The 21st Century Study Skills: Activating the Inactive Learner
Landmark College Summer Institute
June 26 - 28, 2017

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Strategies and study skills are most effective when anchored in brain-based processes of learning.

- Our brains are uniquely organized
- Learning is a physiological process
- Brain attributes meaning through pattern seeking
New Understanding of How We Learn - Day 2

Strategies and study skills are most effective when anchored in brain-based processes of learning.

- Influenced by emotions and inhibited by threat
- Learning is a developmental process
- Effect of Novelty and Learning through Gamification
Brains are Influenced by Emotions and Inhibited by Threat

Learning and Anxiety

- Stereotype Threat
- Functioning under Pressure
- Toxic Stress
Stereotype Threat: ST occurs when awareness of negative stereotype about a social group results in sub-optimal performance by members of that group. (Wheeler & Petty, 2001)

Causal mechanisms of ST – affects WM
Capacity of WM system to attend to task-relevant information is disrupted

Research: Effect on math performance by gender and racial stereotyping; spill over
Schmader & Johns, 2003
Beilock et al. (2007)

Stigmatization and Stereotype Threat among Adolescents with Learning Disability: Impacts on Cognition and Performance in Math – NSF grant awarded to CAST (Daley & Johnston)

http://resourcecenters2015.videohall.com/presentations/569
Influenced by emotions and inhibited by threat

**Stereotype Threat**: ST occurs when awareness of negative stereotype about a social group results in sub-optimal performance by members of that group. *(Wheeler & Petty, 2001)*

- How does stereotype threat manifest itself in the classroom?
  - Less academic risk-taking
  - Reduced class participation
  - Poor self-confidence – giving up easily
  - Reduced capacity for WM and overall cognitive space
Influenced by emotions and inhibited by threat

Strategies for Addressing Stereotype Threat

1. • Teach about Stereotype Threat (Johns et al. 2005)
   • Awareness helps to reduce its negative effects

2. • Provide a sense of belonging and community; value affirmation
   • Opportunities for positive peer group interactions

   • Promote diverse perspectives and perspective taking
   • Create an inclusive environment; “safe space to fail”
   • Give “wise feedback” (Yeager et al. 2013)
Influenced by emotions and inhibited by threat

Changing Mindsets and Creating a Safe Space to Fail

- **Everyday interactions**
  - Verbal feedback from valued adults – praise
  - Framing of critical feedback
  - Talking about differences as part of group strength; rather than individual weaknesses

- **Theory Based Interventions**
  - Micro videos on neuroplasticity and visualizing neural growth

Source: [https://labs.la.utexas.edu/adrg/files/2013/12/Yeager-et-al-RD-agenda-6-10-131.pdf](https://labs.la.utexas.edu/adrg/files/2013/12/Yeager-et-al-RD-agenda-6-10-131.pdf)
I teach a college level course in sociology at a small private school. My students come from diverse backgrounds and many have LD, ADHD or ASD. I had a situation in class the other day which, I am not sure I handled as I would have liked to have done.

We were having a discussion on the merits and demerits of social media and one student (let’s call him Sean) made a comment, to which another student (let’s call him Mark) took immediate objection. Mark said in a loud voice that Sean simply did not have all the facts to make such a statement, which was true. He added that Sean was being ignorant in making such a comment. Mark’s point was correct. Mark was not rude but bordering on rudeness.
Influenced by emotions and inhibited by threat

Case study – Diverse Perspectives

I immediately took the opportunity to talk to the class about respecting each other’s point of views. But Sean was crestfallen. He did not speak at all for the rest of the class. He has almost stopped participating in class since the incident. Sean is on the Spectrum. I have thought about talking privately to Sean, but I am not sure whether it will make him feel more isolated.

I would love to hear how you would have addressed situations like this in your class.

SMALL GROUP ACTIVITY
Influenced by emotions and inhibited by threat

Functioning under Pressure

- Ongoing stress causes neurological exhaustion; which changes brain chemistry and brain function (J. Schultz, 2011)
- Students under constant stress start to disengage
- Appear as unmotivated, disinterested and oppositional
- Strategies to help students cope with stress as precursor to engaging in study skills
- (Schultz, 2011, *Nowhere to Hide: Why Students with ADHD & LD Hate School and What We Can Do About It*)
Influenced by emotions and inhibited by threat

Functioning under Pressure

Case Study:
John is preparing for the MCAT exams. He has his heart set on medical school for years. His grades are good on the courses, but he has not done well on the exam practice tests for the MCAT. If he doesn’t do well on the test, his options for medical school will be very limited despite good grades.

He has a limited number of weeks of study time before he takes the test. John is stressed about managing study time, performance anxiety; and he has a diagnosis of OCD, LD and ADHD.
Influenced by emotions and inhibited by threat

DE-STRESS model (Schultz, 2011)

<table>
<thead>
<tr>
<th>D</th>
<th>Define - the issues and understand the individual LD/ADHD profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>Educate - all stakeholders about LD and ADHD</td>
</tr>
<tr>
<td>S</td>
<td>Speculate – Helping students see beyond the immediate; learn to look ahead</td>
</tr>
<tr>
<td>T</td>
<td>Teach – Strategies, techniques, to minimize frustrations and maximize success</td>
</tr>
<tr>
<td>R</td>
<td>Reduce Threat – Teach students to recognize and de-activate stress triggers</td>
</tr>
<tr>
<td>E</td>
<td>Exercise – Regular and rigorous physical activity; sleep and nutrition</td>
</tr>
<tr>
<td>S</td>
<td>Success – Many opportunities to demonstrate and experience success</td>
</tr>
<tr>
<td>S</td>
<td>Strategize – Plan for maintaining reduced stress situation and future successes</td>
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Learning is developmental

