WHY & HOW should you develop and improve your educator skills?
Tips for junior & senior scientists

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Chair, FEBS Education Committee
Member, IUBMB Education Committee
Member, EFLM Green Labs Taskforce

Y... won't ...ed ...ls.... haannn???

Content

I. Current situation **II.** Road for the future
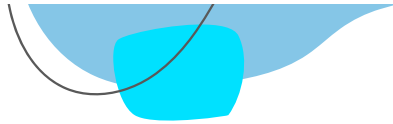
01

Research

COVID'ization of research
Increasingly demanding, grant-
focused environment vs. open science

'A winner-take-all hyper-competitiveness discourages cooperation,
encourages poor scientific practices and deters new talent from entering the field'

Put the "Ph" Back in PhD, Arturo Casadevall, 2015

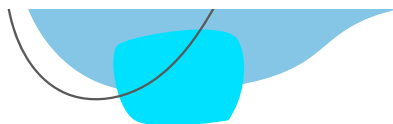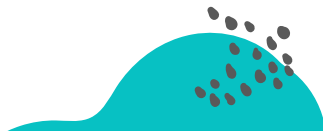## Would you recommend a career in scientific research to your younger self?

Yes
47%

I don't know
29%

No
24%

CAREER NEWS | 26 August 2022

Lab leaders wrestle with paucity of postdocs

Even high-profile scientists are struggling to recruit qualified postdoctoral researchers.

Where is the road for future?

➢ Less publish-or-perish pace
➢ Greater internal connection between researchers
➢ Effective and durable collaborations
➢ Collective approaches for doing science

Isabelle Stengers

Another Science is Possible
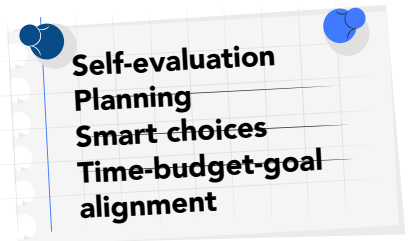A Manifesto for Slow Science

02

Training

New educational tools, incredible free sources vs. exposition to huge knowledge but limited 'guidance & selection & time'
Soft skills training???

Where is the road for future?

There is a tremendous amount of data and info

**Self-evaluation
Planning
Smart choices
Time-budget-goal
alignment**

Both professionals, educators and students have to take their responsibility on life-long learning

03

Supervision

Digital & accessible supervision vs. limitations of in-person contact
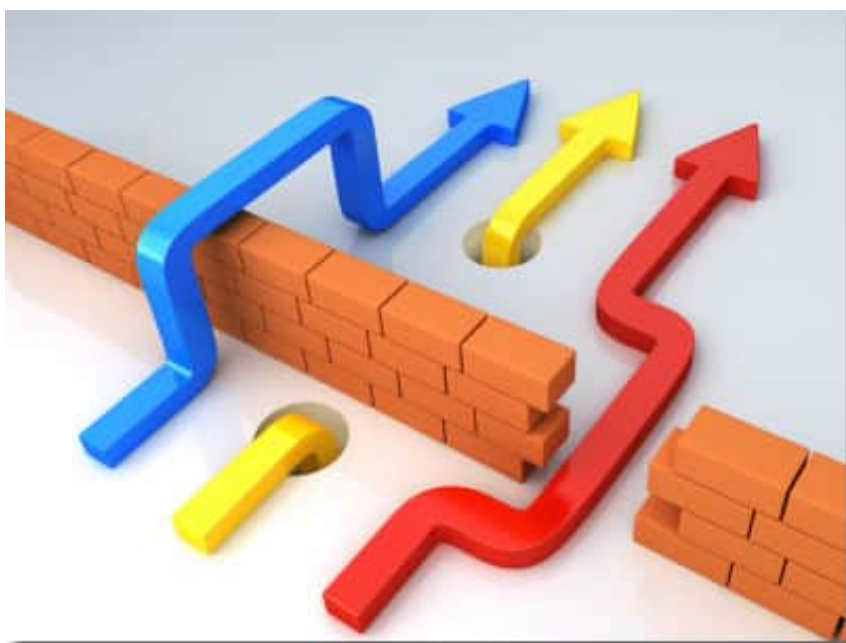
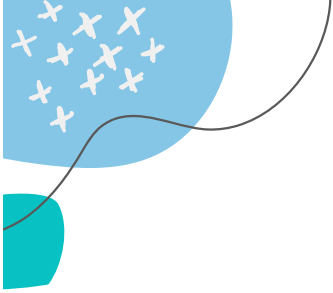# Where is the road for future?

