Faculty Collaborations to Implement Evidence-Based Teaching Strategies to Promote Student Engagement and a Scholarly Faculty Identity

Panel Organizer & Moderator: Sheila Tabanli

Panelists: Saiju Patel ✺ Lena Sandberg-Golden ✺ Lyra Stein ✺ Michael Woodbury

Panel Agenda

Agenda Item	Timing (Per Panelist)
Introductions	1-3 minutes
RR2PG-Based Instructional Strategy/Activity	3-5 minutes
Glows & Grows	~ 5 minutes
Opportunities for Teaching Faculty!	1-2 minutes
Q & A	~ 5 minutes

Panel Proposal

When teaching faculty is engaged in scholarly work such as the science of learning and then purposefully implements evidence-based teaching practices, this creates a win-win-win situation for faculty, students, and the institution as a whole. The panel will discuss how the panelists found a collaborative space to learn and professionally grow together to further support their students' active learning, their professional growth, and their disciplines. The panel will share the evidence-based teaching strategies that the panelists learned about and incorporated in their courses while participating in a collaborative, non-hierarchical semester support group, Reducing the Research to Practice Gap (RR2PG), as developed by Dr. Sheila Tabanli and funded by the NSF TEN Grant (Rutgers' Teaching Excellence Network). Faculty from multiple campuses and disciplines will share their transformations to their classroom practices, fostering students' active learning grounded on cognitive science research. The key takeaways from our panel include: (1) Reducing the gap between research in effective teaching and the actual teaching practices in a collaborative environment supports faculty as well as their students in various disciplines. (2) Collaborating with faculty from diverse backgrounds improves faculty's active engagement in the science of learning which in return positively affects students' active learning. (3) Implementing life-long learning principles into professional practices fosters a scholarly faculty identity for faculty while enabling them to develop empathy for their students in their classrooms. (4) Gaining insights from the lived experiences of panelists from various disciplines guides the participants into how these transformations could be adopted into their teaching practices for active student learning. Panelists will also share their moments of excitement and the challenges they face as they shift their classrooms into more evidence-based, active learning spaces aligned with their unique teaching styles.

Key Takeaways

#1

Bridging R2P Gap

Reducing the gap between research in effective teaching and teaching practices.

#2

Active Faculty Collaborations*

Collaborating with faculty from diverse backgrounds improves active engagement.

#3

Develop Empathy for Students

Fostering a scholarly faculty identity (Relate to novice experiences).

#4

Activate Student Learning

Adapting into various courses/disciplines for active student learning.

* Multi-disciplinary, cross-campus, non-hierarchical semesterly faculty support group, Reducing the Research to Practice Gap (RR2PG) developed by Dr. Sheila Tabanli.

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Faculty Collaborations (RR2PG) Group

Group Goals & Meeting Schedule

Our Group Goals

1. to reduce the research to practice gap by learning about the instructional framework developed by Dr. Sheila Tabanli that is grounded on cognitive science principles and social emotional learning methods,
2. to develop a professional development plan using SMART goal setting template and develop a peer accountability group, as it relates to this group's goals. This document could be included as a supporting document for the teaching portfolio,
3. to think critically about the current teaching practices to identify two-three actionable strategies to explicitly integrate into your classroom from a research-based perspective,
4. to conduct a peer observation focused on the group's goals and complete a provided peer observation template,
5. to disseminate experiences and findings
   - (**Deliverable**): write a SIMPLE design memo summarizing your teaching implementation and experiences – may choose to publish on the TEN website.
   - (**Optional**): continue to collaborate with group members beyond the semester to co-author a multi-disciplinary journal publication without the need for an IRB

Meeting Schedule

- ZOOM Link
- 1. Wednesday, Feb 14 (1:30-2:30pm)
  2. Wednesday, Feb 21 (1:30-2:30pm)
  3. Wednesday, Mar 6 (1:30-2:30pm)

