Mandate of the Special Rapporteur on the right to education

ARTIFICIAL INTELLIGENCE IN EDUCATION:

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**Abstract** – In the region of education the role of artificial intelligence can offer both opportunities however there are significant challenges for the teachers and the students. We need to be very careful so that this immensely powerful technology can be used to improve the student outcomes and promote equality in the classroom. We will also need to ensure the unique role that a teacher plays in a student's growth development and learning capabilities is preserved. It is necessary to make sure that the teacher-student relation and interface is only enhanced by using artificial intelligence rather than replacing it.

**A new dawn** – Artificial intelligence in teaching can definitely enhance the learning experience in many ways such as personalised tailored learning exercises especially for those who have specific challenges like learning disability. So we make a more just and a kind world where everybody is getting the same opportunity to learn and rather people are not left behind due to their less abilities. The different artificial intelligence tools can be used to guide not only educators but also other members of the family of the student or the institution for an increased engagement and motivation that can work miracles. In the developing world where there are significant challenges in infrastructure the use of these novel technologies can really work wonders and make the difference.

Artificial intelligence have a significant and demonstrated proof that it improves a student's performance however there needs to be checks and balances to make sure that the technologies are used in the right direction and does not fall for malicious activities. These new technologies can evaluate a student's specific progress and provide them with targeted feedback thus enabling them and their families to identify areas where they need to improve. A very unique feature of this technology is that it can study the behaviour patterns of individual students and assist the retention level and determine if they need any special or additional assistance in certain subjects or radius like science mathematics languages. These patterns can also pick up if the student is deviating and in the current unsecured geopolitical world we live in to pick up any trends of these young minds being diverted towards violent extremism or other forms of activities that are not intended safe for the state. Thus artificial intelligence will enhance the learning experience of the student and can push the students higher to achieve new heights however we have to be very careful and mindful that older algorithms might not work sometimes and can have disastrous and a dramatic effect on the child's mental health. This is something quite unique and we have to monitor the effect of these technologies on the mental health of the young students because at such a young age whilst being exposed to these new kinds of technologies it can have blowback with a deep push back in the students mind and can lead to detrimental results.

The use of artificial intelligence in education can also significantly reduce the cost of education and the establishment of delivering that education quite significantly and it is always being cited as one of the key reasons for different institutions and countries to adopt these technologies and to move forward. Optimization of resources in the educational institutions can be prioritized when jobs such as grading, scheduling, and data management could easily be done by use of these modern technologies. These technologies also continuously evaluate analyse and provide real-time data to the teachers and the students on the learning outcomes and behaviour of the students. But these technologies also expose the risk of big data as a superpower or a supercomputer taking in charge of the learning and the minds of these young individuals who are just entering their journey of life. There are very significant risk and challenges of these technologies being hacked into by foreign forces which could be malicious and even terrorists in nature.

We want to emphasise that there is currently, especially in the developing world's huge gap and a challenge in the lack of data privacy and security associated especially with these new modern and novel systems. Artificial intelligence systems normally generate and collect enormous amounts of data including personal information which is very sensitive from many young students point of view and the family members as well. This data is a prime target for cyber-attacks and breaches and hence this data is the new currency of ransomware where external threats always linger and appear to bridge them for monetary or other gains. The use of this data and cloning of identity based on breaches from this data by individual organisations or even larger syndicates and even rogue nations who have their own artificial intelligence cyber-attack teams can cause catastrophic collapse in the society and disturb the fabric of the society.

It is to be borne in mind that in the 21st century we live in we also require a 21st century-enabled educational ecosystem that can deliver and reshape the future of our next generation. We have to also bear in mind that post the planetary pandemic of COVID-19 has catapulted and catalyzed us to this new digital age. In the developing world for example *in Southeast Asia Bangladesh* can be highlighted as a key example where they have successfully introduced an inclusive blended education ecosystem empowered by artificial intelligence means. Other countries for example in Africa are also improving their infrastructural network because access to these new technologies also requires an immense amount of electricity supply and infrastructural improvements on the Internet connectivity be it wired or wireless. It is a concept of multimedia classrooms in which students from remote areas or who were traditionally challenged or whose education was not delivered to them can also join and enjoy the benefits of this technology and get educated in that process.

These technologies also provide a very interactive and an effective tool and portal for the teachers where they continue their professional development and make sure that they have access to huge and vast resources of information that they can tailor and deliver to their individual students' needs. These technologies were not available prior to the introduction of artificial intelligence in the education system and hence the enhancement it can deliver to the teacher's profile for them to make sure that the next generation of students whom they are training will perform to the best of their capabilities.

When we examine specific issues for example algorithmic transparency, cybersecurity ponder abilities, unfairness, bias and discrimination coma legal issues, intellectual property issues, adverse effects on workers, privacy and data protection issues, liability for damage, and lack of accountability, we begin to question and make sure that this new technology should not be an obstacle in our progress. On international legal and human rights as documented by the United nations in 2019, Council of Europe 2017,  the European Parliament ([2017](https://www.sciencedirect.com/science/article/pii/S2666659620300056#bib0064); [2018a](https://www.sciencedirect.com/science/article/pii/S2666659620300056#bib0066); [2018b](https://www.sciencedirect.com/science/article/pii/S2666659620300056#bib0067); [2019](https://www.sciencedirect.com/science/article/pii/S2666659620300056#bib0069), [2020](https://www.sciencedirect.com/science/article/pii/S2666659620300056#bib0071)a, [2020b](https://www.sciencedirect.com/science/article/pii/S2666659620300056#bib0072), [2020](https://www.sciencedirect.com/science/article/pii/S2666659620300056#bib0073)c), the European Commission ([2018a](https://www.sciencedirect.com/science/article/pii/S2666659620300056#bib0051), [2018b](https://www.sciencedirect.com/science/article/pii/S2666659620300056#bib0053), [2020](https://www.sciencedirect.com/science/article/pii/S2666659620300056#bib0055)), [European Commission for the efficiency of justice (CEPEJ) (2018)](https://www.sciencedirect.com/science/article/pii/S2666659620300056#bib0052), and the [European Data Protection Supervisor (2016)](https://www.sciencedirect.com/science/article/pii/S2666659620300056#bib0060) it is the responsibility of the academic and the government to make sure that these fundamental rights are upheld.

