How to Make a Presentation (Do as I say, not as I do)

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What a presentation is

- A story
- A method to make science better (share results)
- Your chance to show off
- An interview
- A learning opportunity

The Story

- Must connect with Audience
  - Must not be too technical
- Show why the problem you are studying is important
  - motivate why you are studying what you study
- Show why your approach is good
  - What makes you different?
- Show why your results are meaningful
  - Why should they listen to you?

Text Killers

- bafasdfasdfasdfasfasdfsdafasdfasddf
- asdfasdfasdfasdasdfasdfasdfasdfasdfasd
- fasdfasdfasdfasdasdfsdfasdfasdfasdff
- asdfasdfasdfasddfasdfasdfasdfasdf
- asdfasdfasdfasdasdfasdfasdf
- fasdfasdfasdfaasdfasdfasdfasdfasdfasds
- fasdfasdfasdsdfasdfasdfasdfasdffas
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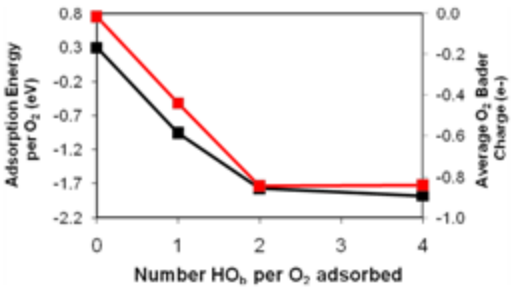
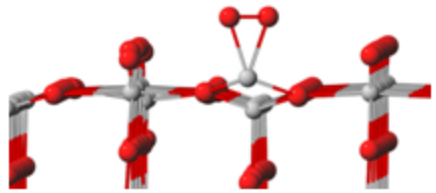
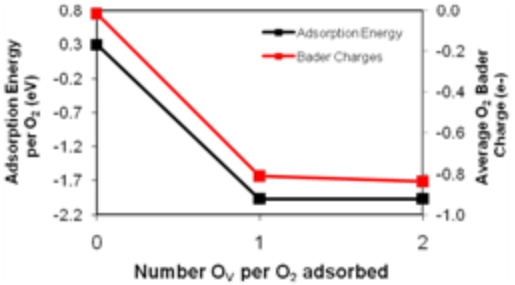
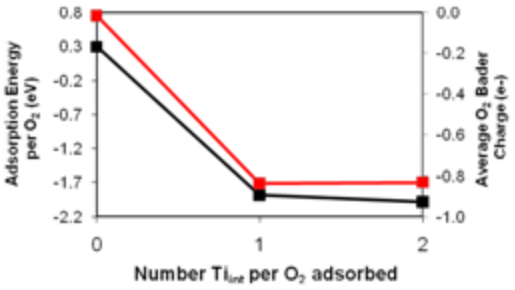
Pictures Tell Everything

Surface Adsorption/Reactivity can be Strongly Affected by Excess Electrons









Statement

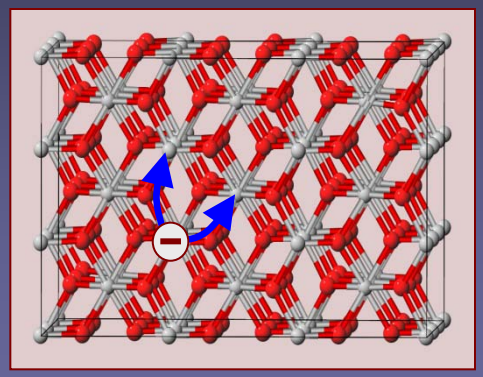
Images/ figures supporting statement

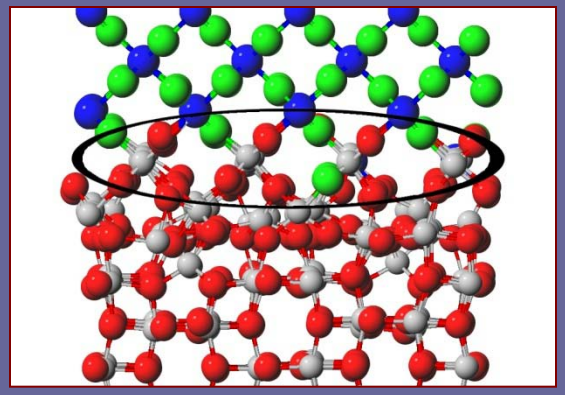
See this resource for some good examples:
http://www.writing.engr.psu.edu/presentations/speaking.pdf

