premeditatedly constructed[5]. Discussing a hypothetical situation creates speculation and fears.

3. The population has little familiarity with neurotechnologies[6]. Currently, the discussion is dominated by people knowledgeable about the topic and does not reach the general public which could allow them to make informed decisions and participate in public debate.

Why are the Policy Issues important?

Prioritizing the policy issues mentioned above is urgent because the international debate towards a response is already occurring alongside legislative progress in some countries. This rush could be influenced by the increase for financing in the development of these technologies.[7] Nevertheless, not improving the debate and decision-making process can lead to hasty decisions.

At a local level, the community led by Rafael Yuste has been introducing important legislative and constitutional changes in Chile, Uruguay, Brazil, Mexico, Spain, and the United States. (Neurorights, n.d) In the international forum, this debate has already occurred at the Inter-American Juridical Committee of the Organization of American States that approved two declarations regarding the impact of neurotechnology on human rights and setting principles. (2021) (2023) Additionally, the Latin American and Caribbean Parliament promulgated the Neurorights Models Law for Latin America and the Caribbean being the first international document that adopted the idea of neurorights defined as the "new international legal framework of human rights (...)". (2022, p.15)

---

[5] This is the case of Girardi vs. EMOTIV Inc that was ruled by the Supreme Court of Chile in 2023. Guido Girardi Lavin, former senator and promoter of the constitutional reform to include neurorights in the Chilean constitution, acquired the "Insight" device by EMOTIV, accepted the company's privacy policy, and used the device. Later, he requested to delete his data, to which EMOTIV requested the payment of a subscription, since without a subscription EMOTIV keps the anonymized data for research purposes. This information was not new to Girardi. Girardi then filed a complaint against EMOTIV to the Court of Appeals of Santiago because not being able to access his data violated his rights to mental integrity and privacy. The court rejected the claim and Guido appealed, and the Supreme Court of Justice ruled that Girardi's rights to privacy and physical and mental integrity were affected because the device had not been evaluated by the health authority and didn't have a customs destination certificate. The Court did review whether there was a problem of intrusion into privacy or lack of autonomy but rather resolved based on the fact that EMOTIV had not been audited for its commercialization in Chile. (Girardi vs. EMOTIV Inc, 2023)

[6] As an example, in Chile, where the biggest legislative change was made, the press played a big role in opening a conversation about the five neurorights. (La Tercera, n.d) (Meganoticias, 2020, October 8) (24 horas TVN Chile, 2021, December 7)

[7] According to the UK ICO citing the prediction of the Regulatory Horizons Council, this technology will be worth USD 17.1 billion by 2026. (Australian Human Rights Commission, 2023).

Nowadays, the debate is at UNESCO, the Human Rights Council, and, possibly in the European Union[8]. Additionally, the Organization of American States principles based on data protection, Latin American Parliament,

UNESCO is working on the Recommendations on the Ethics of Neurotechnology, for which it formed a group of twenty-four high-level experts among whom there are the people who lead the epistemic communities. This group is preparing a draft that, after a public consultation, will be sent to an intergovernmental consultation later in 2024. A final text will be presented at the general conference in November 2025. (UNESCO, n.d.)

Additionally, the United Nations Human Rights Council Advisory Committee presented a draft report on the impact, opportunities, and challenges of neurotechnology on human rights at the 31st meeting (2024). This draft recognizes the neuro rights initiative but suggests using the existing human rights to create a soft-law document in the form of a principle or standards. (Human Rights Council Advisory Committee, 2024, parr 88, 89)

The risk that these discussions on ethical principles or soft law do not take the policy issues into account is that hasty decisions may be made. This can worsen the situation or create unexpected situations for those who use neurotechnologies. Likewise, a hasty decision could generate a problem in the legal protection of human rights enshrined in various legal instruments and jurisprudence. This is why this is a crucial moment where it is necessary to take action to improve the debate.

Main supporting theories

The three policy issues are supported by: the multistakeholder model, the evidence that informs the development of public policies, and the right to education seen from a new social contract for education.