Upsurge in student anxiety

"Try to be a rainbow in somebody's cloud"

Maya Angelou

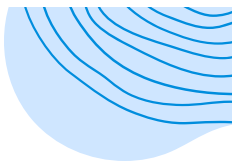Supervisor trainings!

Tips for educators

'Efforts to improve the scientific enterprise must include changes to graduate science education'
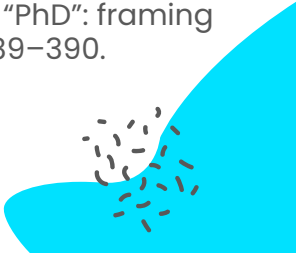
Broader views, less specialization

Courtesy: Arturo Casadevall

Putting the "Ph. back into Ph.D." education

Prather CM, Choate DM, Michel MJ, Crowl TA. 2009. Putting the "Ph" back into "PhD": framing graduate research in a theoretical context. Front Ecol Environ 7:389–390. https://doi.org/10.1890/1540-9295-7.7.389.
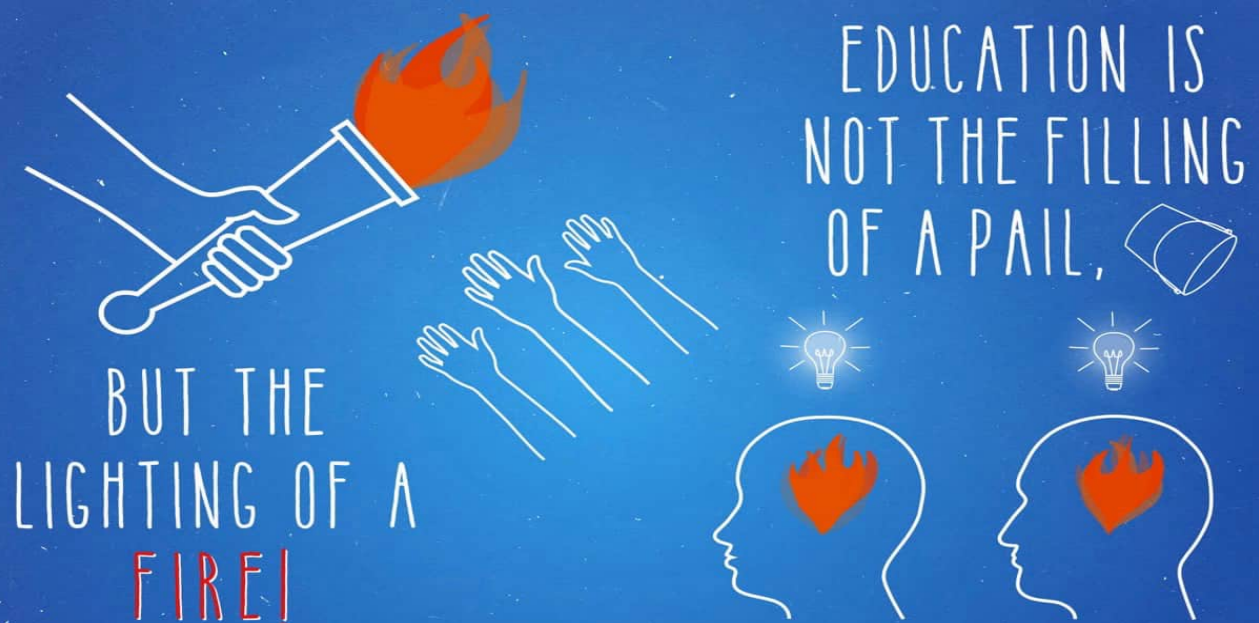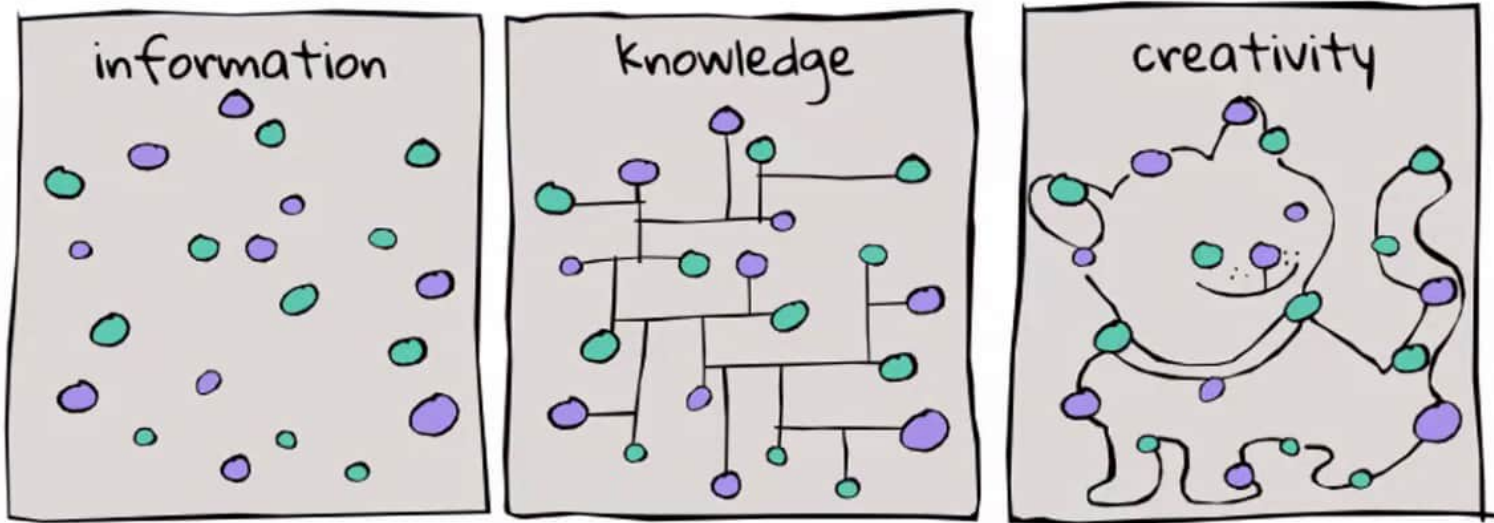
Imagination is more important than knowledge.

