

The Education and The New Pedagogy of Metalearning

Marius-Costel, EȘI¹

Abstract

The global education develops competencies and skills necessary to operate in a global environment. These include intercultural communication skills, transnational collaboration, critical thinking and problem solving in a global context, as well as digital and global literacy skills. These skills are essential in the globalized world, where interactions and collaboration with people from various other cultures and countries are commonplace. For example, students and teachers have the opportunity to participate in exchange programs, international partnerships and joint projects, which allow them to understand and connect with other educational systems and cultures. These experiences enrich learning and promote the international cooperation.

In this context, the purpose of this work is to carry out a theoretical analysis of the educational dimension in the context of supporting the idea of meta-learning. Such an image involves an epistemic analysis of the concept of "meta-learning" from the perspective of strategies for augmenting one's autonomy in learning. Reported in the school environment, such an approach becomes significant in that we can talk about optimizing the school performance. The meta-learning improves the educational effectiveness and it is defined as a process of awareness on the part of learners of the need to monitor their own learning progress.

Keywords:

Meta-learning; meta-learning pedagogy; learning autonomy; professional development.

¹ PhD Student at Babes-Bolyai University, Faculty of Psychology and Educational Science, esi.marius@stud.ubbcluj.ro, and Lecturer PhD at Stefan cel Mare University of Suceava, Romania, mariusesi@yahoo.com

Introduction

The society and the technology are evolving rapidly, and the change in the schooling system is necessary to adapt to these changes. The continuous development in the schooling ensures the adequate preparation for students in the face of new challenges and opportunities related to technology, globalization, the labor market and other social and economic aspects. By exploring and adopting new teaching and assessment methods, advanced educational technologies, student engagement strategies or innovative pedagogical approaches, the schooling environment can stimulate the students' creativity, critical thinking and adaptability. So, by identifying existing needs and challenges and by implementing appropriate development strategies and practices, the schooling can ensure a better educational experience for students and achieve better learning and development outcomes.

Under these conditions, can we talk about a personalization of the method of learning? Who learns algorithmically these days? How does a person plan such an endeavor if they have to consider the idea of creative strategies? Is there still a need for a teacher in the learning process? All these inquiries arise, problematize and reformat the whole pragmatic dimension of learning.

Thus, if we refer to the idea of pragmatism in learning, we certainly have to consider the new opportunities that open up with the emergence and development of new information technologies. Such technologies only facilitate the knowledge itself. However, it remains to be seen if the effects they generate can also acquire the quality of the pragmatic knowledge.

Certainly, the whole process of streamlining the way in which knowledge is realized becomes complex if we try to unravel the creative process. In this sense, we can ask ourselves if a knowledge arising as a result of the manifestation of a creative process can be quantified and capitalized starting from the needs and opportunities of the interpersonal relationships. Also, we can ask ourselves: "What is more effective in the deeply digitalized/technological society of knowledge: a centralization of knowledge or a decentralization of it?" Can we talk about epistemic risks in such a context?"

The education as a facilitator in the shaping and the development of the human personality

The education is extremely useful in shaping the human personality and it plays a vital role in the development of the individual in multiple aspects. Here are some reasons that highlight the importance of education. The education provides opportunities for acquiring the knowledge, the skills and the competencies necessary for successful personal and professional development. (Berger, 1973). Through education, the individual learns to read, write, calculate, think critically, solve problems and communicate effectively. (Șchiopu, Verza, 1981). These skills are fundamental for interacting with the world and for one's personality development.

Thus, we believe the first argument is that the education plays a key role in the shaping of the values and the thinking system of an individual. Through education, ethical and moral principles are promoted and the respect, tolerance, responsibility and equity are instilled. (Nicola, 1973) The education contributes to the shaping of a vision of the world and the development of a set of personal values which guide one's behavior and decision-making.

Furthermore, our second argument is that the education plays a significant role in the development of an individual's social and emotional skills. Through the interaction with other students and teachers, the communication, the collaboration and the empathy as well as conflict resolution skills are learned. (Mialaret, 1981). The education promotes the development of healthy emotional intelligence, which enables the individual to understand him and the others, to manage his emotions and to establish healthy and harmonious relationships.

