

Review of: "Rationality and Scientific Thinking as Foundations for Leadership in the World of Work"

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REVIEW OF

Rationality and Scientific Thinking as Foundations for Leadership in the World of Work

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In view of recent developments in Artificial Intelligence (AI), the authors recommend changing the emphasis of education from learning specific information to a greater effort in how to “learn about learning” (what they refer to as “metacognition”). They argue that this is necessary because, with the change in AI from rule-based decision making to pattern recognition based on artificial neural networks, machines are able to outperform humans in many specific types of tasks. The authors suggest that because humans are still ahead of machines when it comes to metacognition, especially for performing complex tasks, we should focus our education on improving and enhancing our metacognition.

The authors do a good job of explaining to a general audience the concept and workings of pattern recognition using artificial neural networks...and this in itself makes the article valuable. On the other hand, the primary recommendation of the article is for us to focus our education more heavily on improving and enhancing our metacognition. Unfortunately, there is no discussion of exactly how this might be done. As a result, this article is more of an opinion piece that might stimulate conversation rather than a research article that might help advance the teaching of metacognition.

Specific Editorial Comments

You define “metacognition” in the abstract as “...how to learn throughout life” but then change that definition in Section 4 to “...the act of thinking about one’s own thinking,” which is not the same. It would be advisable to use one definition throughout the article.(perhaps the second one?).

The title of the article is somewhat misleading because the article is not really about either “rationality” or “Scientific Thinking” but rather, about changing the focus of education to “learning about learning” so as to maintain an edge over the rise of AI. Also, the use of the words “Leadership in the World of Work” conjures up leadership in a business organization, which is not what is meant here.

In the second paragraph of Section 3, the following sentence is awkward (because of the word “better”): “By knowing more and better about the functioning of the brain...”

The concluding Section 6 is supposed to be a summary of the article, however, the authors introduce a number of sociological problems not previously discussed in the article that they believe may be improved by focusing more on metacognition. I would recommend that this section re-emphasize that metacognition may help us stay ahead of the advance of machine learning through AI. (It should be noted that this recommendation in no way is meant to diminish the final sentence, with which this reviewer is in full agreement).

To emphasize a particular point, the authors sometimes make extreme statements that are not warranted. Here are some examples:

In paragraph 4 in Section 4, the authors state, "Regarding the physical skill, technological advances that have enabled automation by machines, conducted at unprecedented levels, have **eradicated** manual labor in agriculture and industry." This is not true, as evidenced by the large number of migrant workers who still do manual labor on our farms, for example.

In paragraph 4 in Section 4, the authors state, "Especially in more complex systems, in challenges characterized by novelty and focused on the resolution of future problems, our creativity **cannot** be surpassed by machines." Perhaps it would be better to say that our creativity has not yet been surpassed.

In paragraph 2 in Section 5, the authors say, "However, as stated in the text, this change is much faster and more powerful than previous revolutions." I could not find where this is stated previously in the text.

In the first paragraph of Section 6, the authors state: "Throughout the 21st century, along with the flourishing of a digital society that allows everyone free access to an **infinite** universe of information, we have paradoxically encountered an increasing number of people susceptible to fake news, all types of denialism, and baseless conspiracy theories." The amount of information is not infinite.