-Albert Einstein

EDUCATION IS NOT THE FILLING OF A PAIL,

BUT THE LIGHTING OF A FIRE!

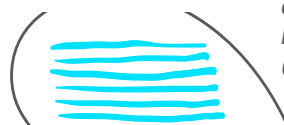information   knowledge   creativity

Courtesy: Nino Sincic who discovered this on FB

Which skills do you feel you're lacking in?

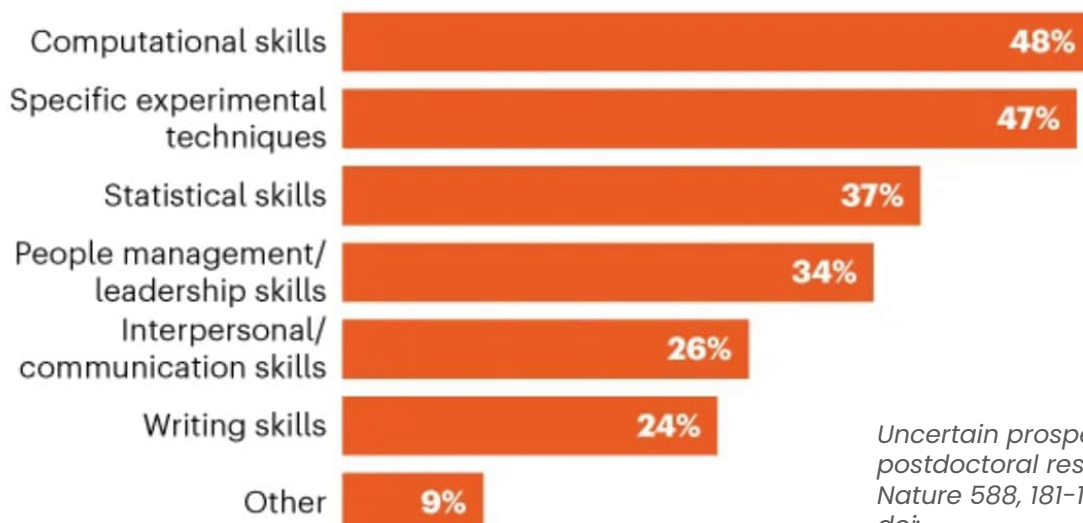| Skill	%
Computational skills	48%
Specific experimental techniques	47%
Statistical skills	37%
People management/leadership skills	34%
Interpersonal/communication skills	26%
Writing skills	24%
Other	9%

