Overcoming Challenges in Teaching Chemistry Courses in the New Normal

Elmer-Rico E. Mojica
Department of Chemistry and Physical Sciences, Pace University, One Pace Plaza, New York, NY 10038

Philippine Association of Chemistry Teachers
Region V
August 21, 2020

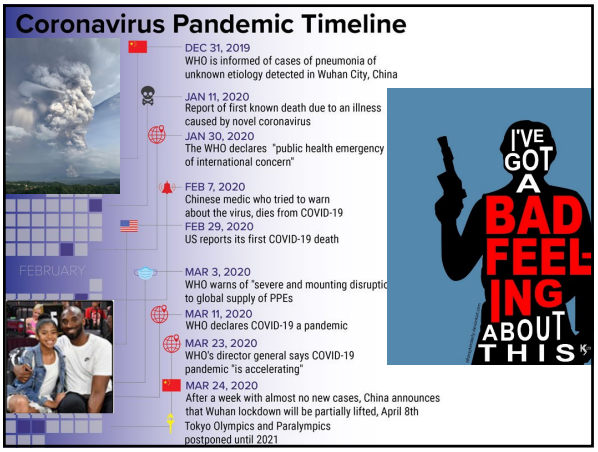
Academic Journey

Pace University

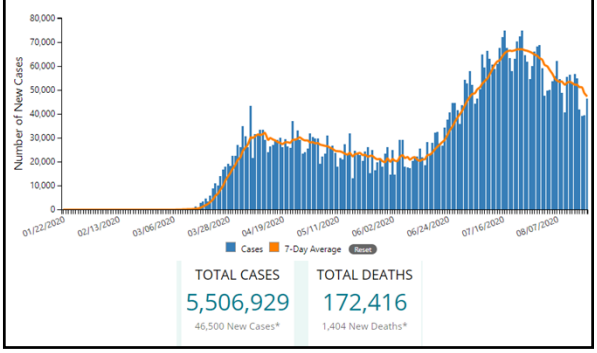
Pace University

Bicol University

Coronavirus Pandemic Timeline

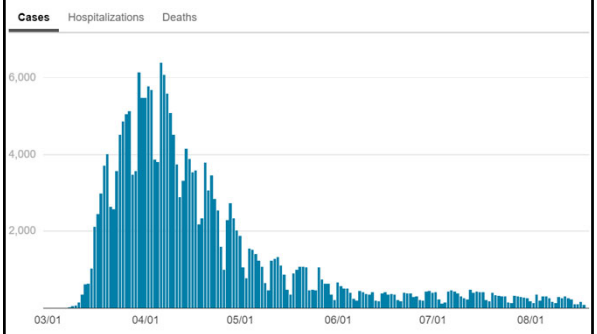


COVID 19 in USA



TOTAL CASES	TOTAL DEATHS
5,506,929	172,416
46,500 New Cases*	1,404 New Deaths*

COVID 19 in NYC

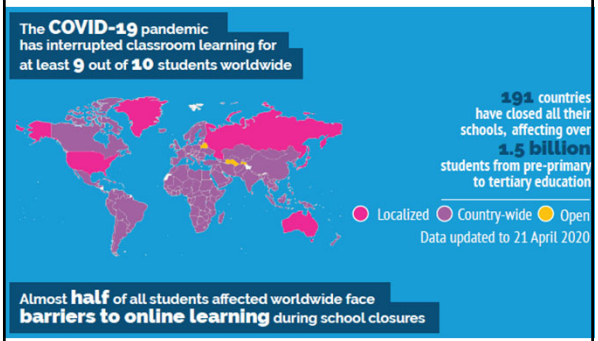


NYC Covid 19

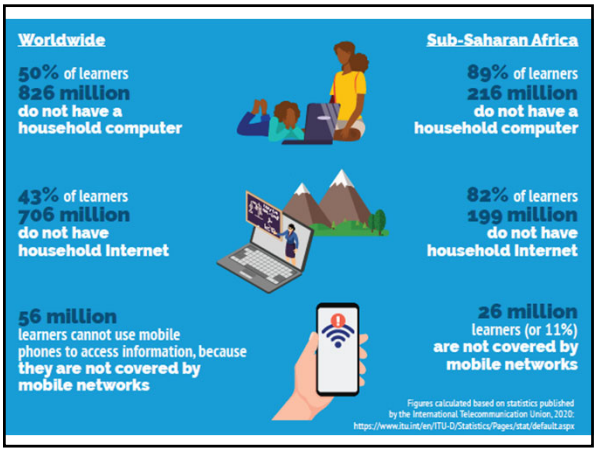
Cases	**227,724**
Hospitalizations	**56,846**
Confirmed deaths* Deaths following a positive COVID-19 laboratory test	**19,003**
Probable deaths Cause of death reported as "COVID-19" or equivalent, but no positive laboratory test	**4,636**
