

Reflection on Teaching

A Presentation by Daniel A. Moreno

ME 7757 Teaching Practicum

29 November 2018

Introduction – Reflection on Teaching

- Course Taught: ME 3322 Thermodynamics
- Relevant Tasks:
 - Taught on Introduction to Entropy
 - Taught on Rankine (Power) Cycles
 - Taught on Special Topics in Refrigeration (custom lecture)
 - Proctored Exams
 - Office Hours for Students

But there's so much more...

The Impact of Teaching

Is teaching really just a chore/obligation?

Why?

Real motivations for teaching:

- Service (contributing to a cause I care about)
- Development (new skills/knowledge)
- Entertainment (it's fun!)

Teaching as Service

- Put the students first!!!
- The goal is to *teach* – introduce and develop understanding of material to students
 - Not just to deliver/present a lecture
- Humility:
 - I am not perfect.
 - I do not expect the students to be perfect.
- The class should *matter*:
 - How can I show this in a way that non-human sources (book, website) can't?
 - How can I leave new ways of showing this that others have not yet developed?

Teaching as Development

- Technical skills
 - Knowledge (ME 3322: Entropy, Power Generation, Refrigeration)
 - Hardware (ME 4056: Flow visualization, temperature measurement)
 - Software (ME 2110: LabVIEW, Advanced Excel functions)
- Non-technical skills
 - Student connectivity
 - Management/organization
 - In-depth detailed planning
 - Clarity/direction in communication
- Usefulness of different tools
 - Hand-written (for students to follow along and take notes)
 - Presentation Slides (to quickly convey information with more detail)
 - Example Problems (to provide direct application reference for review)

***** Professionalism!**

Teaching as Entertainment

- Classes can be challenging for all, why not have some fun with it?!?
- Outcomes:
 - Relieve stress/tension with students
 - Make the students want to come to class
 - Keep students engaged/focused during the class
 - ***Be unpredictable!***
- Personal goals:
 - Make students laugh at least once a lecture
 - Admit to own interests/curiosity at least once a lecture
 - Connect to current culture/climate, ***as appropriate***

Examples - Thermoelectrics



http://salestores.com/koolatronkcc.html#.W_4wb-hKiM8

Examples – A familiar classroom appearance...

PERIODIC TABLE OF THE ELEMENTS

GROUP 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1 H 1.00794																	2 He 4.00260
3 Li 6.941	4 Be 9.012182											5 B 10.811	6 C 12.011	7 N 14.00674	8 O 15.9994	9 F 18.998403	10 Ne 20.1797
11 Na 22.989770	12 Mg 24.3050											13 Al 26.981538	14 Si 28.0855	15 P 30.973761	16 S 32.065	17 Cl 35.4527	18 Ar 39.948
19 K 39.0983	20 Ca 40.078	21 Sc 44.95591	22 Ti 47.87	23 V 50.9415	24 Cr 51.9961	25 Mn 54.93805	26 Fe 55.845	27 Co 58.9332	28 Ni 58.6934	29 Cu 63.546	30 Zn 65.39	31 Ga 69.723	32 Ge 72.61	33 As 74.92160	34 Se 78.96	35 Br 79.904	36 Kr 83.80
37 Rb 85.4678	38 Sr 87.62	39 Y 88.90585	40 Zr 91.224	41 Nb 92.90638	42 Mo 95.94	43 Tc (98)	44 Ru 101.07	45 Rh 102.90550	46 Pd 106.42	47 Ag 107.8682	48 Cd 112.411	49 In 114.818	50 Sn 118.710	51 Sb 121.760	52 Te 127.60	53 I 126.90447	54 Xe 131.29
55 Cs 132.90545	56 Ba 137.327	* 57 La 138.9055	72 Hf 178.49	73 Ta 180.9479	74 W 183.84	75 Re 186.207	76 Os 190.23	77 Ir 192.22	78 Pt 195.08	79 Au 196.96659	80 Hg 200.59	81 Tl 204.3833	82 Pb 207.2	83 Bi 208.98038	84 Po (209)	85 At (210)	86 Rn (222)
87 Fr (223)	88 Ra (226)	** 89 Ac (227)	104 Rf (261)	105 Db (262)	106 Sg (263)	107 Bh (262)	108 Hs (265)	109 Mt (266)	110 Uun (269)	111 Uuu (272)	112 Uub (277)						
			* 58 Ce 140.116	59 Pr 140.90765	60 Nd 144.24	61 Pm (145)	62 Sm 150.36	63 Eu 151.964	64 Gd 157.25	65 Tb 158.92534	66 Dy 162.59	67 Ho 164.93032	68 Er 167.26	69 Tm 168.93421	70 Yb 173.04	71 Lu 174.967	
			** 90 Th 232.0381	91 Pa 231.0359	92 U 238.0289	93 Np (237)	94 Pu (244)	95 Am (243)	96 Cm (247)	97 Bk (247)	98 Cf (251)	99 Es (252)	100 Fm (257)	101 Md (258)	102 No (259)	103 Lr (262)	

Conclusion

Key findings: An incredible range of opportunities naturally provided through teaching objectives.

- Value for self as well as for others
- Break the “barriers” of teaching and learning
- Assist from past experiences

But most importantly....

A motivation to keep going, persevere, and overcome new challenges.

Questions?