Where is the road for future?

1. **Epistemology.** How do we know what we know? How do we go from making an association to establishing causation?

2. **Quantitative skills.** The ability to code would give our students many more opportunities in the age of information revolution.

3. **Ethics.** How do you spot the ethical dilemmas and try to work with society before they become problems?

Bosch G, Casadevall A. 2017. Graduate biomedical science education needs a new philosophy. https://doi.org/10.1128/mBio.01539-17.

Which skills do you feel you're lacking in?

Skill	Percentage
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Specific experimental techniques	47%
Statistical skills	37%
People management/ leadership skills	34%
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Uncertain prospects for postdoctoral researchers Nature 588, 181–184 (2020) doi: https://doi.org/10.1038/d41586-020-03381-3

Tips for PhD students
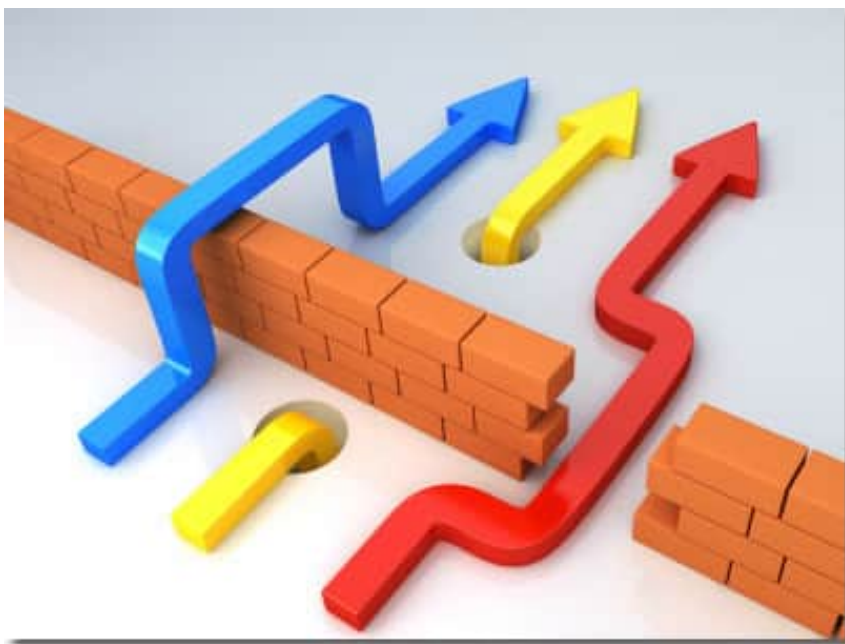
I think that to be a PhD is very charismatic!

I will be a great professor!

I love to read and interpret
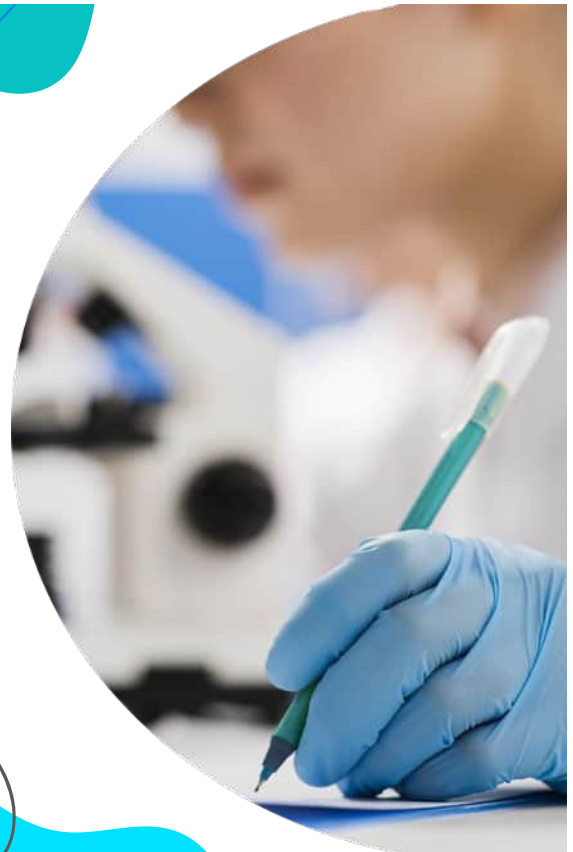
I want to earn good money!