Updated:	***August 20, at 1 p.m.***

Buzz Words

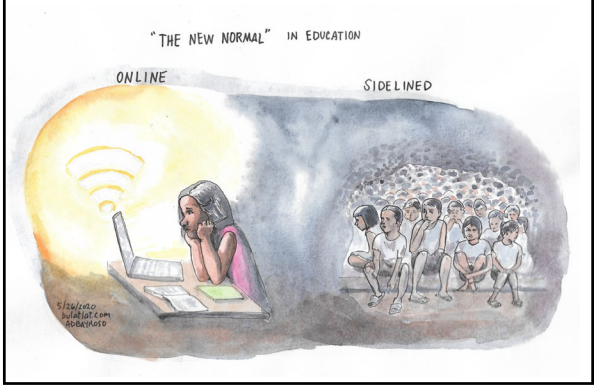
COVID-19



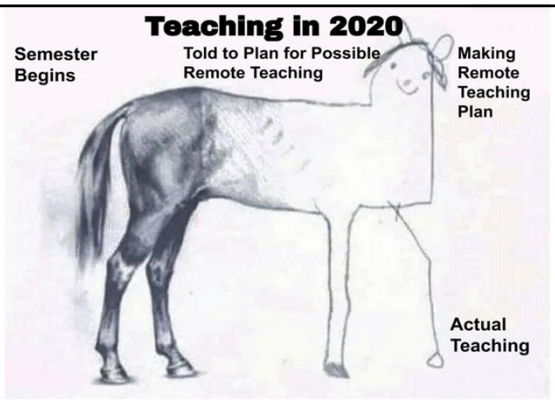
UNESCO, 2020



Online or Sidelined



Teaching in 2020



Pandemi**c** + Peda**gogy** = **Panicgogy**

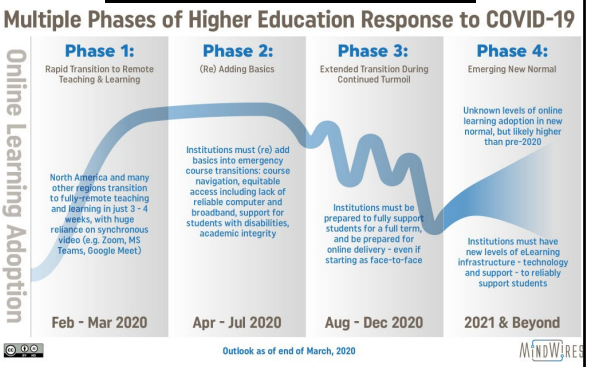
Transition to New Normal

- Shift of learning space
- Shift of delivery
- Shift of responsibility in the teaching and learning process

- Shift in learning evaluations

https://www.thestar.com.my/opinion/letters/2020/04/28/transitioning-to-the-new-normal-in-education

What Phase Are You?



https://philonedtech.com/revised-outlook-for-higher-eds-online-response-to-covid-19/

Spring and Summer 2020

PACE UNIVERSITY

Spring 2020
Gen Chem I lecture T-R
Gen Chem II lab W
Instrumental Method lab M
Summer 2020
Gen Chem I lecture & lab

YORK College

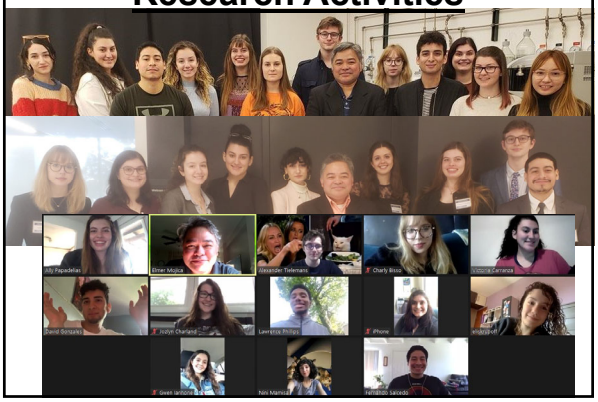
Spring 2020
Gen Chem II lecture S
Instr Method F
Summer 2020
Instrumental Methods