- Limbic system develops before the pre-frontal cortex; full range of executive function skills are last to develop

- **Paradox of the teenage brain**
  - Adolescent synaptic plasticity is way better than adults; but it is not yet fully developed (Jensen, 205)

- Teenage brain is more primed for addiction than adults
Avoidance Behavior and Habits

Does this sound familiar?
Student hasn’t completed the homework so she misses going to class. Next week, she has still to complete the work, so she misses class again; and yet again. Now she is failing the course and is in deep trouble.
The Power of Habit
Strategies for Study Habits (group activity). Think of a student you are working with and a habit you would like to change. What cues and rewards can you implement to change the habit?

<table>
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<th>Cues</th>
<th>Rewards</th>
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Banerjee & Brinckerhoff, 2017
Strategies for Study Habits (group activity). Think of a student you are working with and a habit you would like to change. What cues and rewards can you implement to change the habit?

<table>
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<tr>
<th>Cue</th>
<th>Habit or Behavior</th>
<th>Reward</th>
</tr>
</thead>
<tbody>
<tr>
<td>Checking text messages on phone</td>
<td>Checking text messages on phone</td>
<td>Reward</td>
</tr>
<tr>
<td>Procrastination on homework</td>
<td>Procrastination on homework</td>
<td>Reward</td>
</tr>
</tbody>
</table>

Banerjee & Brinckerhoff, 2017
Unlearning

Changing mindsets and unlearning has a lot to do with identity. “The way we see ourselves and the way that others see us is threatened when we are asked to do something different.” — Marga Biller, Director, Harvard Innovations Lab

- Do I need to think, behave, do, or perceive in a new way?
- Is there previous learning that is getting in the way of my thinking, behaving or perceiving in new ways?
- Is what I am trying to learn (change) a threat/challenge to my identity, to how I see myself or how I see the world?
- Would trying harder give me the results I am looking for or might it create more entrenchment?

https://ww2.kqed.org/mindshift/2017/06/23/why-unlearning-old-habits-is-an-essential-step-for-innovation/?utm_medium=Email&utm_source=ExactTarget&utm_campaign=20170625Mindshift&mc_key=00Qi000001WzPV4EAN
“Mr. Osborne, may I be excused?  
My brain is full.”
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Novelty and Gamification

Our brains are programmed to pay attention to what is novel; survival mechanism

When learning occurs accidently or as a by-product of exploration, it is fun!

Learning that is framed as a “quest” is automatically engaging

Today’s formal education is efficient, but not often engaging

It may be time to reinvent instruction and think in terms of gamification and game based learning

Banerjee & Brinckerhoff, 2017
Why are games engaging?

- Most perceive them as fun; do not have high stakes consequences
- Involve “achievable challenge”
- Have an element of chance
- Immediate feedback on performance
Novelty and Gamification
Novelty and Gamification

Gamification

- Adoption of game-like principles within the instructional context
- Rezzly - [http://rezzly.com/](http://rezzly.com/) (content creation platform for quests)

Game-Based Learning

- **Game-Based Learning**, on the other hand, means including games, often “video games” in your instruction.
Gamifying your Course - Example

Elements of the course/study skills can be designed as a quest in which students earn badges to display on their virtual mantels. They can level up based on game performance and those who excel can earn a place on the leaderboard.

Source:
http://community.mis.temple.edu/stevenljohnson/2012/05/19/gamification-of-mis3538-social-media-innovation/

Gamification for nursing program:
http://med.stanford.edu/sm/archive/sicko/game/SICKOTitle.html
Examples

https://www.nobelprize.org/educational/literature/golding/

Grading Game

Leaderboard

- Primary purpose of leaderboards is to show the players where they stand/rank in a gamified system.
- The opportunity to rise up the ranks is enticing to many students used to playing video games.
- By diversifying the Leaderboard, students get opportunities to excel at different tasks

Examples:

- **Best Guess Rewards**
- **Most Creative Inaccurate Answer**
- **Pinterest** – pins are visual bookmarks
Gamifying your Course - Recommendations

- Make students co-creators of the design of your course/study session

- Make it competitive, but .....
  - Competition that is encouraging, without being too competitive
  - Include elements that reward effort, strategy, and have probability/chance

- Capitalize on technology affordances
  - Top Hat Blog: [https://blog.tophat.com/gamified-learning/](https://blog.tophat.com/gamified-learning/) (Pros and Cons)
How Individual Studying can be Gamified

Games are supposed to entertain; how can the same principles be applied to studying?

1. Determine what kind of game *(self; another peer; group)*

2. Why do you like it? *(fun, more effective way of studying/being engaging)*

3. What will be your reward system *(break, leisure time, retail therapy, video game time)*
How Individual Studying can be Gamified

Games entertain; how can the same principles be applied to studying?

- Incorporate a **narrative** into your studying
- Encourage **micro-learning of high yield facts**
- Make active use of **rewards schemes and leader boards**
- Change the way you **refer to studying** (novice, master)
- Find ways to get **instant feedback** (cute kitten site)
- Create a **gamified study environment** (act out the reading; build an essay)
- **Empower** learners to feel like heroes
Resource of Games and Gamification in the Classroom

https://ww2.kqed.org/mindshift/tag/games/
Group Activity

Can you think of ways to gamify:

- Note-taking
- Reading comprehension
- Time-management
- Writing
End – Day 2

Question and Answers