

BerkeleyHaas

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Experiential Learning

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CTE

How did Ferris learn?

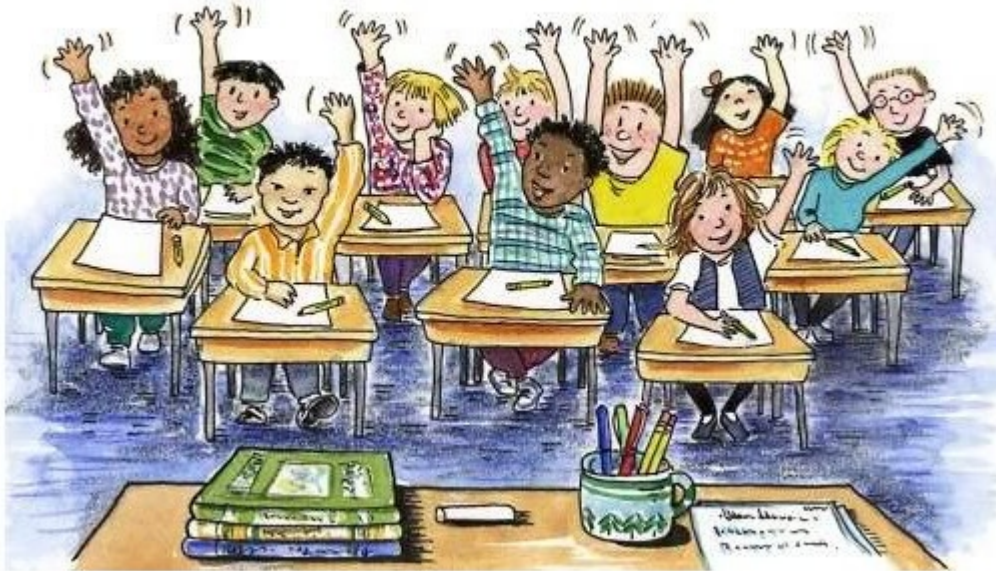


How would you make this better...



Better?

Experiential Learning in Class



TopHat Quiz

How Did That Go?

- What did you notice?
- What worked?
- Did the answer matter?

Why debrief?

- Clarity
- Engagement with classmates
- Create environment to disagree
- Opinions matter
- Drives home point through exploration



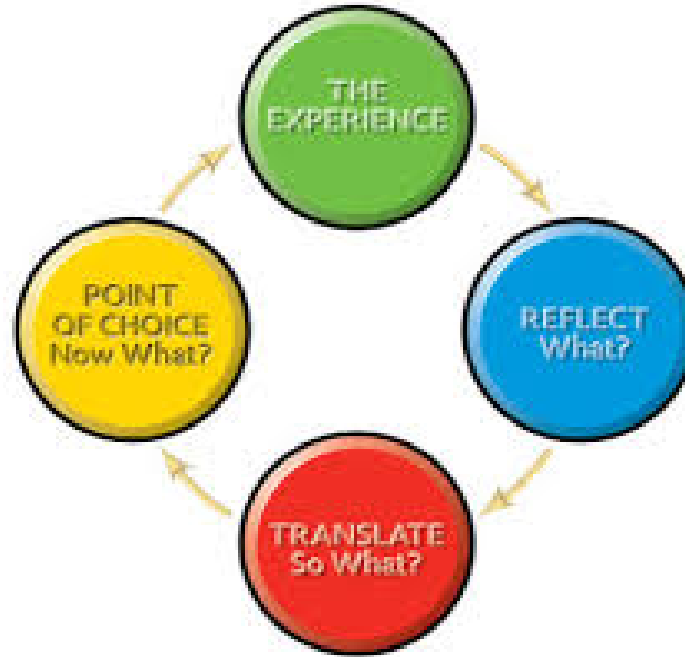
Designing EL from your notes

- What is the intent or main outcome to take away?
- What are common misconceptions people have?
- What is the question you want students to answer?
- Turn question into EL:
 - Debate-split class-pair/share-groups of 4

Let's try one on....volunteers?