Class Transition

- Suspended research activities
- Lecture transition is easier

- Laboratory a little bit challenging

Research Activities



Research Activities

- All physical research activities were suspended since classes were suspended.
- Cancelled some of our presentations (ACS in Philadelphia).
- Three students were able to finish their thesis.
- At present, computational calculations and processing of data are the main focus of our research.

Lecture Class

- Zoom vs Blackboard
- Held synchronous class
- Recorded sessions are made available
- Posted recorded short slides for problem solving.
- Met in Zoom for office hour.
- The challenge is how to make them more engage during class.

Teacher's Poem During Pandemic

I will teach you in a room.
I will teach you now on Zoom.
I will teach you in your house.
I will teach you with a mouse.
I will teach you here and there.
I will teach you because I care.
So just do your very best.
And do not worry about the rest.

Lecture Class Problems

- Not all are attending classes
- Assessment
- Chegging
  - All questions in test banks are available online.
  - Exam score inflation (57 to 82 then 60 and 62).
- Respondus Lockdown

Chegg®

Laboratory Class Options

Options for Laboratory Classes
- did not do labs
- virtual labs
- simulations
- used videos related to experiments
- home-based experiments

Objective is to make laboratory useful to reinforce the concepts discussed in lecture.

Virtual Labs (Fee)

labarchives Better Science

Labster

jove

Chem101

CloudLabs

HANDS-ON LABS SCIENCE DELIVERED

eScienceLabs

PraxiLabs

Simulations (Free)

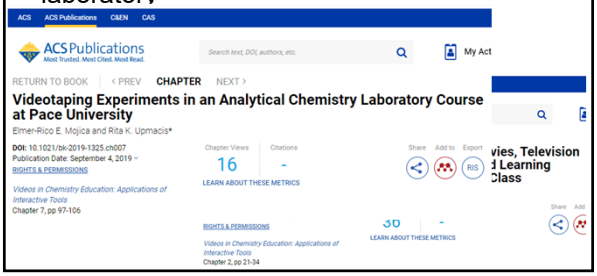
Science: https://phet.colorado.edu/

https://www.labxchange.org/
https://libguides.mines.edu/oer/simulationslabs
https://www.walter-fendt.de/html5/phen/

Videos Based On Experiments

Best option that we have

- Have used videos to reinforce lecture and laboratory



Videos Based On Experiments

- Lot of videos available in YouTube and we were able to use them for our Gen Chem lab courses and my instrumental analysis lab courses.
- Watching videos is different than doing hands-on lab.
- However, results from a study show that the lack of a hands-on experience did not negatively affect the performance of the online students (Abdel-Salam et al, 2006).

Abdel-Salam, Kauffman,& Crossman *European Journal of Engineering Education, 2006,* 31(6), 747-756

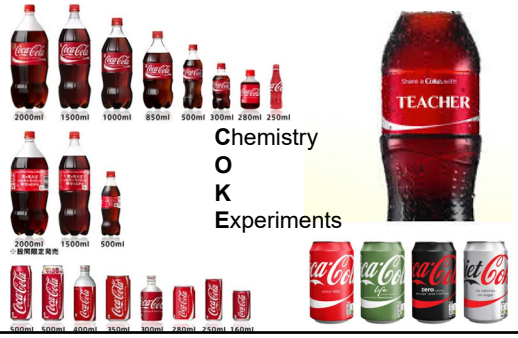
Home-Based Experiments

- Commercially available lab kits in combination with household items, provide the means to conduct experiments at home.
- You can also develop your own.
- Safety issues?
- Legal liabilities a big problem here in the US.

Home-Based Experiments

- Avoid adapting the traditional lab experiments directly to online environment
- Think SAFE (Safety, Affordability, Feasibility, “Engageability”)
- Kitchen Chemistry is the safest one.

