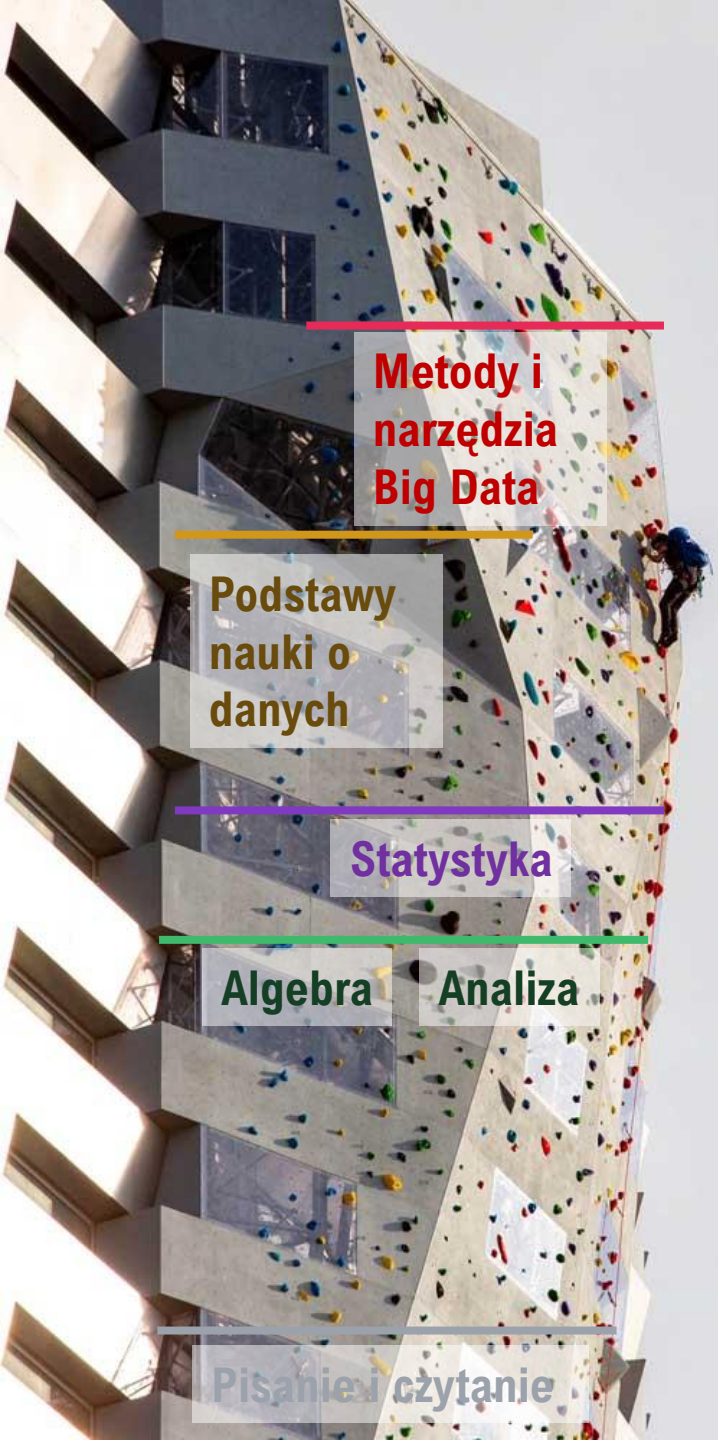
Na czym polega uczenie się

Jarosław Drapała

- Przyglądanie się
- Działanie
  - ✓ *Zryw*
  - ✓ *Systematyczność*


Metody i narzędzia Big Data
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Letter | Published: 31 October 1970

Development of the Brain depends on the Visual Environment

COLIN BLAKEMORE & GRAHAME F. COOPER

Nature **228**, 477–478 (1970) | Cite this article

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Abstract

IN a normal cat, neurones of the visual cortex are selective for the orientation of lines and edges in the visual field, and the preferred orientations of different cells are distributed all around the clock[1]. Hirsch and Spinelli[2] have recently reported that early visual experience can change this organization. They reared kittens with one eye viewing vertical stripes, the other horizontal, and found that out of twenty-one neurones with elongated receptive fields all were monocularly driven, and in all but one case the orientation of the receptive field closely matched the pattern experienced by that eye.