     Spring Break – No Meeting (Wed, Mar 13)

  4. Wednesday, Mar 20 (1:30-2:30pm)
  5. Wednesday, Mar 27 (1:30-2:30pm)
  6. Wednesday, Apr 17 (1:30-2:30pm)
  7. Wednesday, Apr 24 (1:30-2:30pm) ***Participant Presentations***
  8. Wednesday, May 1(Celebratory Event, TBD, ***thanks to TEN Grant PI Mary Emenike for covering the lunch costs!***)

Faculty Collaborations (RR2PG) Group Activities

- SMART Goal Setting/KWL Chart
- Reading tasks
- Writing tasks
- Peer observations
- SIMPLE design memo
- Final presentations & peer feedback
- Celebratory event

Framework for Incorporating Cognitive Science & SEL Principles Into Instruction*

* Manuscript in writing

By Dr. Sheila Tabanli

Prior to Class	During Class	After Class
• Priming Effect. • Retrieval Practice.	• Retrieval Practice. • Dual coding. • Chunking. • Elaborative Interrogation.	• Retrieval Practice. • Pomodoro. • Spaced Repetition. • Interleaving.

Social Emotional Learning (SEL)

Meet Your Colleagues

Sheila Tabanli

Saiju Patel

Lena Sandberg-Golden

Lyra Stein

Michael Woodbury

Reducing Research2Practice Gap (RR2PG) Community of Practice for RALS 2024 Panel

Saiju Patel

Math 112: Precalculus Part 2

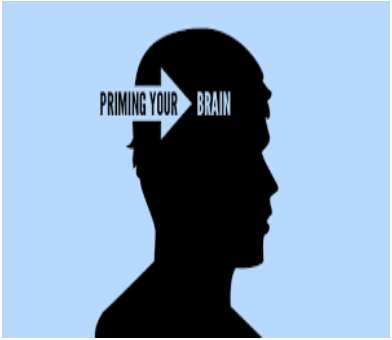
Using Retrieval Practice to enhance students learning by actively recalling the concepts learned.

- Five minutes in-class quizzes worth one point on canvas at the end of the lecture which was based on the material covered during the lecture.
- Encourage class participation.
- Encourage concentration during the lecture.
- Motivate to attend lectures.

Saiju Patel

Math 112: Precalculus Part 2

Using Priming Effect to help students grasp the concept by repeatedly going over the topic.



- Students were expected to watch a short 7-10 minute video related to the lecture topic posted on playposit and take a point quiz incorporated within the video.
- The quiz graded on correctness not completion.
- Priming them by giving quick mini-lecture on that topic which allowed me to do more problems in my class.

Lena Sandberg-Golden - 01:355:101 College Writing

Chunking in the Writing classroom

WHAT IS IT?

🧩 Breaking down information into smaller more manageable pieces, recognizing patterns that could be applied to future learning

🧩 A strategy for making more complex concepts/readings/tasks more approachable

🧩 Specifically for writing intensive courses, chunking can increase reading comprehension of more complex texts as well as reducing cognitive load for the student and allowing for a deeper comprehension

Lena cont.

WHY?

🧠To enable students to learn more efficiently by breaking down complex concepts/readings/tasks into more manageable pieces
🧠To foster more self-confident learners
🧠As a group activity (jigsaw chunking), when combining skills and learning types, chunking proves to enhance learning (Esnavy, 2016) (Hijikata, 2005)
🧠Students will be able to apply chunking strategies to all future learning of complex texts and concepts regardless of discipline

Lena cont.

HOW?

✏️ Students break down complex texts into more manageable chunks or are assigned just a chunk at a time

✏️ By focusing on a chunk the student's cognitive load is reduced which enables the student to engage in deep-reading and analysis

✏️ As all chunks come together the bigger picture will be more apparent

Lyra-Enhancing Learning through Small Group Case Studies

objective: Leverage small group dynamics in large lectures to explore complex psychopathology case studies, enhancing understanding and engagement.

