Review of: "If knowledge were simpler, we would all be wiser"

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Review of “If knowledge were simpler, we would all be wiser” by Michael Wood

Summary

The present manuscript argues that simplifying knowledge would help users understand this knowledge better and faster and that most scientists are either uninterested in this endeavor or prefer to protect their social status by obstructing such simplification. The manuscript proposes various ways in which it may be possible to simplify knowledge and make us all wiser.

Simplicity versus ergonomics

The title of the paper is truly wonderful; it very succinctly expresses what can be achieved with knowledge simplification. Nonetheless, in my view, it is not entirely correct. What is needed is that we tailor our knowledge to the ability of the consumer to comprehend this knowledge. This is not so much a matter of simplifying the knowledge but of presenting it in a more ergonomic way. For example, the German word for train (“Zug”) consists of just three letters and is very simple. Yet, the picture superiority effect suggests that a picture of a train, even though it is more complex, is processed faster and remembered better (e.g., Kramer, Frontiers in Psychology, 2023, Section 1.2). The title, in my view, is thus not entirely correct but it would be a pity to abandon it; I would just set things straight in the paper itself.

Simple versus academic language

Language can be used to communicate but also to bamboozle, divide, and dominate. Indeed, people have literally been killed to prevent them from simplifying our language and from thereby facilitating the easy, worldwide transmission of knowledge (Kramer, Frontiers in Psychology, 2023, Section 5.1). In science, one certainly has the impression that jargon and “academic language” is used far more often than is helpful for clear communication. Academic language may very well amount to grandstanding or an expression of tribalism. Still, one should consider the possibility that many, even quite talented scientists may have difficulty putting themselves in the mind of their audience or readership and may, for this or other reasons, not be talented communicators. There is reason to believe that this is especially a problem in the so-called “exact” sciences (see, e.g., Kramer, Frontiers in Psychology, 2022, Section “The Ultimate Cause”).

Examples of simplification

The manuscript discusses various ways in which it may perhaps be possible to simplify knowledge. It is not entirely clear, however, as also comes to the fore in the appendices, whether the proposals really do all amount to simplifications or whether what constitutes a simplification depends on the circumstances in which the knowledge is used.

In my view, the main point of the paper could be made much more forcefully if the theories and data were used that are abundantly available in educational-psychology journals. Some of these journals focus specifically on how to ergonomically present the Science Technology Engineering and Math (STEM) knowledge in which the author appears to be particularly interested. Popular in these journals is not so much the simplification of knowledge, but the presentation of it in less abstract, more concrete, more embodied, and more practical hands-on ways (for a brief intro and various references, see Kramer, Frontiers in Psychology, 2022, Section “Embodiment versus Abstraction”).

Symbolic versus iconic mathematics

The present manuscript focuses especially on the transmission of statistical knowledge. Statistics is part of mathematics and mathematics is typically expressed with the help of abstract symbols. Abstract symbols place a relatively high burden on people’s semantic memory. Interestingly, an alternative kind of mathematics has been developed, and is continuing to be developed, that is just as rigorous as symbolic mathematics but in which symbols are as much as possible replaced with very simple pictorial representations (icons). Icons are more concrete, easier to picture, sometimes even more tangible, and—as a consequence—they are more memorable than are symbols. For this reason, icons can arguably transmit mathematical knowledge in a more ergonomic way than can symbols (for a psychologist’s take on the matter, see Kramer, Frontiers in Psychology, 2022; for a perspective from mathematicians and computer scientists, see the other references mentioned below; the author may perhaps also be interested in related iconic logic and for this also see the references below).

The author of the present manuscript explains how our present-day numerals can be seen as a simplification of Roman ones. Yet, in iconic mathematics, even simpler numerals have been proposed that are even easier to work with. Iconic mathematics allows users to deal with such numbers in a similar way as with beads on an abacus (Kramer, Frontiers in Psychology, 2022)--the device that has simplified calculations for literally thousands of years.

Conclusion

In sum, I think there is an abundant, highly relevant literature on the topic of the present manuscript that has not been considered but whose discussion would greatly strengthen the otherwise very worthy point the author is trying to make.

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