I will set up my own company!

I want to make ground-breaking research
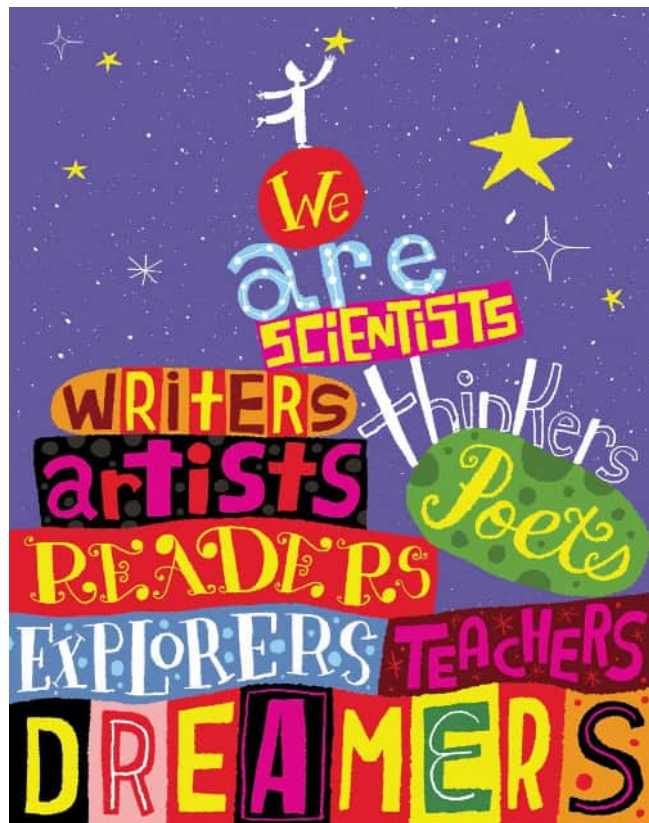
I want to understand the world better

I'm a total lab rat

PhD = Researcher

People
Who
Don't
Give Up

We are SCIENTISTS WRITERS Thinkers artists Poets READERS EXPLORERS TEACHERS DREAMERS

PhD does not have = researcher

Research
Independent Investigator
Academia
Biotechnology

Business & Intellectual property
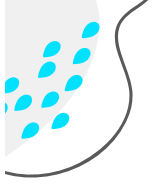Biotech startup
Venture capital
Patent

Government & Social programs
Science policy and regulation
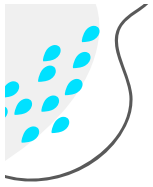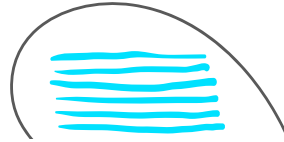Education
Funding
Global and public health

Education & Communication
Teaching and education
Administration
Journalism
Information media
Editor

Short Term

➢ Reflect! Reflect Reflect!
➢ Turn your research skills on yourself
➢ Take the responsibility

Short Term

➢ Take advantage of teaching & mentoring opportunities in your department
➢ If this is not possible, ask your supervisor if you can shadow them for a few classes
➢ Become involved in (attend / present) journal clubs, seminars in other departments,
➢ Cultivate multiple mentoring relationships
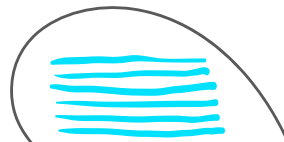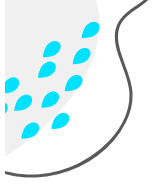
Short Term