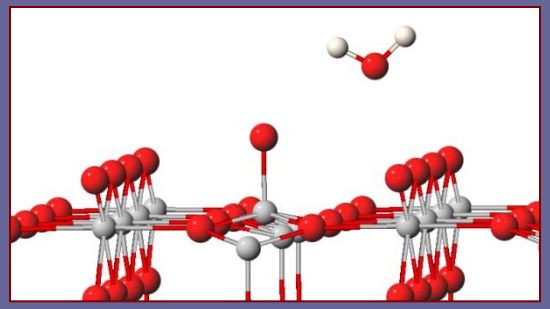
Outlines – don’t need them

- After two slides, no one will remember anything on the outline slide, and no one knows what the outline means until you show your material
- Graphical Outline is ‘ok’ for *long* presentations, but after introduction

Overview of Topics







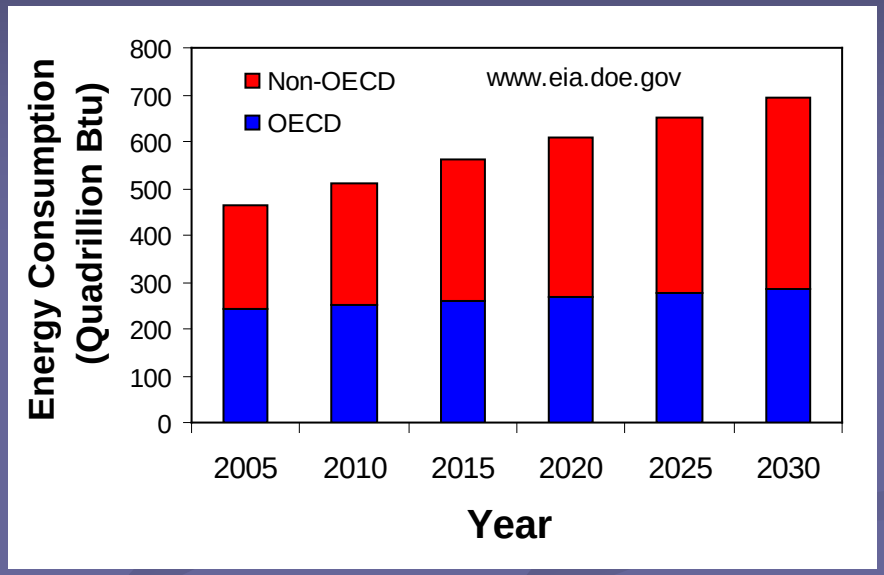
- Charge Transport
- Mixed Phase Catalysts
- H_2O/O_2 Reactivity
- Organic Molecule Reactivity

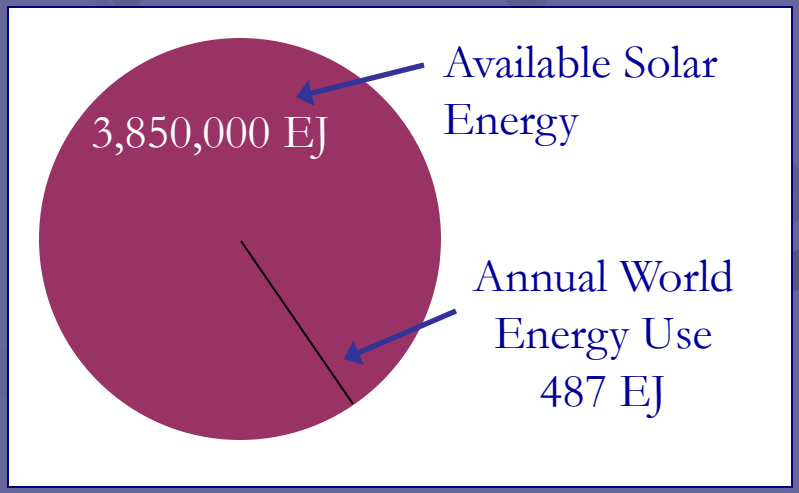
Introduction

- Tailor your introduction to your audience
  - If your audience is not in your field, spend more time on basics
  - If you audience knows your field, go more for specifics
  - Try to put your work in the context of what has already been done
  - Show why your work is important
- **Probably most important part of talk!**

Why Solar Energy?

