

Discussion Panel

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A Political Statement

Content Instead Of Devices

[...] Experience of an overwhelming majority of mathematicians has shown that blackboard, paper and direct instruction are better suited [to teach theoretical foundations than digital media].

– press release of the German Mathematical Society (DMV)

November 15, **2017**

Translated from <https://dmv.mathematik.de/index.php/aktuell-presse/presseinformationen>

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Why remove **tools**?

- The press release of the DMV reveals a **fundamental misunderstanding** of digital tools
- Tools are not meant to replace thinking/learning, but can be used **enhance** / **promote** / **motivate** / ... thinking and learning.

Computer - the Swiss Army Knife Of Mathematics

- Digital tools are ultra-versatile
- Applications are endless
- (Mathematical) Software is the key (FMC '99)

<http://www.msri.org/workshops/133>

<http://www.msri.org/realvideo/In/msri/1999/fmc99/kortenkamp/1/index.html>

Source: <https://www.amazon.de/dp/B000R0JDSI>



- Choosing the right tool is difficult!
- Always consider the context
- It depends on what you want to do!
- “Use the giant Swiss army knife” is **meaningless**



Law of the instrument

“I suppose it is tempting, if the only tool you have is a hammer, to treat everything as if it were a nail”

- Abraham Maslow (1966)
The Psychology of Science

(many other references, including the
“Birmingham Screwdriver”)

See also https://en.wikipedia.org/wiki/Law_of_the_instrument

DMV statement

Paper, blackboard and classroom discussion are the Birmingham Screwdrivers of the overwhelming majority of mathematicians.

Let us show them what digital tools can do!

- Motivate
- Visualize
- Restrict actions to help to develop mental models
- Hands-on experience with abstract models
- Act as a referee
- Give hints and guidance
- Allow for customization
- Show the need for analyzing structures
- many, many more **educational design patterns**

K.: *Guidelines for Using Computers Creatively in Mathematics Education*, CBMS Issues in Mathematics Education, vol. 14, 2007.

<http://www.ams.org/books/cbmath/014/14>

Instead of a Demo...

Please visit
cindyjs.org !

Follow-up
project of
Cinderella...

