Where Do Our Students Encounter Materials: Everywhere and Rarely

Session AAA6.07

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and

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Reason for this presentation

- In our increasingly **digitized and safety conscious society,** we tend to shield our children from real, conscious, contacts with the material world & steer them to increasingly **virtual experiences**. It is time to reverse this trend & develop methods in schools & society to **counteract this trend**.

Example to counteract

Example-Shopping In the Past

1) Come into the shop (e.g. a grocery)
2) Select an item (e.g. flour, rice, produce)
3) Get the price
4) Package & weigh it
5) Calculate the cost (often writing directly on the grocery bag)
6) Pay by cash

Example-Shopping in the Present

1) Enter the Supermarket
2) Select an item in a package (e.g flour, rice, produce)
3) Put item(s)into a cart
4) Go to the check out counter
5) Have items scanned
6) Pay by credit card

Learning in the Past

Children experienced:

Mass

Weight

Quantity

Arithmetic that mattered (Math)

None of this is encountered at present

even if children are taken to the supermarket & many are not!)

What to do?

- **Future**

  Structure the environment so that children have a visceral experience & consciously encounter materials & ways to change & manipulate them

Go to the Children's Museum in Boston

or Iowa City

Where & How?

- **"Play with better toys than are presently available"**
- **"Play in playgrounds that gently develop quantitative views"**
- **"Use tools & kits to make introductory projects"**
- **"Acquire information from small things: wrappers, posters , etc."**

From the acceptance speech for the 2000 Oersted Medal by John King, of MIT, American Journal of Physics

Need to Know

- **WE NEED TO EXPOSE CHILDREN-(STUDENTS) TO HANDS-ON EXPERIENCES**
- **WE USED TO REPAIR THINGS : In order to do so we needed to know how things worked.**
- **WE NOW REPLACE THEM: All we need to do is know whom to call or what store to go to.**

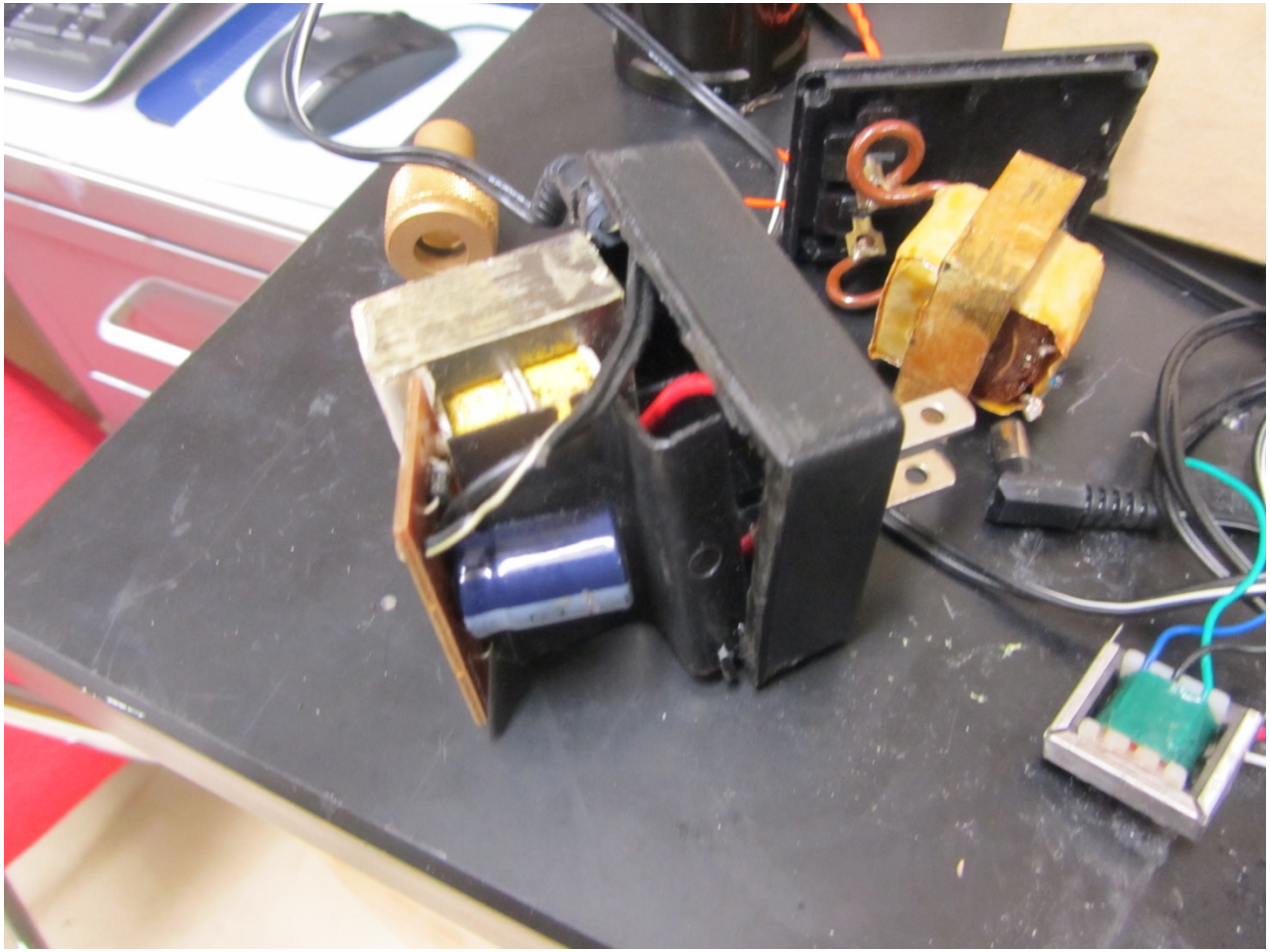
What to do

- Let children/students **take things apart**
- Let them **break** things
- If possible, let them **put them back together/repair**