- Energy Demand ↑
- Solar Energy
  - 'limit-less' supply
- Clean Supply

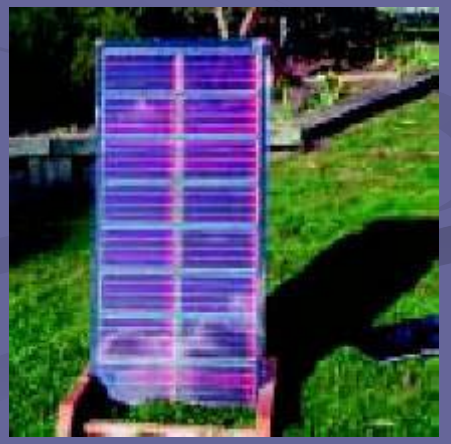




TiO_2 has many photocatalytic uses

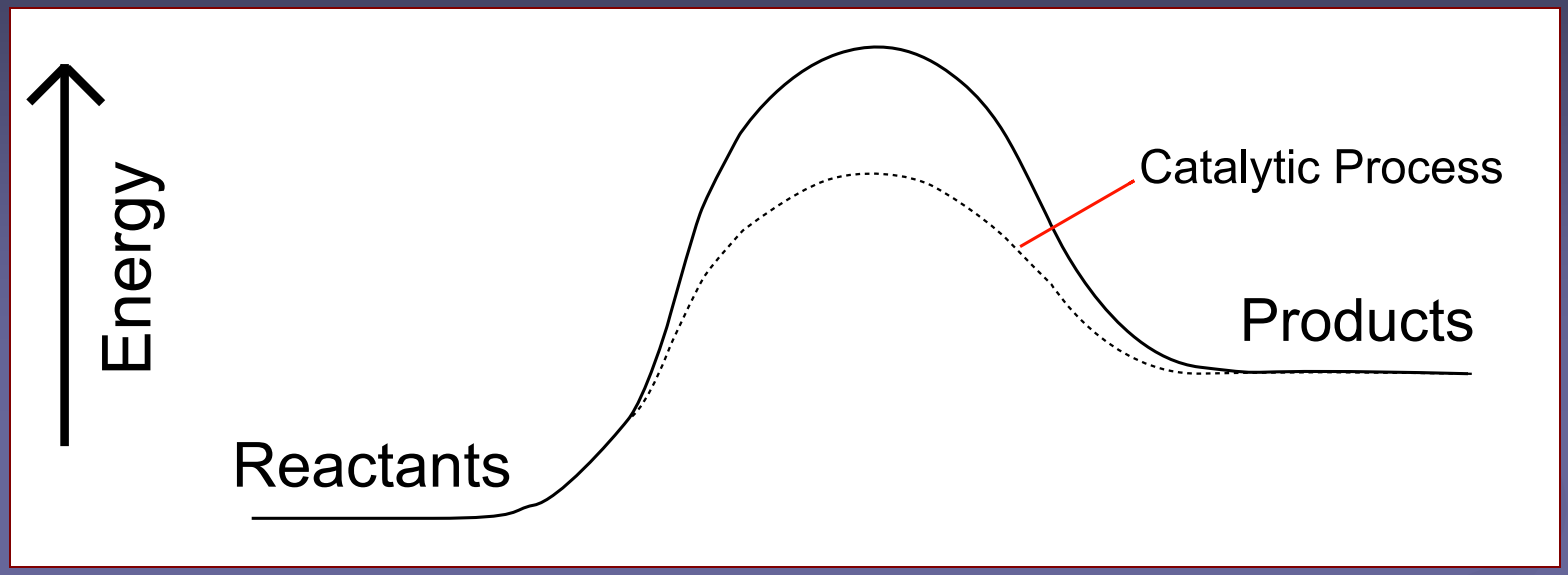
- Organic molecule decomposition
  - Wastewater treatment
  - Protective coatings
- Water-splitting
  - $H_2O \rightarrow H_2 + ½\ O_2$
- Solar cells
  - Direct electricity generation

