

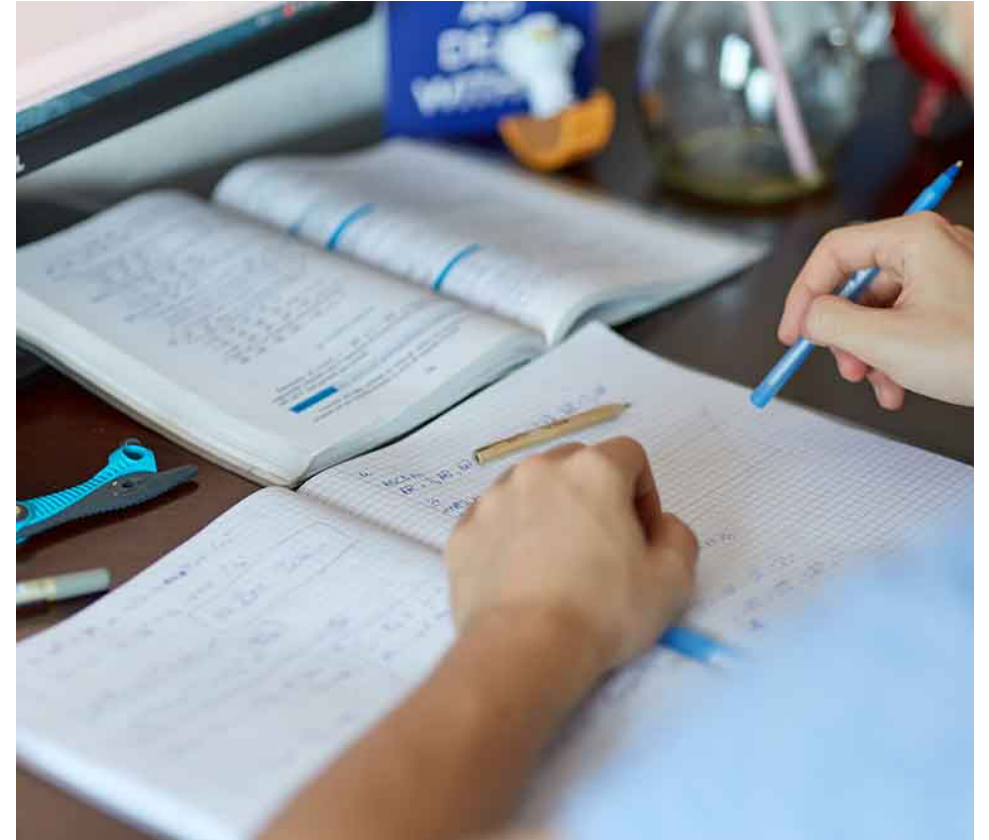
# Remote Learning, Virtual Instruction- for whom, by whom?

Susana Deustua

STSCI

# Distance learning is not new

- Correspondence courses for working adults since at least the 1700's
  - asynchronous and real-time learning
  - print/mail, satellite, online (MOOCs, Khan Academy, Coursera)
- In remote areas of the world, for example
  - Australian outback for school-aged children
    - via correspondence
    - two-way radio (School of the Air)
  - United States, e.g.
    - Alaska - Aleutian islands for school-aged children via radio
    - Oglala Lakota College In South Dakota for tertiary education via telecommunication
- Open Universities
  - Indira Gandhi National Open University in New Delhi
  - China Central Radio and TV University in Beijing
  - Phoenix University in USA



# Distance learning is not new

- Correspondence courses for working adults since at least the 1700's
  - asynchronous and real-time learning
  - print/mail, satellite, online (MOOCs, Khan Academy, Coursera)
- In remote areas of the world, for example
  - Australian outback for school-aged children
    - via correspondence
    - two-way radio (School of the Air)
  - United States, e.g.
    - Alaska - Aleutian islands for school-aged children via radio
    - Oglala Lakota College In South Dakota for tertiary education via telecommunication
- Open Universities
  - Indira Gandhi National Open University in New Delhi
  - China Central Radio and TV University in Beijing
  - Phoenix University in USA



# Distance learning is not new

- Correspondence courses for working adults since at least the 1700's
  - asynchronous and real-time learning
  - print/mail, satellite, online (MOOCs, Khan Academy, Coursera)
- In remote areas of the world, for example
  - Australian outback for school-aged children
    - via correspondence
    - two-way radio (School of the Air)
  - United States, e.g.
    - Alaska - Aleutian islands for school-aged children via radio
    - Oglala Lakota College In South Dakota for tertiary education via telecommunication
- Open Universities
  - Indira Gandhi National Open University, New Delhi
  - Open University of China, Beijing
  - University of Phoenix in USA, Phoenix
  - The Open University, UK, Milton Keynes



### **For Whom**

- elementary and secondary school students
- out of school program participants
- tertiary education students

### **By Whom**

- teachers, parents and caregivers, family/household members
- science centers, observatories
- professors, teaching assistants
- observatories, laboratories, research centers

# Remote Learning & Virtual Instruction

- The current COVID-19 pandemic pretty much forced the entire world of school – from kindergarten to graduate school – to remote learning almost from one day to the next.
- The ideal: simple replacement of in-person classrooms with online, real-time classrooms
- In practice: not so simple and complicated by inequities
  - technology
  - socio-economics
  - education resources

# some considerations for equity and inclusion

- are there no-bandwidth options, are they needed?
  - print, mail, dvd, thumb-drive
- are there low bandwidth options?
  - unreliable internet or cell network
  - not-so-smart mobile phone access
- software access, if needed?
  - web-based tools
  - downloadable - "heavy" or "light"
- are there identified and useful local resources?
  - teachers, university faculty and students,
  - amateur astronomers
  - other?
- are there accessible local language materials?
- are materials accessible to people with visual, aural, mobility impairments?

# additional considerations

- is a needs assessment appropriate?
  - e.g. software tools, type of access, family support, etc
- should material be linked to science standards/curriculum needs?
- how will the program/project/activities be evaluated?
- are there plans for dissemination?
- sustainability (if successful)?