➤ At FEBS Congresses, do not miss:
  - Education Plenary
  - Education Sessions

➤ Encourage yourself and your peers/mentors to present an education poster at coming conferences and FEBS Congresses
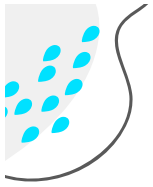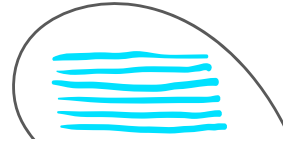
Short Term

➤ Post, visit, promote the FEBS Network Educator Channel (Free resources & Tips & Networking)

➤ Create Google alerts for educational keywords

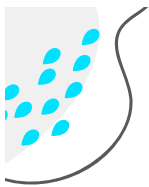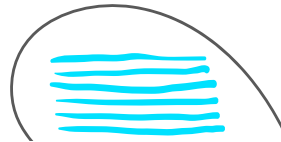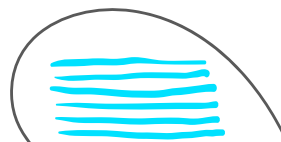➤ Try to follow-up educational research as well
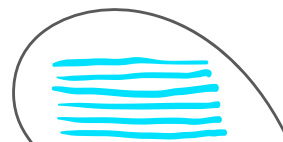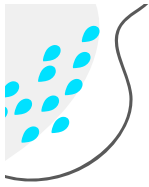
Mid Term

➢ Volunteer teaching at science museums, high schools...

➢ Apply to work as a teaching assistant at summer schools of universities

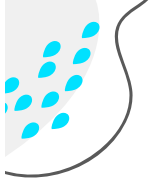➢ Ask neighbouring universities if they're looking for someone to teach

Mid Term

➢ Interact with your society's education group and its activities!

➢ Attend education seminars, workshops, etc. (many bursaries available)

Research on Education Workshop

4th and 5th October 2022
Zagreb, Croatia
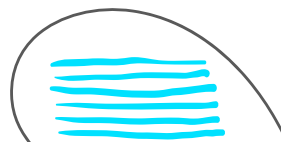Live event
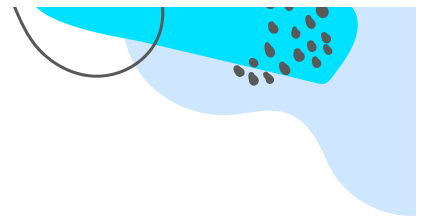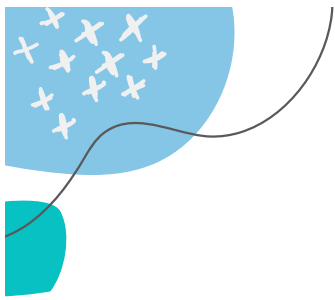
HDBMB

REGISTER TODAY!

Long Term

➤ Balance between teaching & research!

➤ Work on your teaching portfolio:
       - Teaching statement (philosophy)
       - Teaching experiences
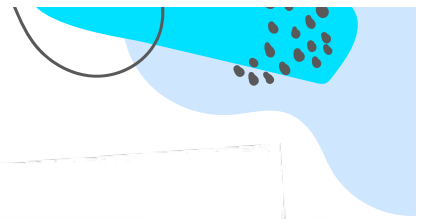
➤ Mentor high school/undergrad students
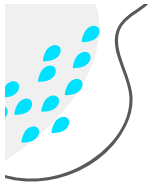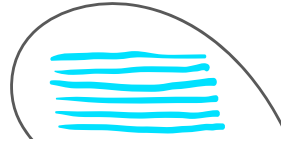
Long Term

➤ Recognize good education policies and create more awareness of the importance of education and educational research among life scientists

Nathan C. Hall @prof_nch · Jul 24, 2018

If you could go back and tell your younger academic self one thing you've learned about academia, what would you say?

Dr P @Dr GP PhD · Jul 24, 2018

Simon Hix
@simonjhix

You'll end up having a bigger impact on the world through your teaching than your research. Take teaching seriously, and be good to your students. It will pay you back in the end always a learning experience for me, if not them! most since my (semi) retirement. The interaction was

Thanks