The third argument can be given by the fact that the education encourages the critical and creative thinking, which are essential skills in the development of the human personality. Through the learning process, the individual learns to evaluate and analyze information, to express his ideas and to find innovative solutions to the problems encountered. These skills develop the critical thinking, the intellectual curiosity and the adaptability. The education plays a crucial role in the formation of values and ethical conduct. (Văideanu, 1988) Through education, the principles of morality, respect, responsibility and

equality are promoted. These core values help one to build a strong personality and they guide the individual towards taking ethical actions and making ethical decisions.

The education offers the possibility of self-development and personal fulfillment. By exploring various fields of knowledge and developing skills, the individual discovers his passions and interests, he develops his potential and he builds his own identity. The education encourages one's self-discovery and expression, providing opportunities for growth. Through education, individuals have access to greater opportunities for personal and professional development. The education opens doors to careers, it improves employment prospects and it increases the level of financial independence. The education also provides personal satisfaction and fulfillment by developing passions and achieving one's potential. Therefore, the education is paramount in the shaping of the human personality with a significant impact on the individual development, cognitive growth, social and emotional skills, value formation and access to opportunities.

The meta-learning itself is a contextualized approach that, from our viewpoint, must take into account the centralization/decentralization of the learning process. That is precisely why, from our standpoint, it is necessary to reformat and reset in conceptual terms the distinction and, implicitly, the relationship between the meta-learning and the meta-cognition.

The very idea of meta-learning involves a number of aspects related to the dimension of the critical thinking and the self-reflection. (Winters, 2011) But today's society, as we previously showed, is also deeply marked by the creativity. In other words, the human being must always be present by himself in what we like to call the self-knowledge and the experiential knowledge. Through self-knowledge, the human being acquires new ontological, epistemological and axiological meanings intended to reformat the very idea of self-learning in today's society.

On the one hand, the awareness of the self-learning process can be correlated with the professional and personal performance of individuals. On the other hand, the emergence and development of the AI allows for a resettlement in structural terms of what education itself stands for in today's society.

Globalization: cause or effect of the new education?

In an ever-changing world where the technology and the information evolve rapidly, the education must adapt and respond to current needs and challenges. The new education approaches focus on developing essential 21st century skills such as the critical thinking, the problem solving, effective communication, collaboration, creativity, digital skills and entrepreneurship. In this context, we can say that these skills are necessary to face the current demands and challenges and to adapt in a constantly changing society. (Son, Lee, and Kim, 2023)

The new education approaches support the idea of lifelong learning, admitting that learning does not stop with the graduation of high-school or university. People must be prepared to continuously learn and adapt to new demands and opportunities in the professional and social environment. (Schwartz, 1976). The new education approaches encourage the development of the autonomous learning and the (self) improvement skills. Also, the new education approaches focus on providing education that is relevant and applicable in the real life. (Ionescu, 2007). They emphasize the connection between the theory and the practice, the integration of practical experiences and the applying of knowledge in real contexts. (Vettoruzzo, Bouguelia, Vanschoren, 2024) The goal is to develop skills that can be immediately used and leveraged in the real world, thus contributing to increasing the chances of success and personal fulfillment.

The development of such skills also reveals a recalibration of the new generation that has a totally different way of learning unlike the previous generations. Such an idea is justified if we analyze to what extent the new generation still has the motivation necessary for the learning process. To the same extent we can be interested in whether the new skills formed can replace, supplement or develop the previous ones. We find that the new generations come with different ways of approaching the learning contents. Such ways basically reflect an acute need to relate knowledge to everything related to novelty, creativity and not necessarily critical thinking. It is certain that in any informational society the need for critical thinking must be satisfied as

much as possible, but the need for creativity arises and "outbids" everything related to the approach to the learning process. (Frans, Ho, Chen, Abbeel, and Schulman, 2017).

The humanity is facing several major problems in terms of environmental protection and sustainable development. These interconnected issues require focused global efforts to address the challenges and promote the sustainable development. (Petrescu, 2003). It is important to implement policies and measures that promote the sustainable use of resources, the reduction of greenhouse gas emissions, the protection of ecosystems and biodiversity, the development of clean technologies and the promotion of a more equitable and sustainable society.

Thus, one of the most urgent and serious problems is the climate change, caused mainly by the greenhouse gas emissions caused by the human activities. (Dinu, 1979). These changes have devastating effects on the environment and the society, including the increase in the global temperatures, the melting of glaciers and ice caps, the rising of sea levels, the extreme weather events and the ecosystem degradation. (Manoliu, Ionescu, 1998).