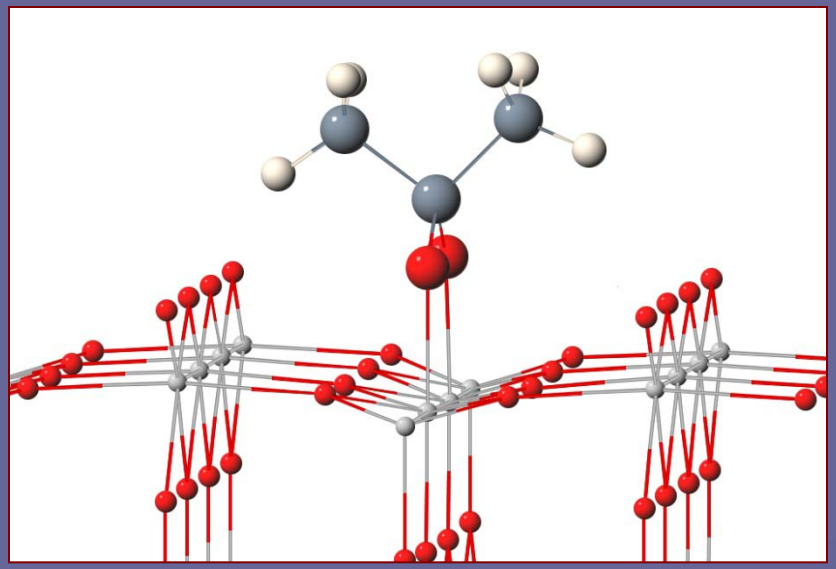
Fabric Sheet
(Kanagawa Photocatalyst Museum)

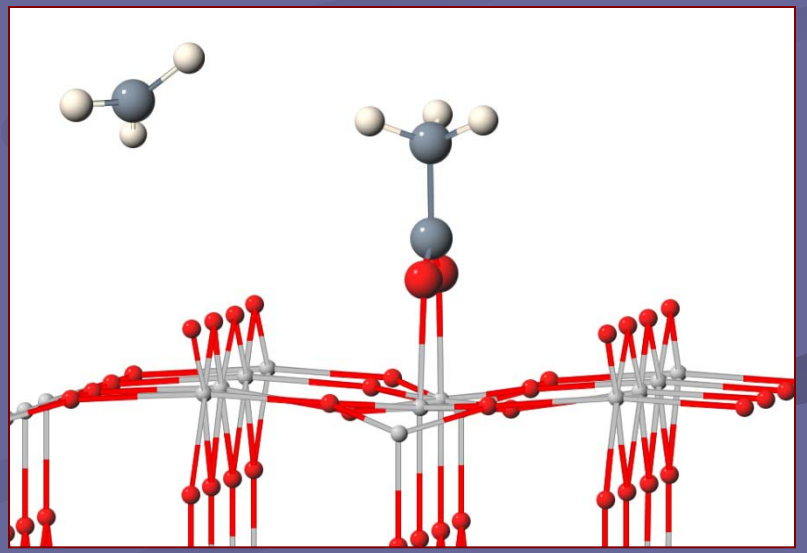


Solar Cell
(www.iea-pvps.org)

