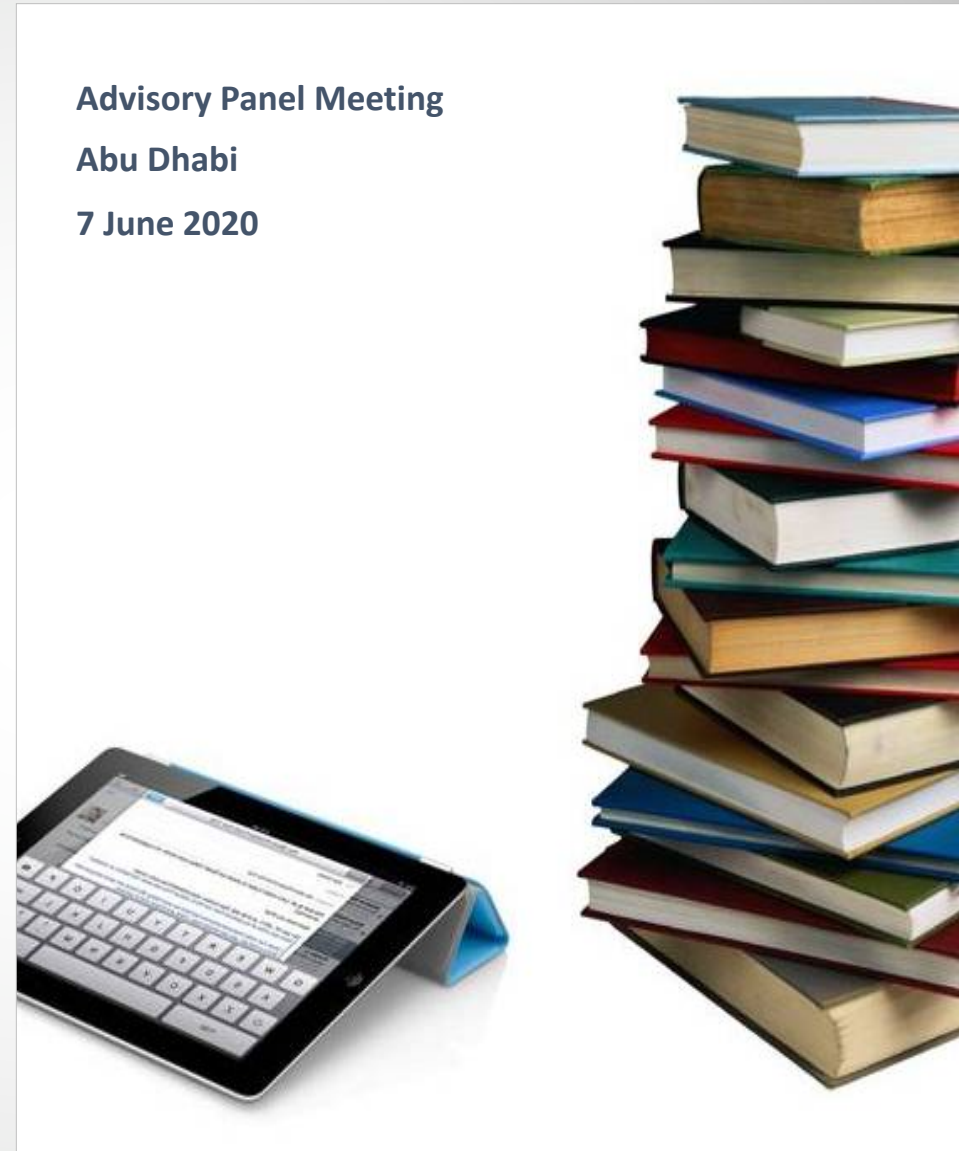


HOW THE PANDEMIC CHANGED EDUCATION AND HOW THE PANDEMIC DID NOT CHANGE EDUCATION

Nuno Crato

A good education system has to be based on a few simple principles that are common to face-to-face and to online teaching. We know... it's easier said than done!



WHAT WE KNEW AND WHAT WE KNOW

ONLINE VERSUS PRESENTIAL

Most studies done at the tertiary level

Most courses in the US (2018: 34.7% at least one online course)

Generally: weak but negative overall effects

Sometimes: positive effects for best students (+25%)

Always: negative effects for weak students (-20%)

For disadvantaged families it's doubly negative: it accentuates academic fragilities and technology challenges

Figlio, D., Rush, M., & Yin, L., «Is It Live or Is It Internet? Experimental Estimates of the Effects of Online Instruction on Student Learning», *Journal of Labor Economics*, vol. 31 (4), 2013, pp. 763-784.

Bettinger, Eric P., Fox, L., Loeb, S., & Taylor, E. S., «Virtual Classrooms: How Online College Courses Affect Student Success?», *American Economic Review*, 107 (9), 2017, pp. 2855-2875.