The fast population growth and the uncontrolled urbanization lead to urban sprawl, land clearing and loss of natural habitats. This creates problems related to the urban planning, pollution, inadequate infrastructure and limited access to natural resources. (Khoee, Yu, Feldt, 2024; Rojanschi, Bran, Diaconu, 1997). The environmental problems and the sustainable development are often associated with social and economic inequities. (Schaul and Schmidhuber, 2010). The vulnerable communities, especially those in developing countries, suffer the most from the environmental degradation, the climate change and the lack of access to the ecological resources and services necessary for a decent living. In conclusion, in order to preserve hope in the future of our planet, the protection and conservation of resources and the environment will have to be a priority policy for all areas of the human activity, even ahead of the raising of the living standard.

On the one hand, the excessive and unsustainable use of natural resources, such as fossil fuels, wood, fresh water and mineral resources, clutters the environment and leads to the depletion of these vital resources. (Doya, 2002).

Conclusions

The idea of meta-learning involves a conceptual and theoretical reconsideration when we try to integrate it in a context deeply dominated by the new scientific revolutions. The emergence of new AI technologies is proof of this. Thus, we can see that the idea of a real teacher can be substituted or even supplemented by the idea of a virtual teacher. However, we do not know to what extent we can expect an equal, or at least an effective contribution of the two actors at the level of the learning process.

Under these conditions, the epistemic problematization focuses especially on the idea of sustainable education in the context of the emergence and accelerated development of the artificial intelligence. The meta-learning process also takes part in these conditions of new reformations and recalibrations in the area of the educational practice. In other words, we believe that the learning and the self-learning strategies need to be re-evaluated and recalibrated. We bring to the fore the assumption that relates to the flexibility of the learning process, as well as the contents that facilitate such an approach.

The relevance of understanding such a learning process presupposes precisely the understanding of the mechanisms that make possible the strategies assumed in an educational, but also in a social context. Moreover, the decisions that are taken at the level of such a process must, from our viewpoint, be correlated with the needs and demands of the people impacted with those of the new labor market. We are thus talking about the rethinking, the re-evaluating, and the re-assuming of the learning as well as new ways of approaching the way in which learning is possible.

References

- Berger, G. (1973). *Omul modern și educația sa*. București: Editura Didactică și Pedagogică.
- Dinu, V. (1979). *Mediul înconjurător în viața omenirii contemporane*. București: Editura Ceres.
- Doya, K. (2002). Metalearning and neuromodulation. *Neural Networks* 15, 495–506.

- Finn, G., Abbeel, P. and Levine, S. (2017). Modelagnostic meta-learning for fast adaptation of deep networks. In *International Conference on Machine Learning*, 1126–1135.
- Frans, K., Ho, J., Chen, X., Abbeel, P., and Schulman, J. (2017). Meta learning shared hierarchies. arxiv:1710.09767.
- Khoe, A.G., Yu, Y., Feldt, R.: (2024). Domain generalization through meta-learning: A survey. arXiv preprint arXiv:2404.02785.
- Manoliu, M., Ionescu, C. (1998), Dezvoltare durabilă și protecția mediului, București: Editura H.G.A.
- Mialaret, G. (1981), Introducere în pedagogie, București: Editura Didactică și Pedagogică.
- Nicola, I. (2003), Tratat de pedagogie școlară, București: Editura Aramis.
- Petrescu, I. (2003), Mediul - cercetare protecție și gestiune, Cluj Napoca: Editura Presa Universitară Clujeană.
- Rojanschi, V., Bran, F., Diaconu, G. (1997), Protecția și ingineria mediului, București: Editura Economică.
- Schaul, T. and Schmidhuber, J. (2010). Metalearning. *Scholarpedia*, 5(6), 465-469.
- Schwartz, B. (1976), Educația mâine, București: Editura Didactică și Pedagogică.
- Son, J., Lee, S., and Kim, G. (2023). When meta-learning meets online and continual learning: A survey. arXiv preprint arXiv:2311.05241.
- Șchiopu, U., Verza,(1981), Psihologia vârstelor, București: Editura Didactică și Pedagogică.
- Văideanu, G. (1988), Educația la frontiera dintre milenii, București: Editura Politică.
- Vettoruzzo, A., Bouguelia, M.-R., Vanschoren, J. (2024). Advances and challenges in meta-learning: A technical review IEEE Trans Pattern Anal Mach Intelligence.