Psychopathology 01:830:340 265 students

Preparation:

- Each student independently reviews assigned readings and materials on psychopathology.
- Complete pre-group annotations focusing on key concepts, critical questions, and initial interpretations.
- Annotations aim to prepare students with diverse perspectives and foundational knowledge for effective group discussions.

Lyra-Enhancing Learning through Small Group Case Studies

Small Group Dynamics:

- Form groups of 6 students to integrate individual insights and tackle real-world psychopathology scenarios.
- Discuss annotations and apply collective knowledge to develop multifaceted approaches to the cases.
- Focus on elaborative integration, actively synthesizing diverse viewpoints to deepen understanding.

Lyra-Skills Development in Active Learning Groups

In-Person Communication:

Emphasize the role of effective communication skills including active listening, clear articulation of ideas, and constructive feedback.

Emotional Intelligence:

- Foster emotional intelligence by encouraging students to recognize and respect emotional cues and responses within the group.
- Apply emotional insights to facilitate smoother interactions and conflict resolution, crucial for maintaining group cohesion and fostering an inclusive learning environment.

Using Flashcards to assist with "chunking" (Mike W.)

Courses: Math 354 (Linear Optimization) and Math 348 (Cryptography)

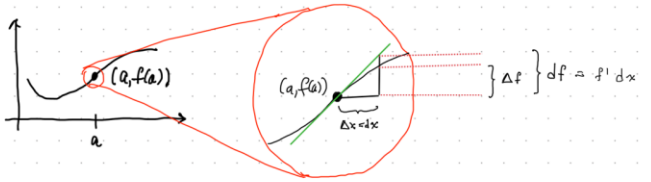
While novices see steps of a process as disconnected parts, experts see them as part of a larger *chunk*. How can we encourage and facilitate the process of chunking?

- Focus on the topics you want to chunk.
- Understand the basic idea. (Is there a diagram or a flow chart that helps connect? Quiz yourself. Don't rely on just on the answer. Relate to prior/future ideas.)
- Harness the power of retrieval practice.
- Specific classroom activities/practices: think/pair/share, modeling, returning to prior concepts (just-in-time), low-stakes quizzes.

Front Side

Using linearization of a function f near a as an approximation

Back Side



Equation for tangent line to $y=f(x)$ at $(a,f(a))$:

$$y - f(a) = f'(a)(x-a)$$

Rearrange, $y = \boxed{L(x) = f(a) + f'(a)(x-a)}$

Linear approximation to f

When x is close to a $\quad f(x) \approx L(x)$

Example: Use linear approximation to estimate $\sqrt[3]{26}$. We take $f(x) = x^{1/3}$ and $a = 27 \Rightarrow f(a) = f(27) = 3$ $\quad f'(x) = \frac{1}{3}x^{-2/3} = \frac{1}{3(\sqrt[3]{x})^2} \Rightarrow f'(a) = f'(27) = \frac{1}{3\cdot 3^2} = \frac{1}{27}$

$L(x) = 3 + \frac{1}{27}(x-27)$ Hence $\sqrt[3]{26} = f(26) \approx L(26) = 3 + \frac{1}{27}(-1) = 3 - \frac{1}{27}$.

Opportunities for Teaching Faculty

- Please check your email actively!
- (TEN) Teaching Excellence Network Semester Support Group for Faculty (Join my RR2PG SSG) 
- Chancellor Teaching Fellowship
- Classroom Inclusivity Series - OTEAR Digital Badges
- “Introduction to Learning Analytics for Instructors” OTEAR digital badge
- Faculty Diversity Collaborative Cohorts, Team Grants
    - U-Soar (Untenured Faculty - Sense of belonging, Openmindedness, Advocacy, Retention) Network
- Research2Practice Fellowship
- Campus Partner for Career Exploration and Success

Q & A