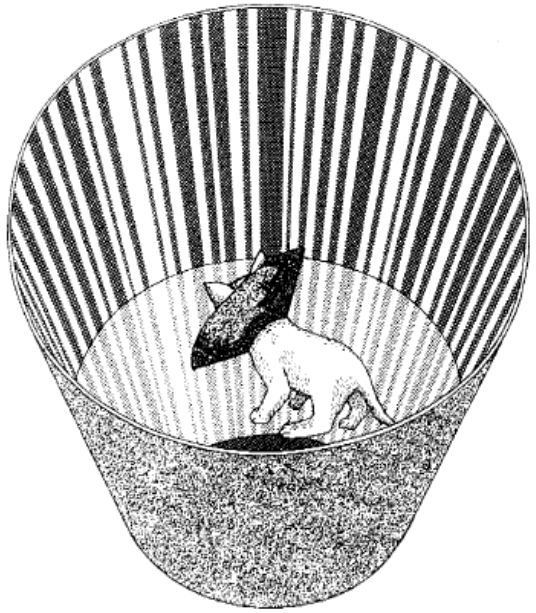

Fig. 1. The visual display consisted of an upright plastic tube, about 2 m high, with an internal diameter of 46 cm. The kitten, wearing a black ruff to mask its body from its eyes, stood on a glass plate supported in the middle of the cylinder. The stripes on the walls were illuminated from above by a spotlight. The luminance of the dark bars was about 10 cd, m^{-2} and of the bright stripes about 130 cd. m^{-2}: they were of several different widths. For this diagram the top cover and the spotlight have been removed from the tube.

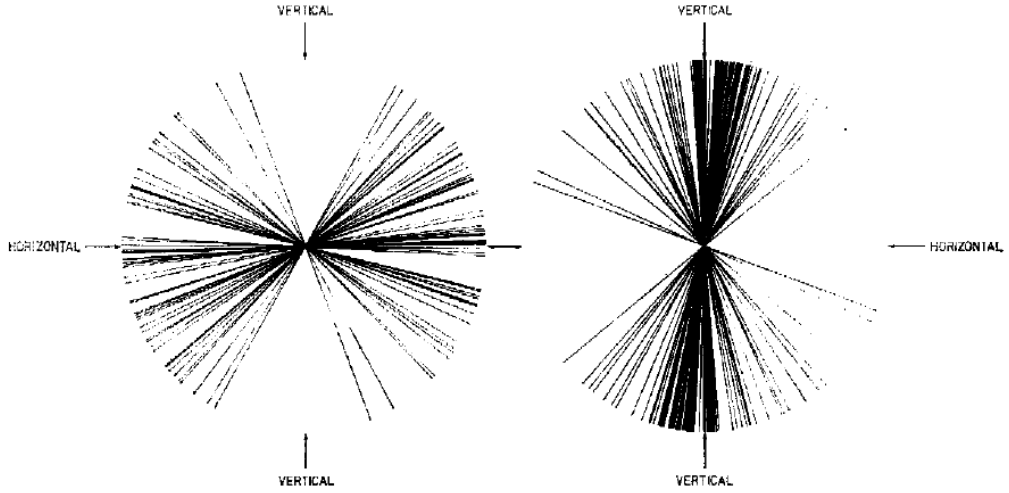

Fig. 2. These polar histograms show the distributions of optimal orientations for fifty-two neurones from a horizontally experienced cat on the left, and seventy-two from a vertically experienced cat on the right. The slight torsion of the eyes, caused by the relaxant drug, was assessed by photographing the pupils before and after anaesthesia and paralysis. A correction has been applied for torsion, so the polar plots are properly orientated for the cats' visual fields. Each line shows the optimal orientation for a single neurone. For each binocular cell the line is drawn at the mean of the estimates of optimal orientation in the two eyes. No units have been disregarded except for one with a concentric receptive field and hence no orientational selectivity.

Evidently the visual experience of these animals in early life has modified their brains, and there are profound perceptual consequences. But we do not think that there is merely passive degeneration of certain cortical neurones because of under-activity. For we did not notice any obvious large regions of "silent" cortex, corresponding to the "missing" cortical columns. It seems instead that the visual cortex may adjust itself during maturation to the nature of its visual experience. Cells may even change their preferred orientation towards that of the commonest type of stimulus; so perhaps the nervous system adapts to match the probability of occurrence of features in its visual input.