Coca Cola



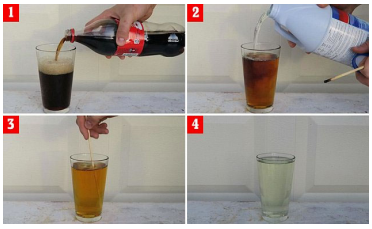
Chemistry
O
K
Experiments

Soaking Experiment

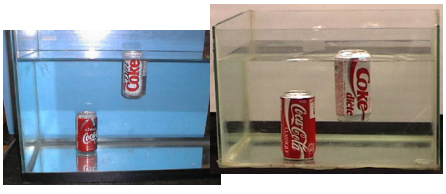
Sugar Recovery

Mixing Experiment

Mixing Experiment



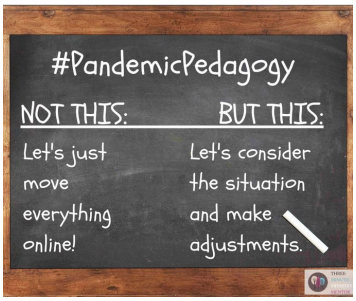
Floating Experiment



Designing Lab Experiments

- What do students need to learn from lab courses?
- What is the most important thing the students need to know in a given experiment?
- How are you going to know if they learned?
- Apply “begin the end” concept (backward design).
- Modify the learning outcomes.
- Focus more on data processing/analysis and interpretation, communication (writing) skills and use of imagination (design experiments).

Pandemic Pedadogy



https://eileencampbellreed.org/2020/05/04/pandemic-pedagogy/

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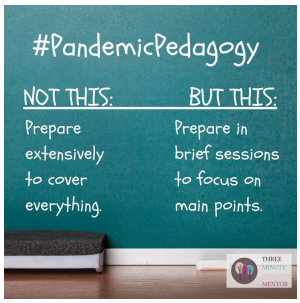
Pandemic Pedadogy



https://eileencampbellreed.org/2020/05/04/pandemic-pedagogy/

New Normal

Buy to the Mode of Teaching

FLEXIBLE LEARNING

Embrace the Mode of Teaching

- modular, online, face to face or blended

PACE UNIVERSITY

Spring 2020
Gen Chem I lecture T-R
Gen Chem II lab W
Instrumental Method lab M
Summer 2020
Gen Chem I lecture & lab

YORK College

Spring 2020
Gen Chem II lecture S
Instr Method F
Summer 2020
Instrumental Methods

Remote/Distance vs Online

Prof. Jason Wrench, SUNY New Paltz

Online Learning vs. Remote Learning

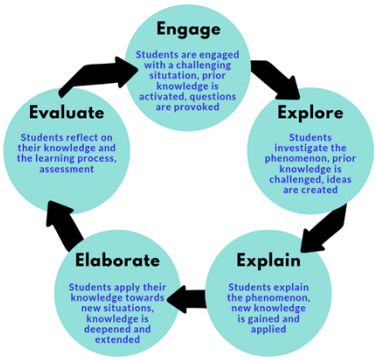
	Online Learning	Remote Learning
Intent	Planned	Emergent, Crisis
Development Timeline	1 to 2 Years Prior	ASAP, Immediately
Instructional Development	Intentional & Guided	Haphazard & Emergent
Focus	Online Andragogy	Academic Attainment
Trainer Focus	Content and Andragogy	Content and Delivery
Andragogical Focus	Best Practices for Online	Best Practices for Crisis
Learner Focus	Engagement & Attainment	Attainment

https://www.td.org/user/content/jasonwrench/online-learning-vs-remote-learning-04-22-20-03-50

Choose the LMS to be used

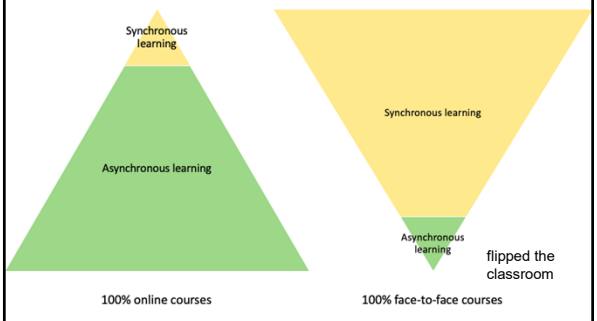
Blackboard
D2L DESIRE2LEARN
canvas
Microsoft Teams
moodle
Google Meet
brightspace