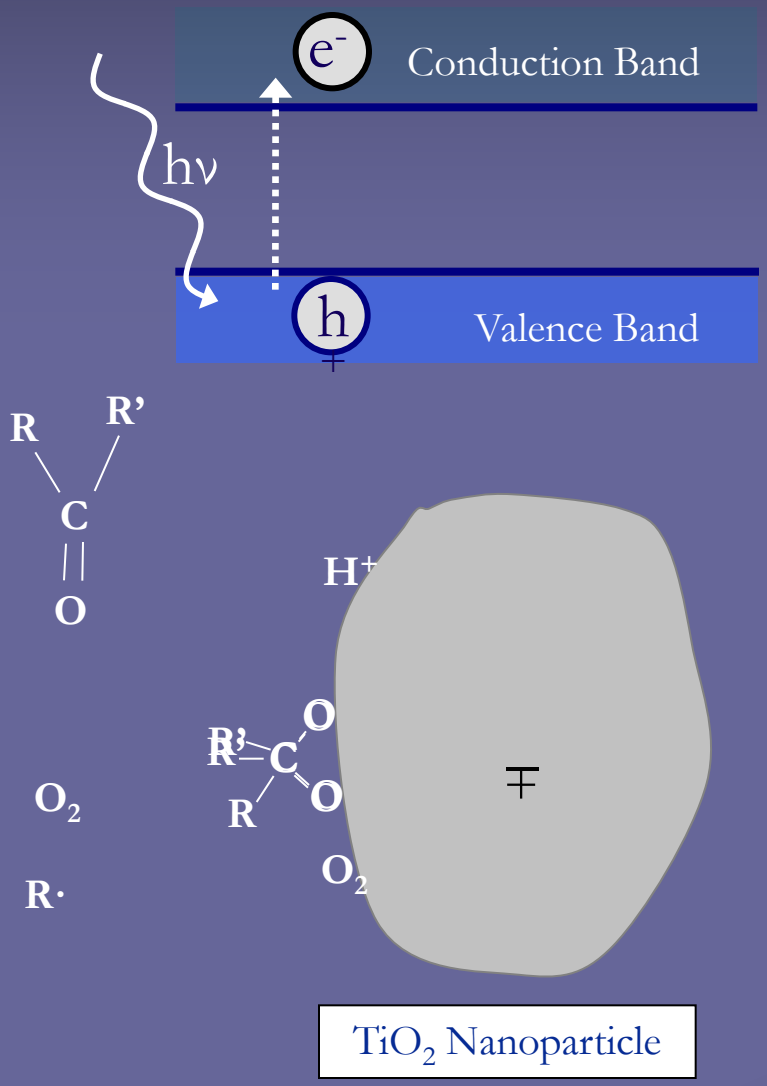
Example of catalysis







A study of the photocatalytic processes over TiO_2 could lead to better catalyst design



Photocatalytic Process Overview

1. photoexcitation
2. charge diffusion, trapping, and recombination
3. molecular adsorption and reaction

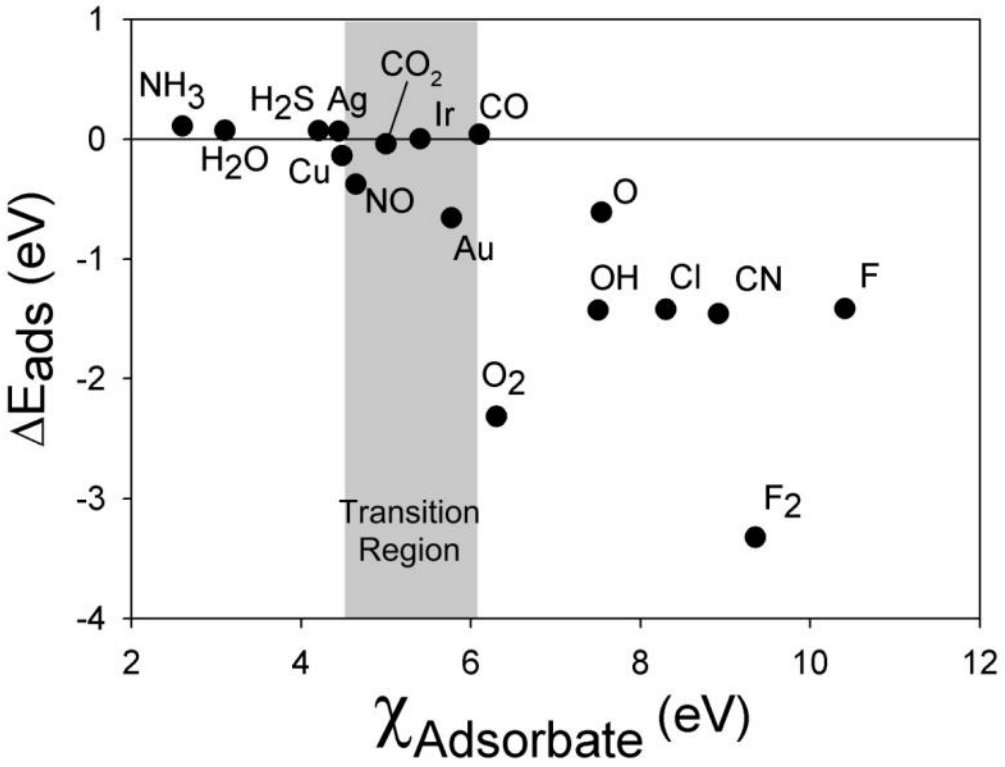
Put question that you will answer/address here