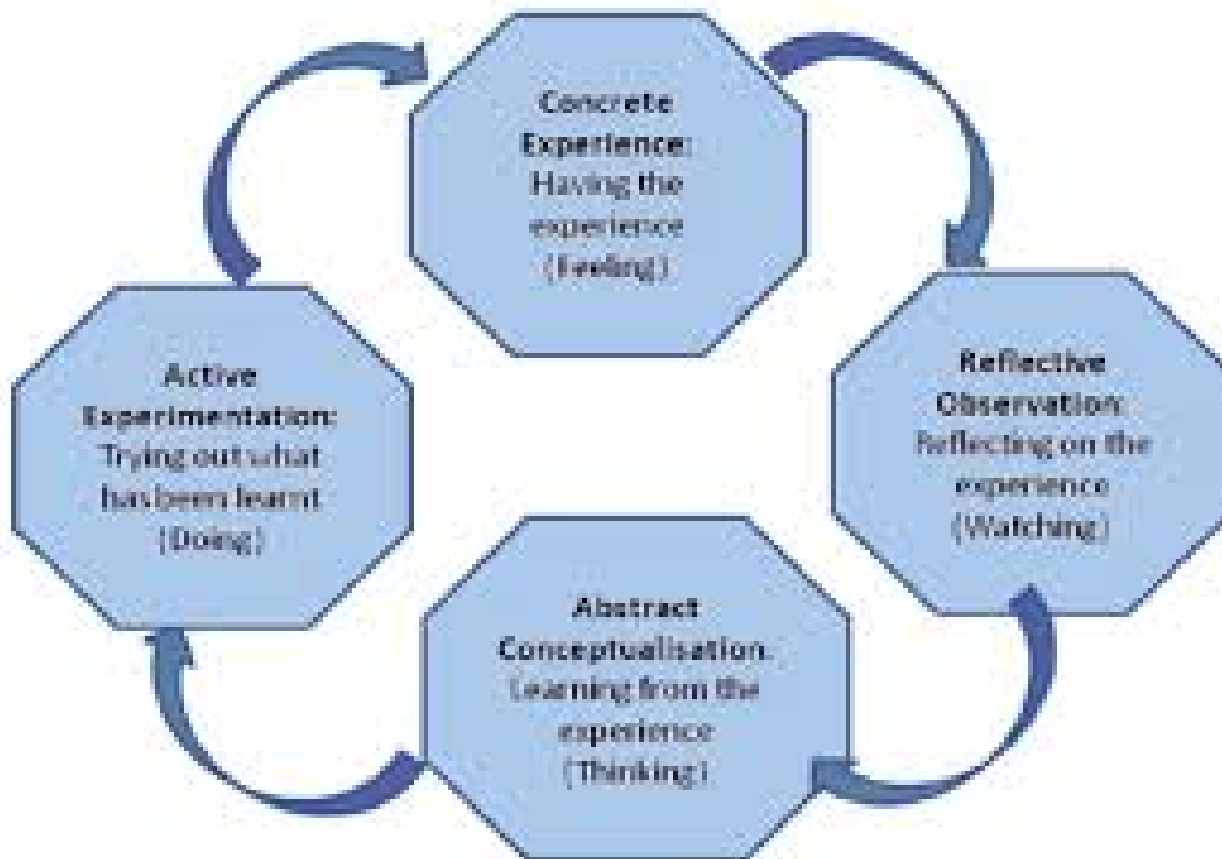
Defining EL's and why they matter...