The multistakeholder model implies "Individuals and organizations from different realms participating alongside each other to share ideas or develop consensus policy" Internet Society (2016). This model has been an essential pillar in Internet Governance for years due to the particularity of that space. The model works if the decisions impact people with diverse interests if it entails rights and responsibilities that may overlap in different sectors and geographies, if expertise is needed, and where legitimacy and acceptance

[8] On October 24, 2023, the Council of Europe promulgated the "León Declaration on European neurotechnology: a human focused and rights' oriented approach". (Spanish Presidency Council of the European Union, 2023) This document indicates that the European Union is in an incipient phase and it asks that the European Commission evaluate the need to create standards for neurotechnologies used in the defense of human rights.

influence the implementation of public policy. This participation is important because creating knowledge must involve the contribution of several fronts. Giving authority to a group of elite specialists can further limit access to power by the public. (Hass, 1992, p. 24) and put at risk the trust and support of those outside the process. (Internet Society, 2016)

"Evidence informed policy making" gives importance to the role that evidence[9] plays in the design, implementation, and evaluation of public policies. Evidence serves as a source of memory, provides information on how to adapt public policy decisions to local needs, and allows the impact of a public policy decision to be evaluated. On the other hand, the absence of evidence means that a public policy decision does not coincide with reality. In technological aspects, this reality could be designed under the idea of code is law, giving prevalence to the decisions of those who do know the reality, which in this case are the designers of the technology.

The right to education seen from a new contract for education proposed by UNESCO seeks "An expanded vision of the right to education throughout life, and a commitment to education as a public societal endeavor and a common good" (UNESCO, 2023). In that sense, emphasis is placed on digital literacy as "a basic right in the twenty-first century; without them, it is increasingly difficult to participate civically and economically." (International Commission on the Futures of Education, 2021, p.34) Likewise, it is understood that education involves creating a culture "that encourages technological experimentation with recognition of risks and an understanding that there are not simple, universal solutions". (International Commission on the Futures of Education (2021, pp. 34-35). This education project therefore leads to greater public participation which is another principle of good governance.[10]

Challenges and unknowns

While addressing the policy issues is crucial, it is also important to note the unknowns and challenges that come with it. On the one hand, the unknowns hold a special place because, as it is mentioned above, there are no cases that can illustrate the dangers and damages. Therefore, it is not easy to determine the best answer to these hypothetical problems. Likewise, there is no certainty about how and at what speed this technology will evolve in the coming years. This futuristic nature and lack of knowledge

[9] Evidence is understood as "a systematic investigative process employed to increase or revise current knowledge" (Ianger, Tripney and Gough, 2016, p.6) and can come from scientific evidence, policy evaluation, anecdotal observation, among others.

[10] According to a definition by the African Development Foundation: "Participation is a process which all members of a community or organization are involved in and have influence on decisions related to development activities that will affect them". (ADF, 2014, as cited in Henk, 2019)

also has an impact on the population that is mostly unaware of the advances in neurotechnologies.

These unknowns are accompanied by the challenges of the subject. The first of them is to understand that neurotechnology is a disruptive technology. Discussing a technology that can read or modify a person's cognitive process involves challenging paradigms and the foundations of society. The second is the lack of knowledge that local authorities could have on the subject. This lack of knowledge about a complex issue can lead to adopting positions that provide greater security but are not necessarily correct or appropriate. A third challenge is the diversity of legislation and realities. This is important because any regulatory response must be sensitive to this diversity. On the one hand, there is diversity in the legislation of each country in matters such as privacy, free self-determination, identity, and free thought, among others. While some have years of jurisprudence and tradition in other jurisdictions such as the United States, there is no robust system of privacy protection. Likewise, the adoption of technology will vary depending on the region, culture, and purchasing power.

Recommendations

Based on the research, three urgent recommendations are made:

1. Creating and supporting new epistemic communities and different voices

International organizations that are or will discuss the issue should consider including other voices to enrich the discussion based on the multistakeholder model. It is essential to include at the table those who have contrary or different opinions from the current majority group and stakeholders such as associations that help people with diseases that affect their motor skills, consumer associations, defenders of digital rights, legal and public policy specialists, private sector members or unions that develop and market neurotechnologies, and financing groups.