Generalization, simple recurrent networks, and the emergence of structure

Jeff Elman

Department of Cognitive Science
University of California, San Diego
elman@crl.ucsd.edu

the visual system of cats. Blakemore and Cooper (1970) demonstrated many years ago that systematically depriving a cat of exposure to horizontal stripes during early life resulted in failure of neurons to develop which were sensitive to horizontal stripes.

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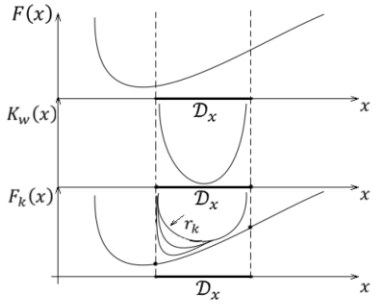
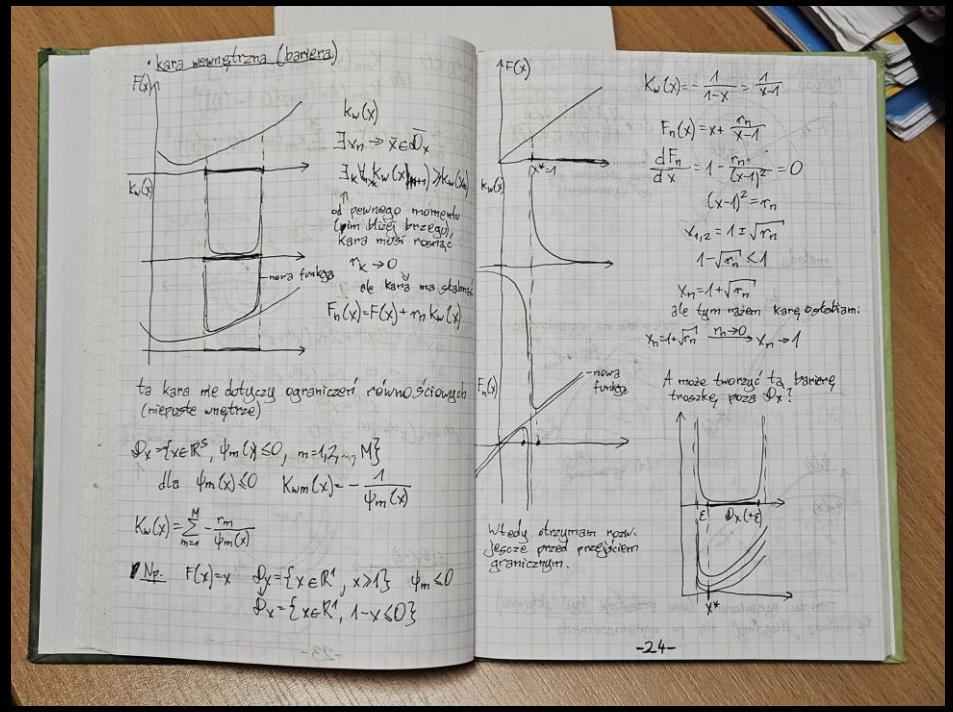
Kary wewnętrzne (bariery)



$r_k > 0 \qquad \lim_{k\to\infty} r_k = 0$



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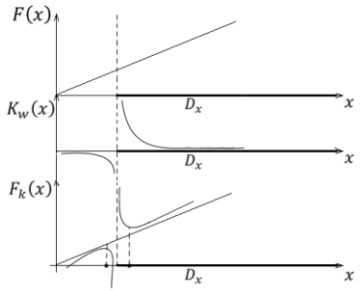
Przykład

$F(x) = x;\ \mathcal{D}_x = \{x \in R^1, x \geq 1\} \equiv \{x \in R^1, 1 - x \leq 0\}$