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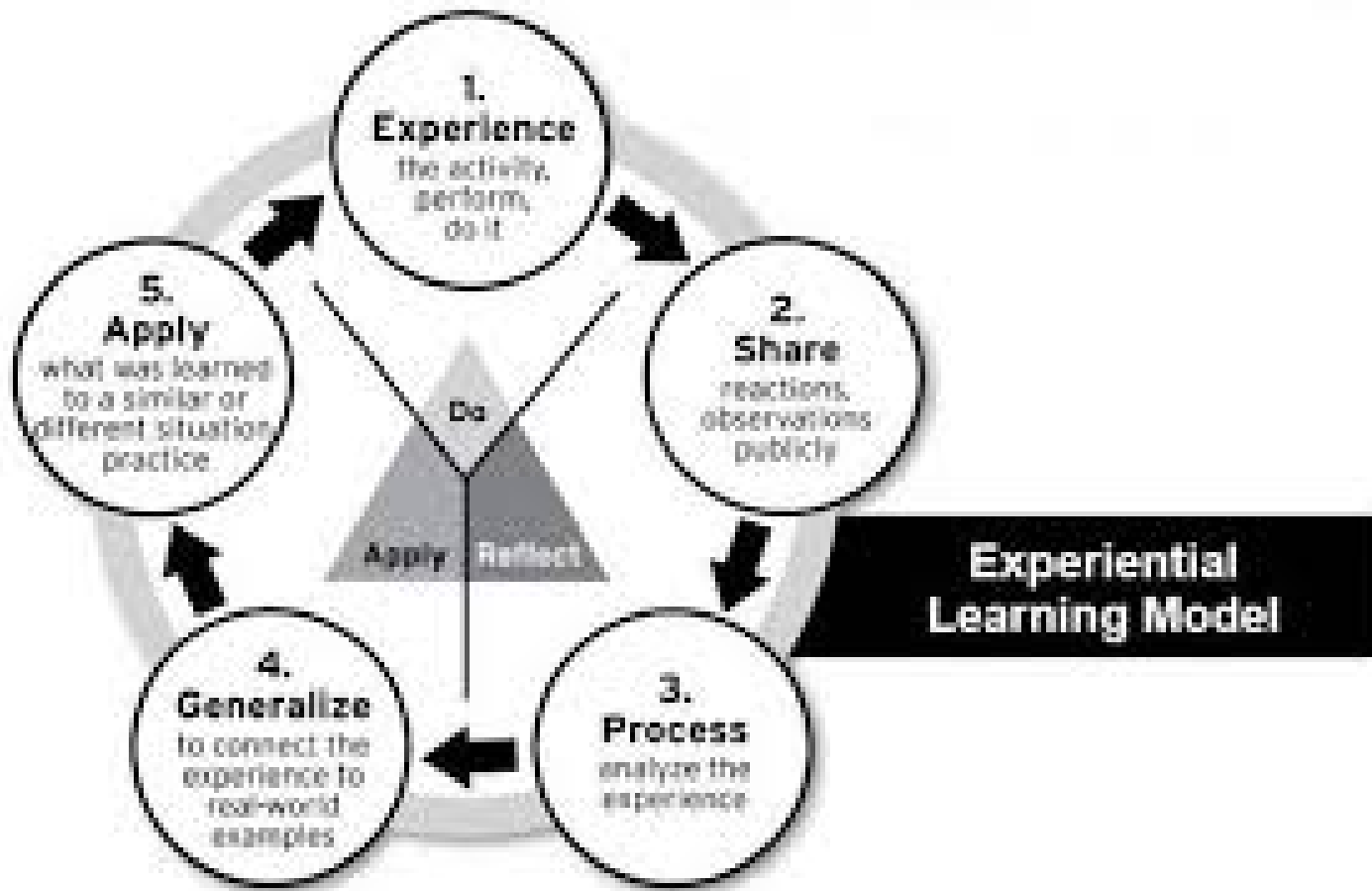
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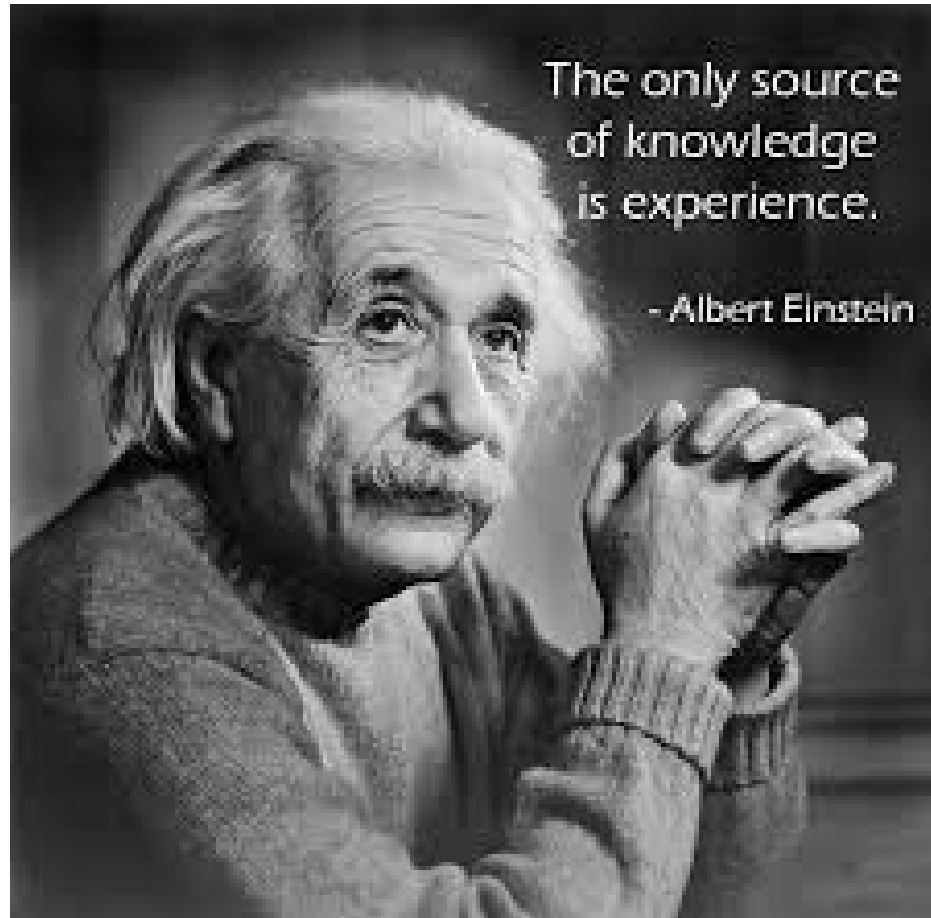