- **(That is what GOZ does with students in his lab).**

Items to be broken

More such items



GOZ's experience

- Research Internship Program…created in the

- His Laboratory (Teachers, Students)… recently when he asked students to break spent chargers (with a hammer, screw driver, vise) one of the young men went to Google to find out how to break the charger!!! (See slide 15)

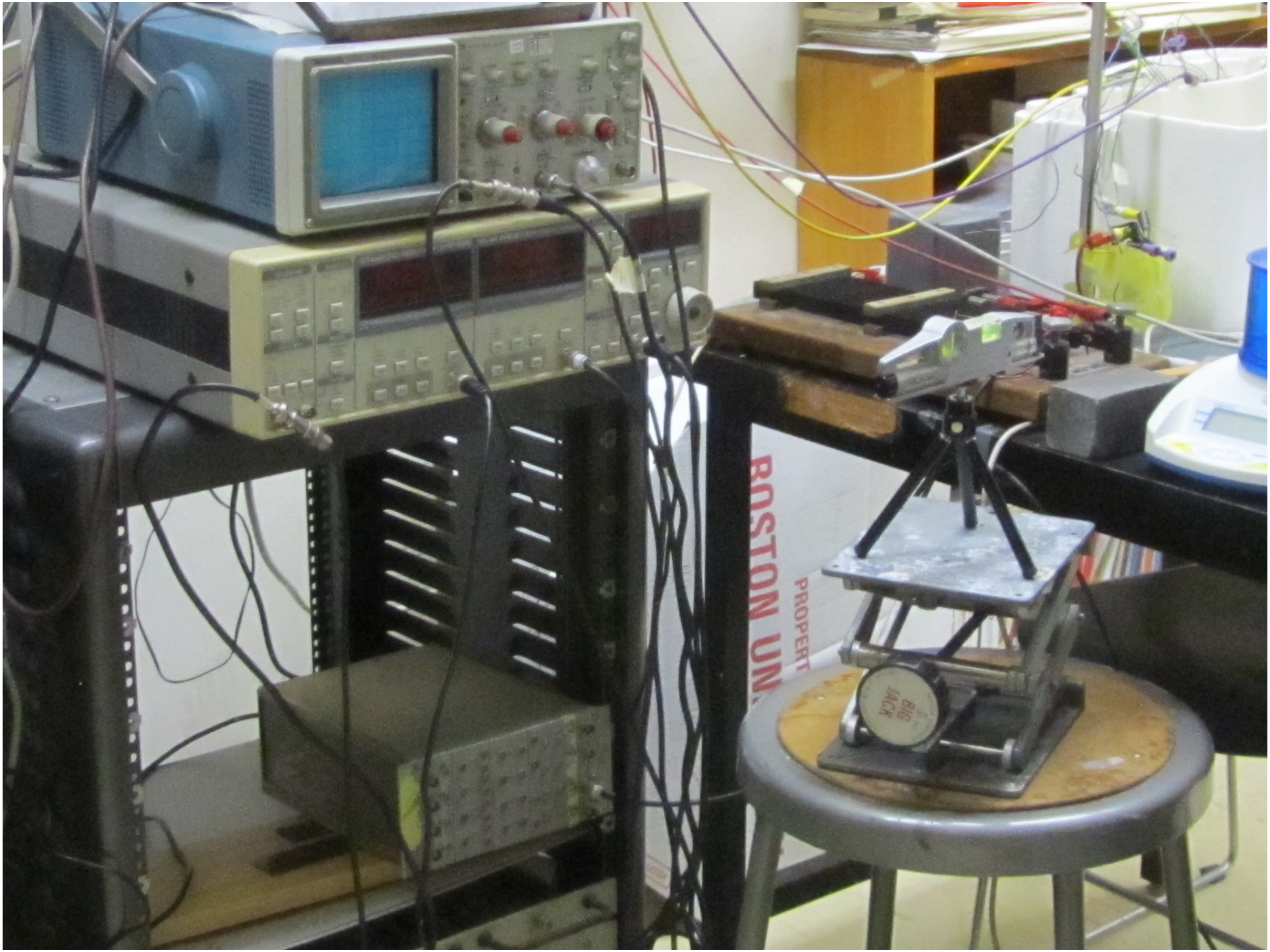
Next few slides

- A messy laboratory encourages students to explore & learn hands-on

- Neat tables & chairs are good for reading, speaking & googling but not hands-on exploration, the thesis of this presentation


VWR
Kennedy


USPS PARCEL POST


BOSTON UN
PROPERT
BIG JACK

We are of the older generation