$$K_w(x) = \frac{-1}{1-x} = \frac{1}{x-1}$$

$$F_k(x) = x + r_k \frac{1}{x-1}$$

$$F'(x) = 1 + \frac{-r_k}{(x-1)^2} = 0$$

$$x_k = 1 \pm \sqrt{r_k}$$

$$x_k = 1 - \sqrt{r_k} \notin \mathcal{D}_x$$

$$x_k = 1 + \sqrt{r_k} \in \mathcal{D}_x$$

$$\lim_{n\to\infty} x_n = 1$$

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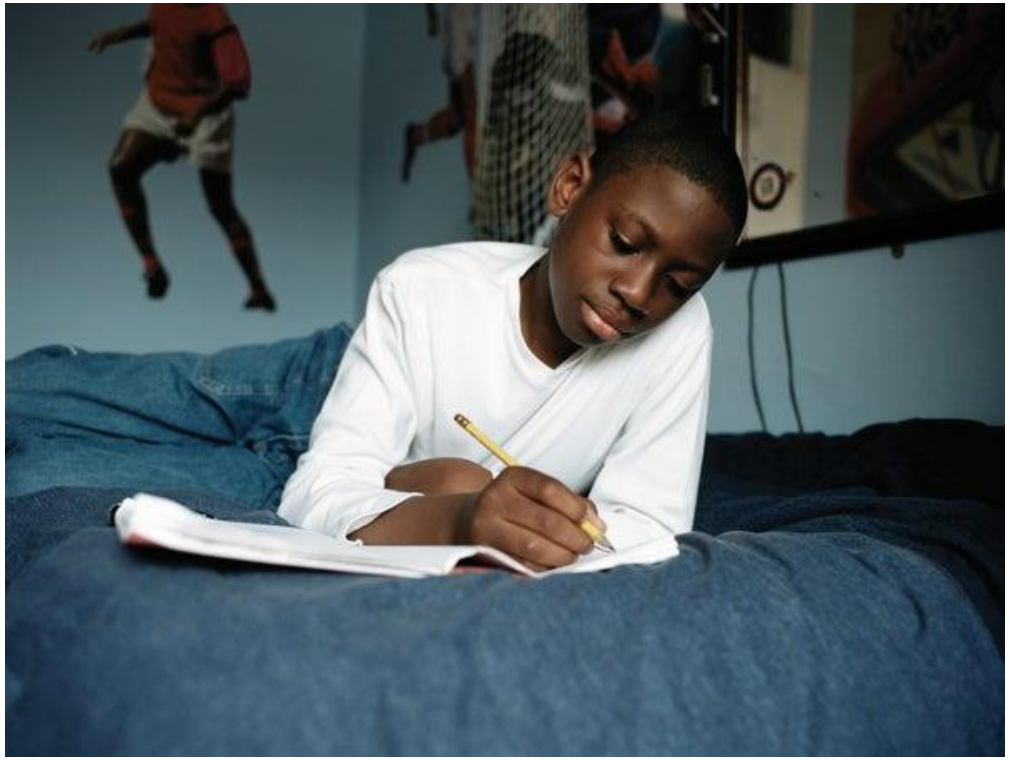
Why Writing by Hand Is Better for Memory and Learning

Engaging the fine motor system to produce letters by hand has positive effects on learning and memory