Cacault, M. P., Hildebrand, C., Laurent-Lucchetti, J., & Pellizzari, M., «Distance Learning in Higher Education: Evidence from a Randomized Experiment», IZA Discussion Papers 12298, Institute of Labor Economics (IZA), 2019.

SCHOOL BREAKS' NEGATIVE EFFECTS

Writing and arithmetic skills suffer more than reading and conceptual understanding

Sometimes almost half of an academic year gain!

No difference between genders

Larger losses for weaker students

Cooper, H., Nye, B., Charlton, K., Lindsay, J., & Greathouse, S., «The effects of summer vacation on achievement test scores: A narrative and meta-analytic review», *Review of Educational Research*, 66(3), 1996, pp. 227-268.

Kraft, M. A., & Monti-Nussbaum, M., «Can schools enable parents to prevent summer learning loss? A text-messaging field experiment to promote literacy skills», *The ANNALS of the American Academy of Political and Social Science*, 674(1), 2017, pp. 85-112.

Meyer, F., Yao, E. S., & Meissel, K., «The summer learning effect in writing in New Zealand», *Reading and Writing*, 2019, pp. 1-28.

SO, SOME WORDS OF CAUTION

“Books will soon be obsolete in the public schools. Scholars will be instructed through the eye. It is possible to teach every branch of human knowledge with the motion picture. Our school system will be completely changed inside of ten years”

“the traditional teacher is replaceable by memory banks, didactics can be entrusted to machines (...). The students will still be taught something: not contents, but how to use terminals.”

“Educated people are not those who know everything, but rather those who know where to find, at a moment’s notice, the information they desire.”

So... we should avoid overarching hasty conclusions

Thomas Edison. 1913

Lyotard. 1979

The Expositor and Current Anecdotes, 1914

Willingham, D.T., 2019, The Digital Expansion of the Mind Gone Wrong in Education, *Journal of Applied Research in Memory and Cognition*, <https://doi.org/10.1016/j.jarmac.2018.12.001>

A BIG SURPRISE AND A SWIFT ANSWER

We are learning that presential teaching in invaluable

Nothing replaces classes

Teaching and learning is a social activity

Teaching: direct cues, direct and fast feedback, daily assessment, daily adaptation, daily verified progresses, personal incentives

Learning: learn to live and work with others

Atlantis Group, *Without action, COVID-19 could reverse decades of global progress on education*, 29th of April 2020, <https://www.varkeyfoundation.org/opinion/covid-19-represents-most-significant-challenge-to-education-since-ww2/>

UNESCO, *Framework for reopening schools*, April 2020. <https://unesdoc.unesco.org/ark:/48223/pf0000373348>

UNESCO, *Distance learning strategies in response to COVID-19 school closures*, <https://unesdoc.unesco.org/ark:/48223/pf0000373305>

OECD, *Schooling disrupted, schooling rethought: How the Covid-19 pandemic is changing education*, 4th of June 2020. https://globaled.gse.harvard.edu/files/geii/files/education_continuity_v3.jpg?m=1590772172

WHAT IS GOOD ONLINE TEACHING?

THE MEDIUM IS NOT THE MESSAGE

Good teaching follows the same principles
It's not the content that should adapt to the medium
Structured subjects and not a collection of activities
Clear goals – standards
Good supporting materials – textbooks, software
Teacher guidance

WHAT DO GOOD TEACHERS DO ONLINE?

Set up clear goals for the students
Call upon previous knowledge
Try to prevent distractions – multitasking is a myth
Dialogue – check for understanding
Implement frequent retrieval

Marshall McLuhan, *Understanding Media: The Extensions of Man*, 1964

Richard Clark, *Learning from Media: Arguments, Analysis, and Evidence*, Greenwich, Connecticut: Information Age Publishing, 2001.

«Remember, it's not the vehicle, but the instructional method used that influences achievement», Paul A. Kirshner & Carl Henrick, *How Learning Happens*, Routledge, 2020.

Mayer, R. E., Applying the science of learning: Evidence-based principles for the design of multimedia instruction, *American Psychologist*, 63, 2008.

<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.457.5957&rep=rep1&type=pdf>

Ludmila Nunes, Does retrieval practise improve learning in real-life classrooms? A recent database will help us answer this question, 2020, <https://www.iniciativaeducacao.org/en/ed-on/ed-on-articles/does-retrieval-practise-improve-learning-in-real-life-classroomss-a-recent-database-will-help-us-answer-this-question>

Everything is harder online, but it needs to be done

Prepare infrastructure

Guaranty textbooks and materials

PD investment with content

A demanding curriculum

Curriculum centred on the essential subjects

Structured, progressive, and detailed standards

Frequent retrieval

Formative assessment

Frequent assessment

Internal and external assessments

Fight failure

Intervention at first difficulties

Special “office” hours

Adaptive instruction

Additional assignments

Integrate face-to-face and online, not parallel!

Vary according to topics

Prepare in advance

Knowledge, not entertainment

Evaluation is an incentive

Everyone can reach a reasonable level

The medium varies according to content

THANK YOU!