Funders should consider the debate on the impacts of neurotechnology as a space to fund. The funding is necessary to enable, grow, and maintain the participation of groups, activists, and associations throughout the discussion, design, and implementation of the solutions that international organizations are working on.

To assess the adoption of this recommendation it is suggested to use the questions proposed by Internet Society:

"• Do those significantly affected by a decision-making process have a chance to be involved in it?
• What practical barriers to entry exist – language, cost of participation, technical and process knowledge, cultural norms? Are there activities, processes, or alternative routes to mitigating them?
• What formal barriers to entry exist – membership criteria and restrictions – and are they absolutely necessary? What alternatives exist to widen participation and include more voices?
• Do all stakeholders have a shared understanding of the importance of transparency to inclusion, legitimacy, participation, and quality of output?
• Are all stakeholders committed to being as transparent as possible at all times – across inputs, process, and outputs – and documenting when and why transparency is not possible?" (Internet Society, 2016, p.5)

2. Building evidence to enrich the discussion

Companies and the technical community that is developing neurotechnology should consider providing information about their real advances. This information can be furnished in various formats such as periodic reports that show achievements and how they are working to comply with current legislation. In that sense, not only experts who are familiar with patents or technical jargon have information but also everyone else.

Companies should consider opening communication channels with different stakeholders to allow public accountability, dialogue, and feedback. The objective is to create an environment of trust and responsibility.

To manage evidence, that would be generated through these reports and communication channels, it is advisable to use the OECD principles:

• Appropriate evidence for the policy concern
• Ensuring integrity (honest brokerage)
• Accountability
• Contestability
• Public representation in decision making
• Transparency in the use of evidence
• Building evidence through emerging technologies and mobilizing data (OECD, 2020, p.27-54)

3. Conducting projects to educate and build a trustworthy environment

States, international organizations, and any stakeholder working on education should consider creating or supporting the creation of educational programs on the advances and impact of neurotechnology. People who use this technology for medical purposes and other purposes must have sufficient information to make decisions about its use. This implies knowing the advances, risks, challenges, and opportunities of neurotechnology. This mutual knowledge reduces the information asymmetry, creates an environment of trust, and gives the person tools to participate either civically or judicially.

Development banks, funding groups, and private companies should consider funding digital literacy education that tackles new technologies in their annual plans. This financing would help create and sustain educational programs within the vision of a new social contract for education.

Conclusion

This policy paper explains the ongoing policy problem around the debate about a normative response to the potential risks of neurotechnologies. And as a response, it makes three urgent recommendations to decision-makers from international organizations to improve the debate process. Because, while addressing future risks of emerging technology is important, it is also crucial to do it in a way that the debate is based on actual data, diverse opinions, and supported by common knowledge of the topic.

Bibliography

24 horas - TVN Chile (2021, December 7). Chile será el primer país del mundo en proteger neuroderechos. *24 Horas - TVN Chile*. https://www.youtube.com/watch?v=4acwx8ZmgqQ

Australian Human Rights Commission (2023, July 2). Protecting Cognition: Human Rights and Neurotechnology. United Nations. Retrieved March 5, 2024, from https://www.ohchr.org/sites/default/files/documents/hrbodies/hrcouncil/advisorycommittee/neurotechnology/02-nhris/ac-submission-nhri-australia.pdf

Dr Scarnà, Anna. (2023). Brain and Behaviour: An Introduction. Oxford University Department for Continuing Education.

Girardi vs. EMOTIV Inc, N 1.080–2020 (Corte Suprema de Chile 2023) https://www.doe.cl/alerta/11082023/20230811001

Haas, P. M. (1992). Introduction: Epistemic Communities and International Policy Coordination. International Organization, 46(1), 1–35. http://www.jstor.org/stable/2706951

Henk, Addink. (2019). 'The Principle of Participation', Good Governance: Concept and Context (Oxford, 2019; online edn, Oxford Academic, 23 May 2019), Retrieved May 6, 2024 https://doi.org/10.1093/oso/9780198841159.003.0009