BY CHARLOTTE HU EDITED BY LAUREN J. YOUNG



ORIGINAL RESEARCH article

Front. Psychol., 26 January 2024

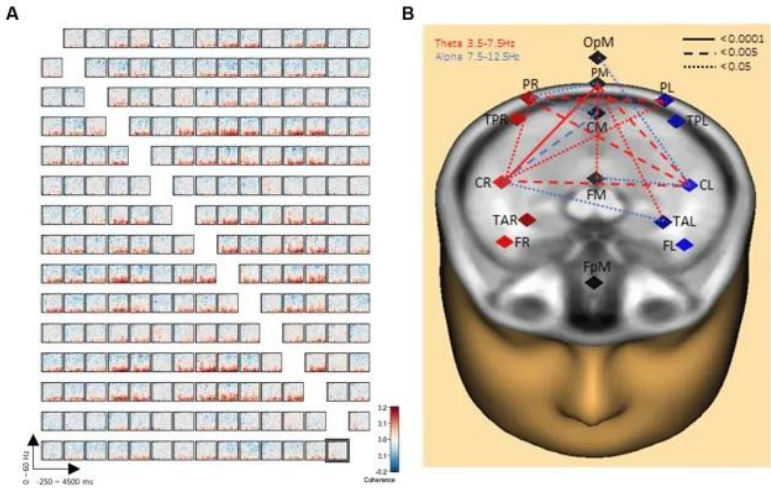
Sec. Educational Psychology

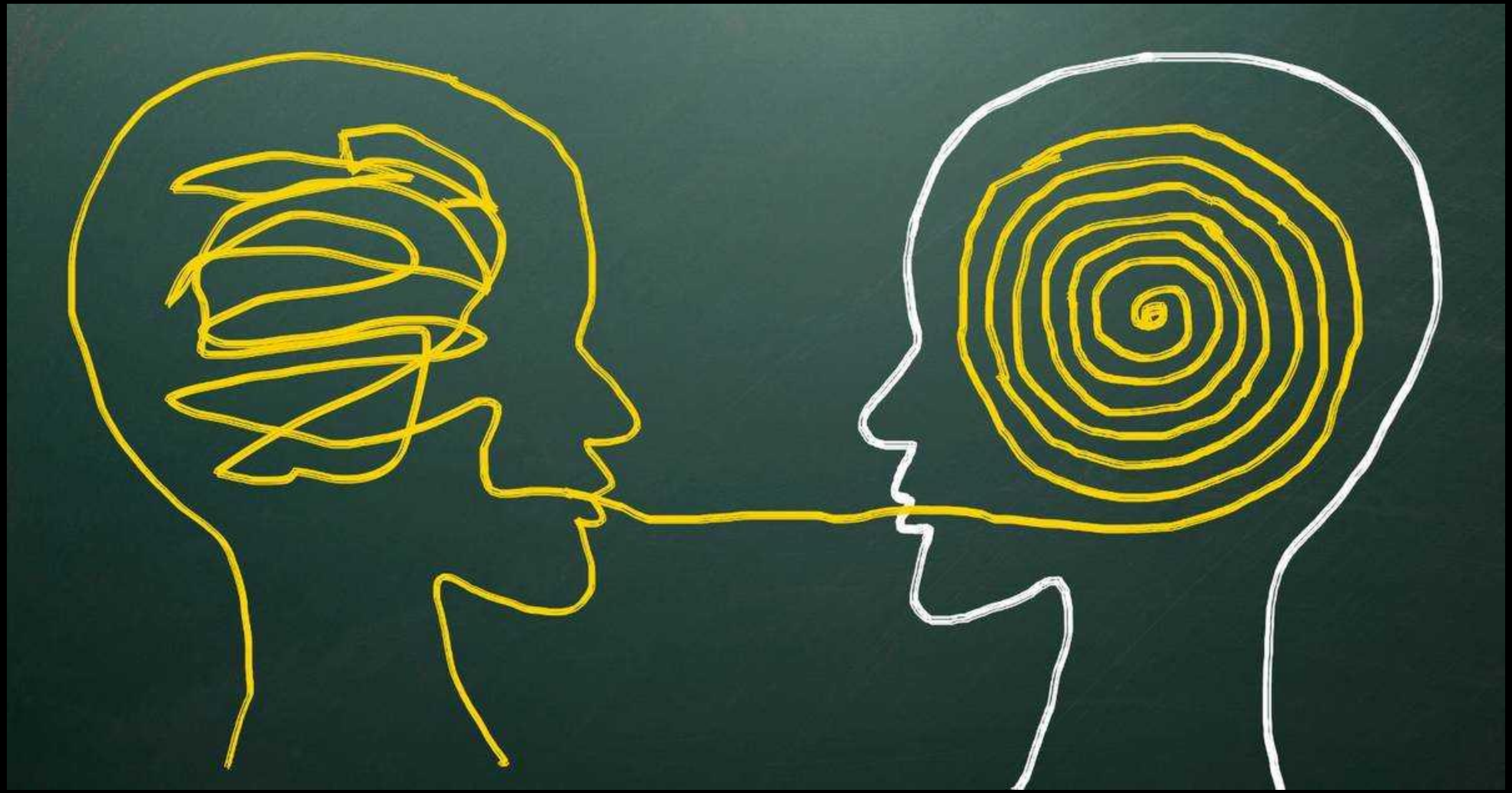
Volume 14 - 2023 | https://doi.org/10.3389/fpsyg.2023.1219945

Handwriting but not typewriting leads to widespread brain connectivity: a high-density EEG study with implications for the classroom


F. R. (Ruud) Van der Weel 
Audrey L. H. Van der Meer *

Developmental Neuroscience Laboratory, Department of Psychology, Norwegian University of Science and Technology, Trondheim, Norway