Modules (BSCS 5E)



https://knowledgequest.aasl.org/the-5-es-of-inquiry-based-learning/

Synchronous vs Asynchronous



https://educationrickshaw.com/2020/03/30/the-unproductive-debate-of-synchronous-vs-asynchronous-learning/

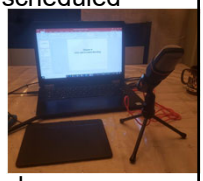
Synchronous vs Asynchronous

- Most students prefer the synchronous
- Use of modules would mean asynchronous
- Tap social media for synchronous activities if LMS is not available

zoom
YouTube

Synchronous vs Asynchronous

- Synchronous - class held as scheduled

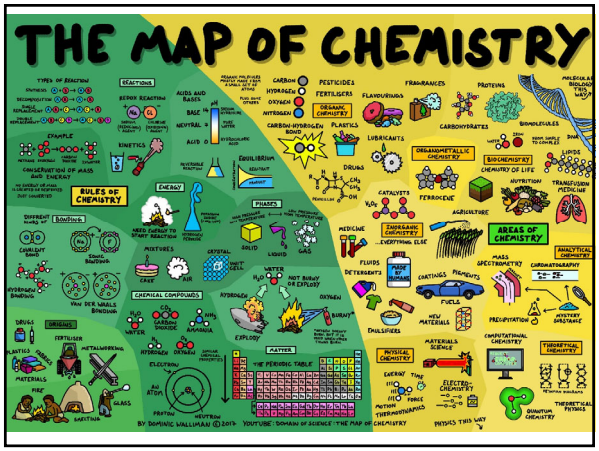


- Asynchronous
  - recording session of the class
  - additional materials were posted

https://educationrickshaw.com/2020/03/30/the-unproductive-debate-of-synchronous-vs-asynchronous-learning/

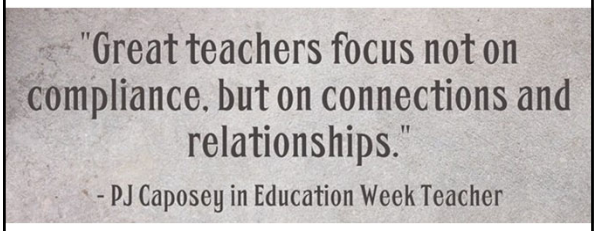
Assessment

- How are you going to assess your students?
- In most sciences, best way for assessment is exams
- Formative assessment over summative assessment

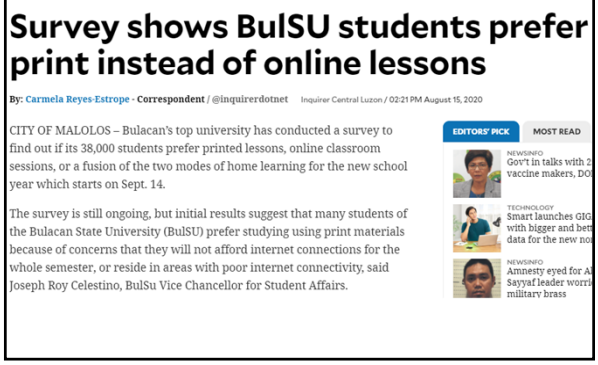


Connect With Students

- Establish connection with your students as early as possible.



Connecting with Students



Survey shows BulSU students prefer print instead of online lessons

By: Carmela Reyes-Estrope - Correspondent / @inquirerdotnet Inquirer Central Luzon / 02:21 PM August 15, 2020

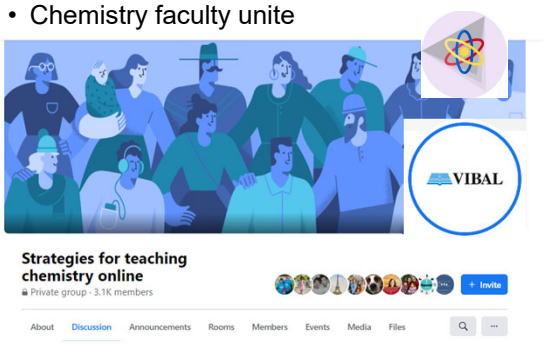
CITY OF MALOLOS – Bulacan's top university has conducted a survey to find out if its 38,000 students prefer printed lessons, online classroom sessions, or a fusion of the two modes of home learning for the new school year which starts on Sept. 14.