The lack of algorithm IC transparency is a key problem and there have been instances where these technologies once they have done their evaluation for example people who were denied jobs or refused loans were put on no-fly lists or denied benefits without knowing. These kinds of technologies and their outcomes are already in effect in the public discourse for the lives of millions of people especially in the *Republic of China* where even quote and legal decisions are done by an artificial intelligence-empowered robot. Hence we have to make sure that the human interface and these fundamental rights are not infringed when we embrace these new technologies. We must most certainly give up our public liberties and cherished freedom at the bait of these attractive artificial algorithms.

An EU Parliament STOA study ([2019](https://www.sciencedirect.com/science/article/pii/S2666659620300056#bib0069)) outlined various policy options to govern algorithmic transparency and accountability, based on an analysis of the social, technical, and regulatory challenges; each option addresses different aspects of algorithmic transparency and accountability:

1. awareness raising: education, watchdogs and whistleblowers

2. accountability in public-sector use of algorithmic decision-making

3. regulatory oversight and legal liability

4. global coordination for algorithmic governance.

More specific solutions mooted to promote algorithmic transparency include algorithmic impact assessments.

**Secure Surroundings** – Cyber security is also of penultimate importance especially if we're dealing with students whose age could be very young win the start or they could be in higher senior graduation or university level. Regardless of this deployment of artificial intelligence quote lead to adversely impacted the fundamental citizen's rights and thus the issue of cyber security and its former abilities pose a significant threat that are often hidden or camouflaged behind the so-called or perceived benefits in education when it comes to artificial intelligence.

The digital divide especially in developing countries is something that can cause a significant hurdle in the implementation of these kinds of technologies for example almost most of the basic primary-level classrooms and schools in the African continent will not meet that fast artificial intelligence-enabled technological requirements to deliver desired results. Unequal access to technology within a community impacts student performance. Students without internet access are at a distinct disadvantage because they lose out on the opportunity to practice computer skills, are closed off from outside research, and [may fall behind in their lessons](https://www.brookings.edu/research/bridging-digital-divides-between-schools-and-communities/). Digital inequality among students has long-term effects on how youth will prepare for a tech-dependent workplace. Jobs that rely heavily on computers often look for digital skills, including word processors, video calling, and database management. In many companies, [young people are being used as unofficial tech support](https://www.oslash.com/google-it-first).

Despite the rapid expansion and the fast reach of information technology around the world a majority of students and teachers living in rural and low-income communities, especially in the African continent still lack basic and fundamental Computer literacy thresholds. Almost everyone of these students and these communities in the rural African schools do not have access to an individual piece of equipment at home or they rely heavily on shared resources in the educational institutions they attend. These kinds of restrictions on handicaps may have a profound negative impact as the digital divide could force the students who do not take advantage of this technology to be taking a permanent back seat behind the big wheel of economy and social prosperity. Information technology especially incorporated with artificial intelligence in education should be a basic fundamental right and countries in the developing world should focus and allocate resources to make sure that the next generations are not barred from this great new approach and they are equally given a share of this incredible new technology.

According to the World Economic Forum although the planetary pandemic dramatically accelerated the pace of digitalization worldwide the fundamental and basic access to digital technologies are still unavailable to almost 2.6 billion people globally. This is a significant amount of individuals who remain unconnected to the Internet and thus is the fundamental core factor of the digital divide. It is estimated by the World Economic Forum that 33% of the global population which is one in three remains offline and behind the grid. The fundamental barriers to connectivity or affordability of daters and devices are the lack of necessary digital skills and a lack of access to digital infrastructure and skills. For an average person including a student or a family who wishes to benefit from these artificially enabled digital study tools, the cost is the primary factor. For example, the cost of fixed-order mobile broadband service remains too high, especially in developing countries, and can potentially be almost as high as 10% of the average family income which is a significant amount. These costs if compared to higher-income countries are drastically low hence another reason for this digital divide. It is to be borne in mind that access to affordable digital services and technologies including the digital skills required to maneuverer and handle them is no longer a luxury but it is a basic necessity of our society today. It does not matter where a person was born or where that person lives but it is fundamental that everybody in our globe should have some means of communication and access to the digital services that are available and hence access to these technologies can only ensure the necessary and full participation to build the 21st century for our planet.

**In Conclusion** – Access to affordable smart devices and dispensing appropriate digital skills in these communities our key to harnessing the benefits of a digital and cashless economy which will catapult these developing countries to the next level of benefit and economic prosperity. The digital revolution globally is an empowering force for people across countries and continents however unfortunately billions especially those who are the most vulnerable sections of our population and society remain offline or poorly connected. It is the cold of the collective consciousness of the Western world especially those who have benefitted from these technologies and tools to come up with novel solutions and to make sure that nobody is left behind from this digital revolution and especially when it comes to the students who will need these fundamental basic skills to progress to the next decade.

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