Nowoczesne formy kształcenia

- Uczenie problemowe – ang. *Problem-Based Learning*
- Kształcenie oparte na badaniach – ang. *Research-Based Learning*
- Uczenie przez dociekanie – ang. *Inquiry-Based Learning*
- Myślenie projektowe – ang. *Design Thinking*
- Instruktaż rówieśniczy – ang. *Peer instruction*
- Metoda sokratejska – ang. *Dialogic teaching*
- Odwrócona klasa – ang. *Flipped Classroom*
- Active learning

Nowoczesne formy kształcenia

EUROPEAN ACADEMIC RESEARCH
ISSN 2286-4822
www.euacademic.org

EUROPEAN ACADEMIC RESEARCH
Vol. II, Issue 6/ September 2014

Impact Factor: 3.1 (UIF)
DRJI Value: 5.9 (B+)

Traditional Didactics vs. Modern Didactics. Dialogue, Lecture and Debate as active-participative methods useful to the teaching and learning activities of the social science disciplines

RALUCA MARINELA SILAGHI
PhD Student in Philosophy
Babeș-Bolyai University, Cluj-Napoca
Romania

Active Learning vs Traditional Lecture. Which Impacts Students More?

Teresa Sarrica

ACADEMIC SKILLS FOR STANFORD STUDENTS

TOP TEN LEARNING STRATEGIES

1. **Plan and manage your time.** Use a planner, iCal, whatever works for you. If it's not in writing, it probably won't happen.

2. **Thread lectures, reading, discussion, homework, etc.** You'll get more out of lectures if you think about them afterwards, and you'll get more out of your homework if you contemplate the lectures. It's the big circle of learning.

3. **Organize your knowledge.** That which is meaningful is memorable. That which is organized is meaningful.

4. **Learn in layers.** Deep learning of complex material is not a one-and-done endeavor. One lecture, or one pass at the text is not usually enough. Learning takes time and is optimized by engaging in multiple activities (listening, thinking, doing, writing, talking).

5. **Manage your procrastination.** This bus doesn't stop at the magical land of later. Breaking things down into smaller pieces will help. For more tips, take a look at our handout on Procrastination.

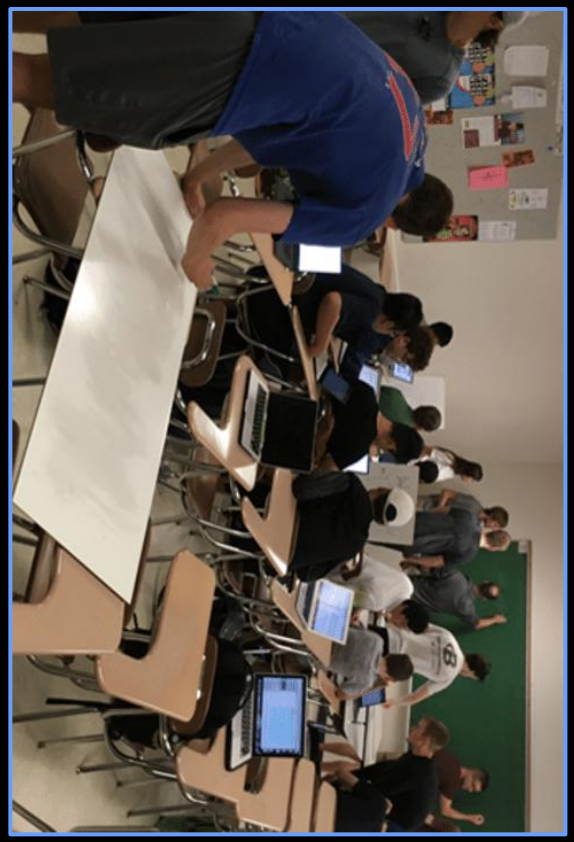
6. **Take notes.** Notes are that lovely breadcrumb trail that leads you back to how you made sense of what you learned. And handwritten notes are generally better than laptop notes.

7. **Learn from failure.** As painful as a disappointing grade or criticism of your work is, what you can learn from it will take the sting out.

8. **Make friends with writing.** First drafts are not supposed to be perfect or even good. Give yourself time and permission to mind-dump ideas and then refine iteratively.

9. **Slow down on tests.** Anxiety makes you skip over parts of questions. Read every word carefully.

10. **Meet with an Academic Coach!** Go to academicskills.stanford.edu to book an appointment.




Examining the Nature of Problem-Based Learning (PBL)
FNU
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MAD
BAD

Weryfikacja efektów kształcenia

Weryfikacja efektów kształcenia