The survey is still ongoing, but initial results suggest that many students of the Bulacan State University (BulSU) prefer studying using print materials because of concerns that they will not afford internet connections for the whole semester, or reside in areas with poor internet connectivity, said Joseph Roy Celestino, BulSu Vice Chancellor for Student Affairs.

EDITORS' PICK | MOST READ

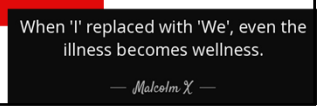
Ask for Help

- Chemistry faculty unite

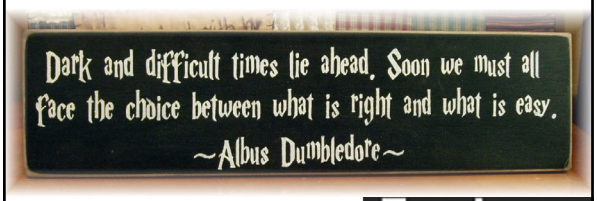


We Are All Together (Bayanihan)

- Explain to them why we have this present set-up.

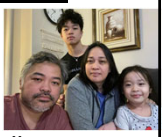


Tough and Difficult Times



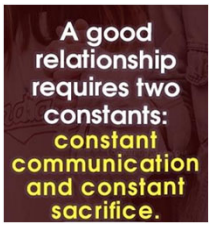
By the End of Semester

- Felt "stressed out" (most stressful semester)
- Felt helpless (constant fear)
- All efforts are worthwhile after reading student evaluations

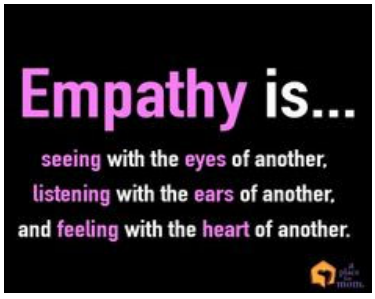


Constant Communication

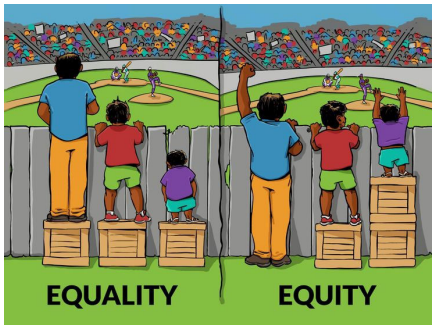
- Stay in contact with your students by giving feedbacks to their inputs.



Practice Empathy



Practice Equity



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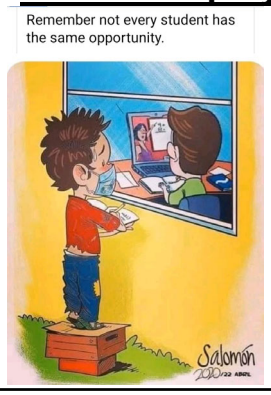

Take Home Message

- There is no easy solution to our current set-up.
- Student goals will take center stage.
- Find positives in the current situation.
- Plan, plan, plan.
- Alternatives to high stakes assessments.
- Mental issue is a real thing.

Advise with Beatles Songs

Do You Want To Know A Secret?		I Should Have Known Better	
In My Life	Yesterday	Here, There and Everywhere	Chains
Long, Long, Long	Long and Winding Road		From Me to You
Get Back	Carry That Weight	I Am So Tired	It's All Too Much
A Hard Day's Night	Eight Days A Week		Don't Let Me Down
You Never Give Me Your Money		I Want To Tell You	
With A Little Help From My Friends		We Can Work It Out	
All Together Now	No Reply	Misery	Let It Be	Wait	Help!
All You Need Is Love	Come Together	Getting Better	The End

The love you take is equal to the love you make

Acknowledgements

- Ma'am Maggie Ante Cano
- Philippine Association of Chemistry Teachers Region 5
- Everyone who attended the webinar.

Diós mabalós