Fancy Graphic Here

Results

- Convince Audience why you are awesome!
- Present evidence for solving your problem
- Show results using graphs, figures, and occasionally figures

Adsorbate Electronegativity is Key to Electron Transfer



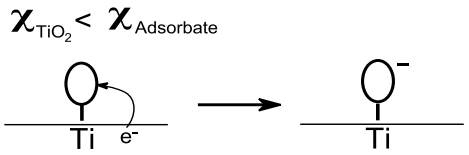
$\Delta E_{ads} = E_{ads\text{-}Ov} - E_{ads\text{-}clean}$

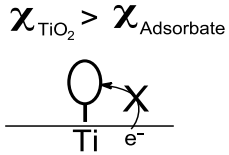
O_v has no effect on adsorption when $\Delta E_{ads} = 0$

Little electron transfer when $\Delta E_{ads} = 0$

$W_{TiO2} \approx \chi_{TiO2}$

$W_{TiO2} = 4.4\text{-}5.8$ eV



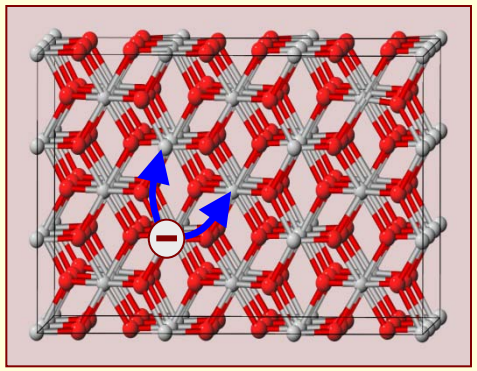


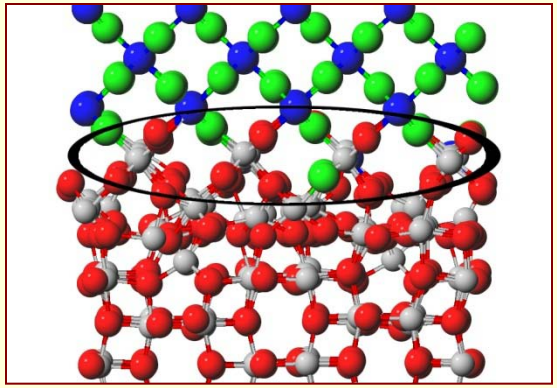
Onda, K.; Li, B.; Petek, H. Physical Review B 2004, 70, 045415.

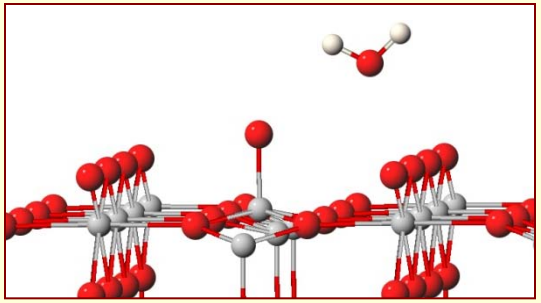
Conclusions

- Short, sweet, to the point.
- Remind audience why your research is awesome.

Summary







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Answering Questions

- Repeat the question (gives you time to think).
- If you don’t know the answer, simply say “I’m not sure, but I’ll look into it.”
- Never get into an argument.
  - “That’s an interesting point. I’ll have to think about it.”

Format (depends on time available and audience)

1 - 2 minutes per slide

Section	General Audience	Specialized Audience
Introduction	4-7 Slides	2+ Slides
Computational Details	1 Slide (overview of molecular modeling)	1-2 Slides (details of method)
Results	Multiple Slides	Multiple Slides
Conclusions	1 Slide	1 Slide
Acknowledgments	1 Slide	1 Slide
Back-up Slides	0+	0+

General Tips

- Use color and attractive graphics
- Pay Attention to Design (font size, etc.)
- Memorize the first 2 minutes of your presentation
- Show enthusiasm!
  - This is your research!
- Don’t mind criticism
- Practice, practice, practice