Human Rights Council Advisory Committee (2024). Draft report on impact, opportunities and challenges of neurotechnology with regard to the promotion and protection of all human rights (A/HRC/AC/31/CRP.1). Retrieved March 12, 2024, from https://www.ohchr.org/sites/default/files/documents/hrbodies/hrcouncil/advisorycommittee/sessions/session31/a-hrc-ac-31-crp-1.docx

International Commission on the Futures of Education (2021). *Reimagining our futures together: A new social contract for education*. UNESCO. https://doi.org/10.54675/ASRB4722

Internet Society (2016). Internet Governance Why the Multistakeholder Approach Works. Retrieved May 3, 2024, from https://www.internetsociety.org/wp-content/uploads/2016/04/IG-MultiStakeholderApproach.pdf

Langer, L., J. Tripey and D.Gough (2016). The Science of Using Sciences Researching the Use of Research Evidence in Decision-Making e PPI EPPI-Centre. Retrieved May 6, 2024 from https://eppi.ioe.ac.uk/cms/Default.aspx?tabid=3504

La Tercera (n.d.). *Neuroderechos*. https://www.latercera.com/etiqueta/neuroderechos/page/2/

Magubane, N. (2023, June 28). Challenges and advances in brain-computer interfaces. Penn Today. Retrieved March 10, 2024, from https://penntoday.upenn.edu/news/challenges-and-advances-brain-computer-interfaces?utm_source=Penn+Today+-+Newsletters&utm_campaign=51198082c5-6/29/23:+Addressing+neurotechnology&utm_medium=email&utm_term=0_-a88f34f16b-[LIST_EMAIL_ID]

Meganoticias (2020, October 8). ¿Qué son los neuroderechos? | El proyecto de ley que busca protegerlos. *Meganoticias*. https://www.youtube.com/watch?v=F2lRV409C8c

Neurorights Foundation (n.d.). *Advocacy*. https://neurorightsfoundation.org/Advocacy

OECD. (2020). Mobilising Evidence for Good Governance: Taking Stock of Principles and Standards for Policy Design, Implementation and Evaluation, OECD Public Governance Reviews, OECD Publishing, Paris, https://doi.org/10.1787/3f6f736b-en

Parlamento Latinoamericano y Caribeño (2023, May 20). Ley Modelo de Neuroderechos para América Latina y el Caribe. Retrieved March 18, 2024, from https://parlatino.org/wp-content/uploads/2017/09/leym-neuroderechos-7-3-2023.pdf

Spanish Presidency Council of the European Union (2023, October 24). León Declaration on European neurotechnology: A human focused and rights' oriented approach. Retrieved March 13, 2024, from https://rm.coe.int/programme-round-table-en/1680a46847

Tang, J., LeBel, A., Jain, S., & Huth, A. G. (2023, May 1). Semantic reconstruction of continuous language from non-invasive brain recordings. Nature Neuroscience. Retrieved February 22, 2024, from https://www.nature.com/articles/s41593-023-01304-9

The Inter-American Juridical Committee (2021, January). Declaration of the Inter American Juridical Committee on Neuroscience, Neurotechnnologies and Human Rights: New legal challenges for the Americas. Organization of American States. Retrieved February 28, 2024, from https://www.oas.org/en/sla/iajc/docs/CJI-DEC_01_XCIX-O-21_ENG.pdf

The Inter-American Juridical Committee (2023, March). Inter-American Declaration of Principles on Neuroscience, Neurotechnologies, and Human rights. Organization of American States. Retrieved March 5, 2024, from https://www.oas.org/en/sla/iajc/docs/CJI-RES_281_CII-O-23_corr1_ENG.pdf

UNESCO (2023). *Q&A with the UN Special Rapporteur on the right to education*. Retrieved May 3, 2024, from https://www.unesco.org/en/articles/qa-un-special-rapporteur-right-education

UNESCO (n.d.). Towards an International Instrument. Retrieved March 15, 2024, from https://www.unesco.org/en/ethics-neurotech/expert-group?hub=83294

United Nations Human Rights Council (2024). 31th session of the Advisory Committee. Retrieved March 12, 2024, from https://www.ohchr.org/en/hr-bodies/hrc/advisory-committee/session31/index