For the things we have to learn
before we can do them, we learn by
doing them.

- Aristotle, long time ago







The only source
of knowledge
is experience.

- Albert Einstein



- **Experiential learning is the process of learning through experience, and is more specifically defined as "learning through reflection on doing".**

- "Give a person a fish and they can have a meal, teach the person to catch fish and they can eat fish for a lifetime."

- I hear, and I forget
- I see, and I remember
- I do, and I understand.

—Ancient Chinese proverb



- 1) A "concrete experience" (Enfield, 2001, Kolb, 1984), where the learner is involved in an exploration, actually doing or performing an activity of some kind;
- 2) a "contemplation phase", which is usually referred to in the literature as a reflection stage (Enfield, 2001; Kolb, 1984; Pfeiffer & Jones, 1981), whereby the learner shares reactions and observations publicly and processes the experience by discussing and analyzing; and
- 3) the "application" or "conceptualization" phase that helps the learner deepen and broaden their understanding of the concept or situation by cementing their experience through generalizations and applications (Carlson & Maxa, 1998).

Another view....

- 1) A "concrete experience"
- 2) a "contemplation phase"
- 3) the "application" or "conceptualization" phase

Why...?

- Solidifies the learning
- Builds on lessons
- Easy implementation
- Required for Millennial brain
- Provides practice for super skills
 - Communication
 - Collaboration
 - Critical Thinking
 - Creativity=innovation and invention



Flipping the Class



Desirable Difficulty

Certain level of adversity to push the cognitive process....



Made to Stick....

- **S**implicity-stripping concept to it's core
- **U**nexpectedness-capture attention and hold it
- **C**oncreteness-understand and revisit idea much later-relevance
- **C**redibility-how do you get people to believe your idea
- **E**motional-How do you get people to care
- **S**taories-bringing concept to life-getting people to act

Orienting Reflex

“response to novelty”

- Physiologist Sechenov - 1850's called it “what is it?” reflex
- Change up during course
- Start with a dilemma, question, quote, reading, current event
- Intro with quiz, debate, tophat
- Responses to events in our environment
- Heightens attention and perception

We don't need no stinkin' rules....

- Curiosity comes 1st
- Embrace the mess-trial and error is good
- Practice reflection/debrief
- Questions=seeds of learning

- Intention as important as attention!

Technology



The art of 'spontaneous' EL



**Be
Spontaneous!**
You go first.

The Answer



- It's not about right answer, it's about analytical process to get to AN answer.
- There isn't always a right answer – especially in qualitative classes.
- Sometimes, there is a numerical answer.
- Take a position and defend it.
- It's the time and process that counts!

Fun & Rigor?

$x^3 + x^2 + y^3 + z^3 + xy^2 - 6 = 0$
 $\text{grad } f = \left(\frac{\partial f}{\partial x}; \frac{\partial f}{\partial y} \right)$
 $Y_{i+1} = Y_i + b_i \cdot k_i$
 $B = \begin{pmatrix} 2 & 1 & 0 \\ 0 & -1 & 0 \\ 1 & 0 & 2 \end{pmatrix}$
 $\alpha^2 = b^2 + c^2 - 2bc \cos \alpha$
 $\text{tg } x \cdot \text{cotg } x = 1$
 $2x^2 yy' + y^2 = 2$
 $x_1 = -11p, x_2 = -p, x_3 = 7p, p \in \mathbb{R}$
 $\sum_{i=0}^n (P_i(x) - y_i)^2$
 $\text{tg } 2x = \frac{2 \text{tg } x}{1 - \text{tg}^2 x}$
 $\text{tg } x = \frac{\sin x}{\cos x}$
 $\text{tg } \frac{x}{2} = \frac{1 - \cos x}{\sin x} = \frac{\sin x}{1 + \cos x}$
 $\int \int \int_M z dx dy dz = \int_0^{2\pi} \int_0^{\pi} \int_{\frac{1}{2}}^1 r \cdot r dr d\theta dz$
 $\lim_{n \rightarrow \infty} \frac{\ln^{n+1} + 1 + n}{\sqrt[3]{3n^2 + 2n - 1}}$
 $\frac{a}{\sin \alpha} = \frac{b}{\sin \beta} = \frac{c}{\sin \gamma}$
 $\lambda x - y + z = 1$
 $x + \lambda y + z = \lambda$
 $x + y + \lambda z = \lambda^2$
 $F_2 = 2x \cdot yz - 1 = 1$
 $x_1 = \begin{pmatrix} 2p \\ -p \\ 0 \end{pmatrix}$
 $(1 + e^x) y' = e^x$
 $y(1) = 1$
 $\cos 2x = \cos^2 x - \sin^2 x$
 $2 \arctg x - x = 0, I = (1, 10)$
 $\int_{-\sqrt{2}}^{\sqrt{2}} \sin^4 x \cdot \cos^3 x dx$
 $\cos^2 \alpha + \cos^2 \beta + \cos^2 \gamma = 1$
 $\partial(p_i) = \sqrt{0,16}$
 $\frac{\partial z}{\partial x} = 2; \frac{\partial z}{\partial y} = 0$
 $\vec{n} = (F_x; F_y; F_z)$
 $\frac{x^2}{a^2} + \frac{y^2}{b^2} + \frac{z^2}{c^2} = 0$
 $\sin 2x = 2 \sin x \cdot \cos x$
 $|\vec{z}| = \sqrt{a^2 + b^2}$
 $\chi \left(\frac{\partial f}{\partial x} \right) = 16 - x^2 + 16y^2 - 4z = 0$
 $A = \begin{pmatrix} x & 4x^2 & 1 \\ y & 16y^2 & 1 \\ z & 4z^2 & 1 \end{pmatrix}; x=0, y=1, z=2$
 $y' = \frac{\sqrt{y}}{x+2} = 0; y(0) = 1$
 $\int \frac{3x^3 + 166x^{-0.13}}{dx} \lim_{h \rightarrow \infty} \left(1 + \frac{2}{h}\right)^h$
 $A = [1, 0; 3]$
 $\cos \varphi = \frac{(1, 0) \cdot \left(\frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}}\right)}{\sqrt{\frac{1}{2} + \frac{1}{2}}}$



Yes, but...